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DATE: October 6, 2025

RE: Clairemont Community Plan Update – Mobility Technical Report (MTR)

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This technical memorandum documents the traffic operations analysis conducted for the Clairemont Community Plan Update (CPU) (hereinafter referred to as the “Clairemont CPU” or “Proposed Plan”). This Mobility Technical Report (MTR) summarizes the physical and operational conditions of the planned mobility system outlined in the Clairemont Mobility Element. This report is one component of the Clairemont CPU, identifying the planned mobility improvements and culminating with an analysis of all travel modes under the Proposed Plan conditions for the horizon year 2050.

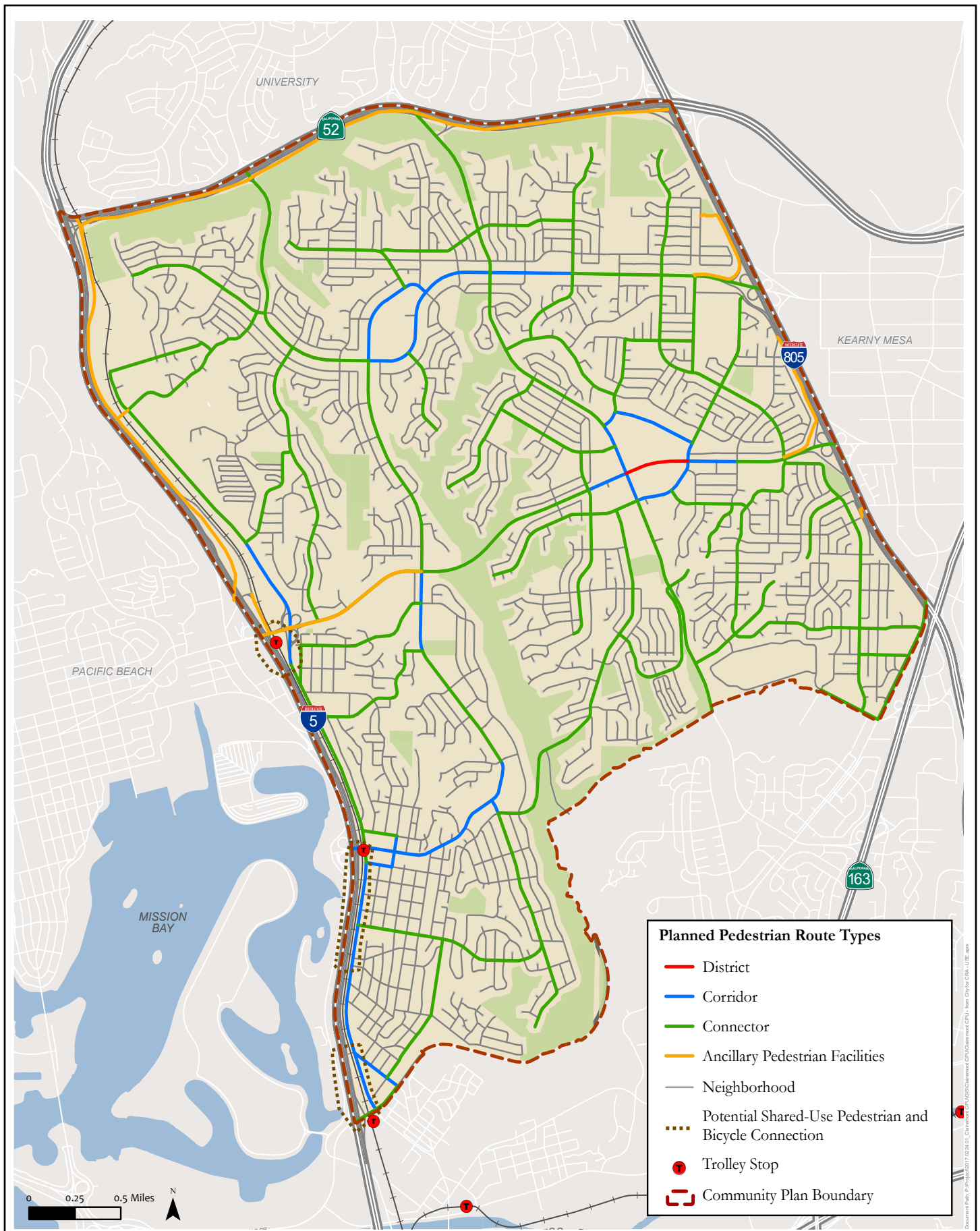
## Introduction

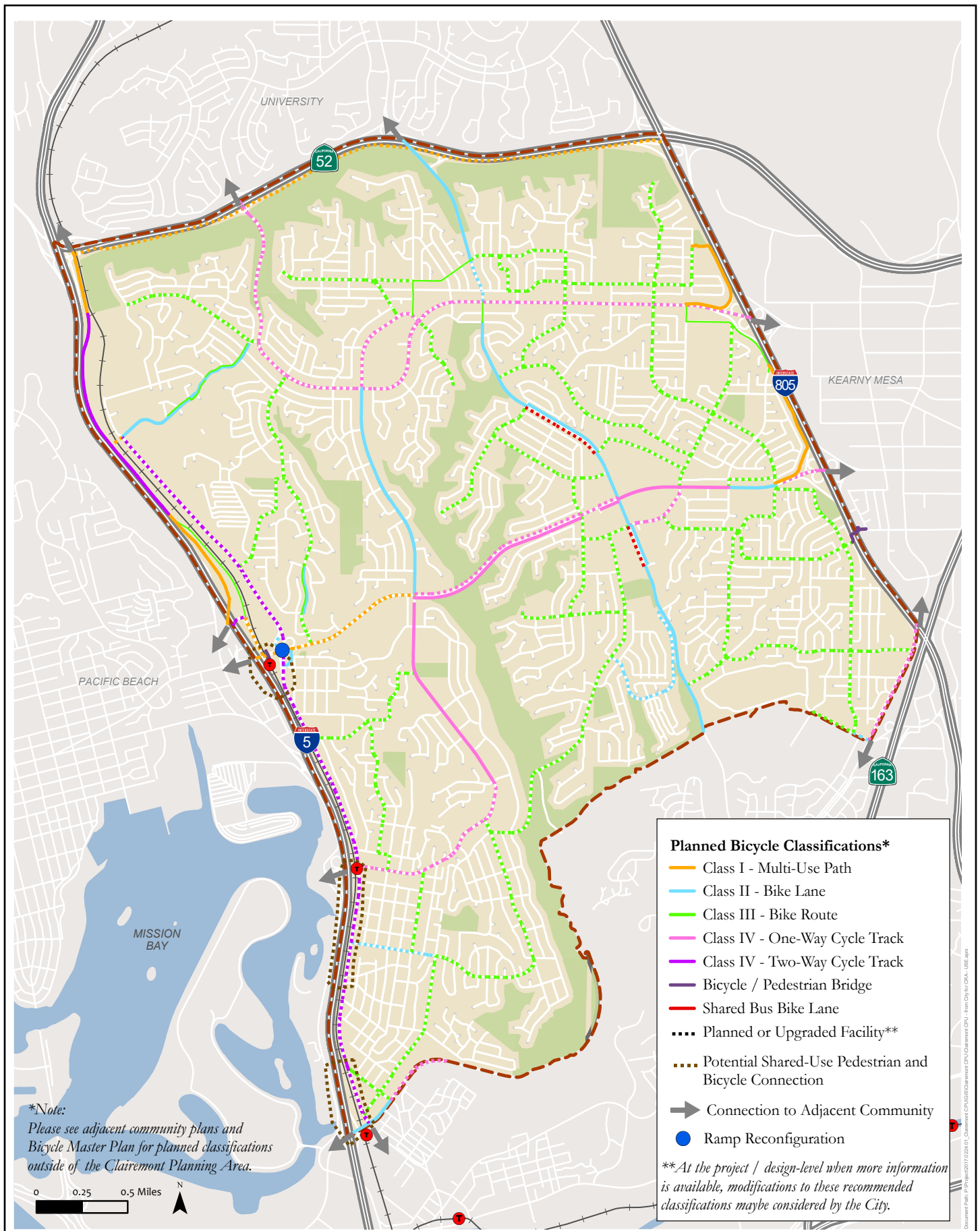
The Mobility Technical Report (MTR) for the Clairemont CPU incorporates the proposed changes within the mobility element network, which includes enhancements to the active transportation, transit, and roadway networks. **Figure 1** displays the planned pedestrian route types, **Figure 2** displays the planned bicycle network by classification, and **Figure 3** displays the planned roadway network classifications within the Clairemont CPU study area. Intersection geometries were also modified to reflect the envisioned Clairemont CPU network changes and displayed in **Figure 4**.

It is important to note that since commencement and ongoing effort of the Clairemont CPU, the City has adopted the Blueprint San Diego Initiative (Blueprint SD). This forward-thinking strategy for citywide planning, proactively identifies Climate Smart Village Areas, which are locations where the City supports increased development capacity aligned with planned regional transportation network investments. By establishing a strategic citywide land use and policy framework, Blueprint SD guides future growth to help achieve the City's housing, climate, and mobility goals. It also lays out the groundwork for CPUs to focus and enhance growth within the Climate Smart Village Areas, while still allowing each CPU to define specific land use changes and make infrastructure recommendations that reflect the unique long-term vision and development objectives of each community.

The Clairemont CPU's traffic analysis and most of the development of this MTR predate the Blueprint SD effort. As such, the traffic volumes analyzed and documented in this report are based on the SANDAG Series 13 Activity-Based Model (ABM), which was the model available at the time and was further locally calibrated and customized for the Clairemont CPU. To provide insights and understanding of the model traffic forecasts, supplemental analyses were conducted comparing outputs in the Series 13 ABM, the Blueprint SD model, and the adopted SANDAG Regional Plan (RP) shelf model. The comparisons conducted specifically to the Clairemont community found that, on average, Blueprint SD traffic volumes were lower than those generated by the Series 13 ABM used in the Proposed Plan analysis. Therefore, the analysis presented in this MTR is considered a relatively conservative assessment of the Clairemont CPU.

**Attachment A** includes a supplemental analysis of key hotspot locations within the Clairemont CPU study area. This analysis assessed differences in traffic operations between the Clairemont CPU and Blueprint SD scenarios and determined that no updates to the recommended Clairemont CPU network are warranted.

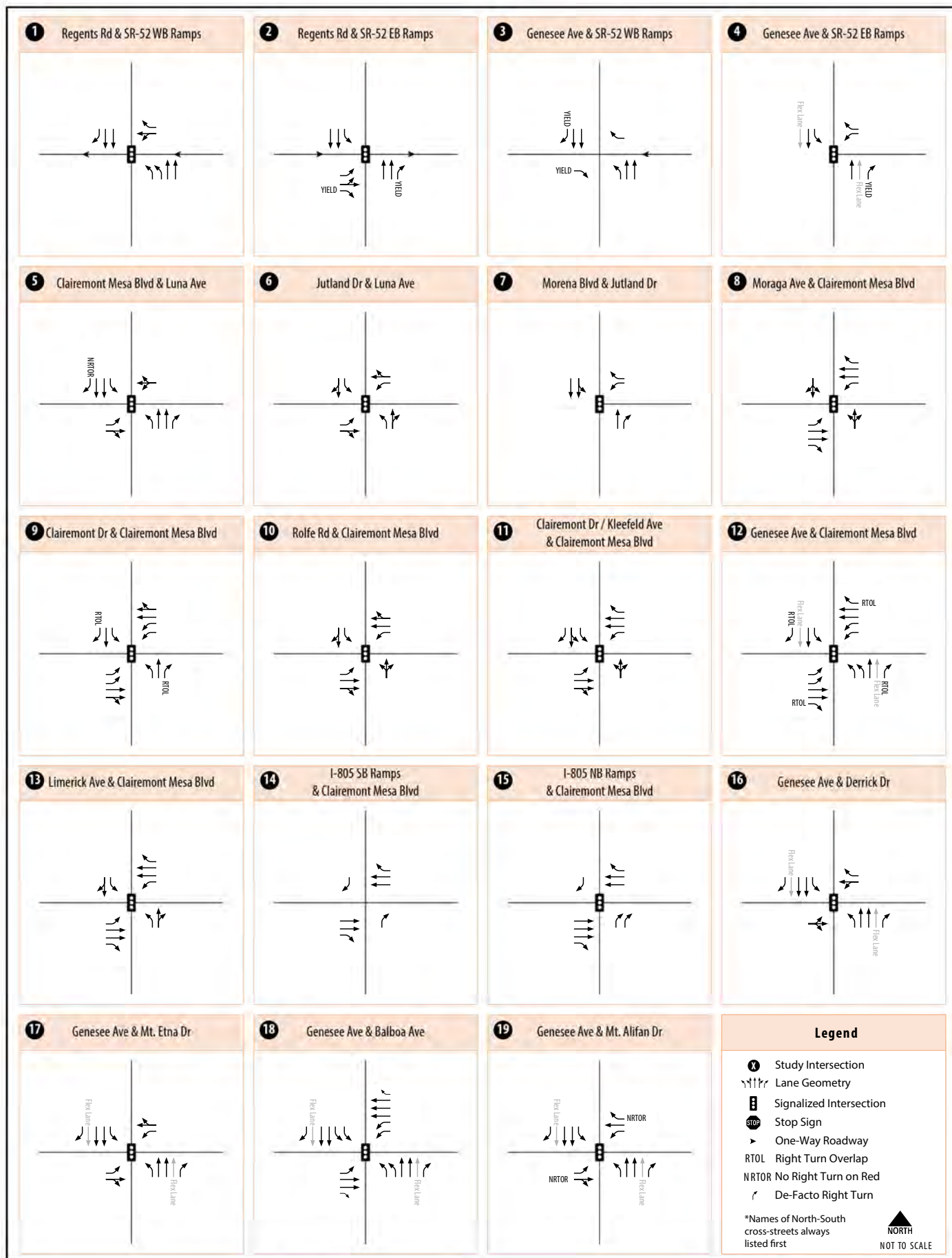


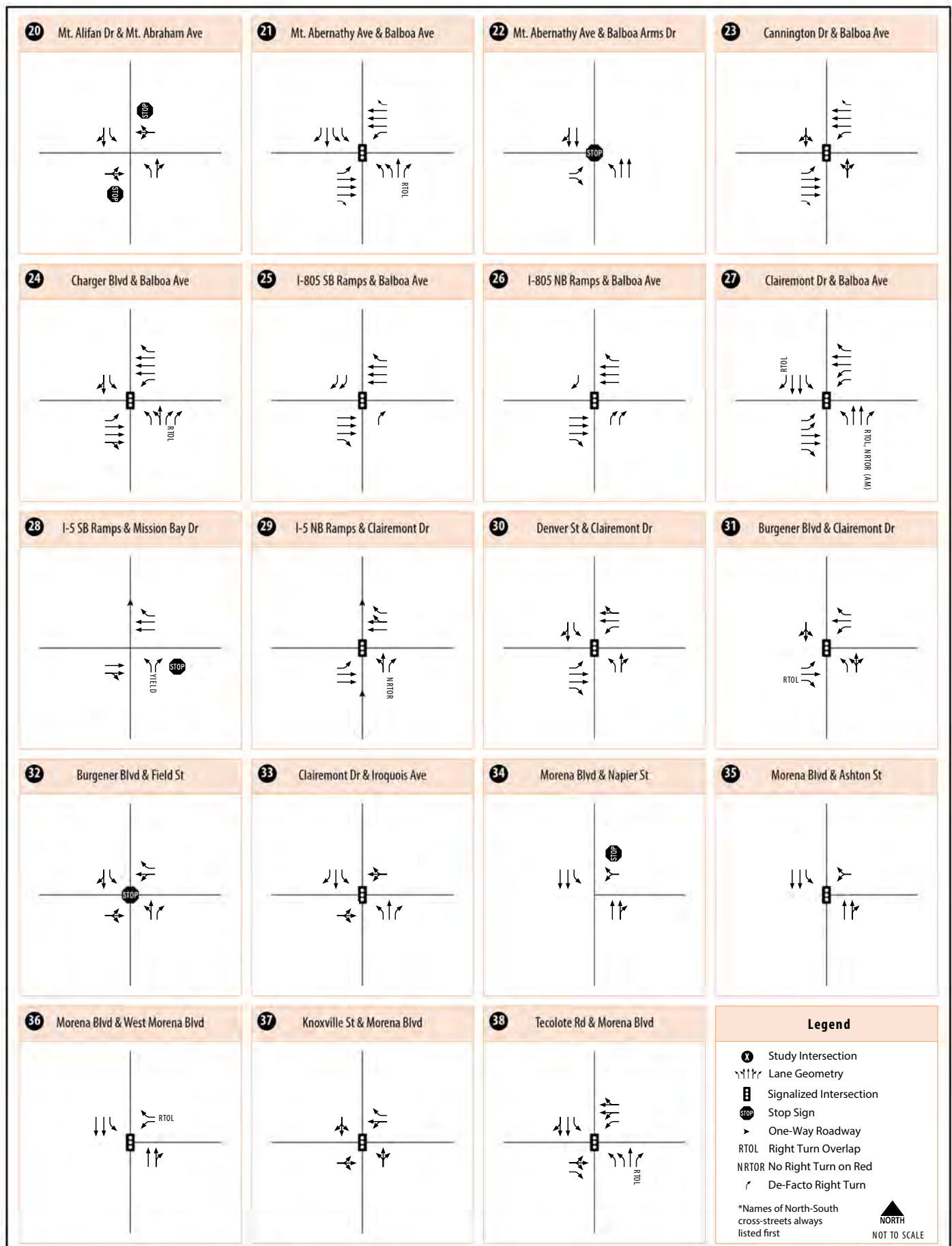


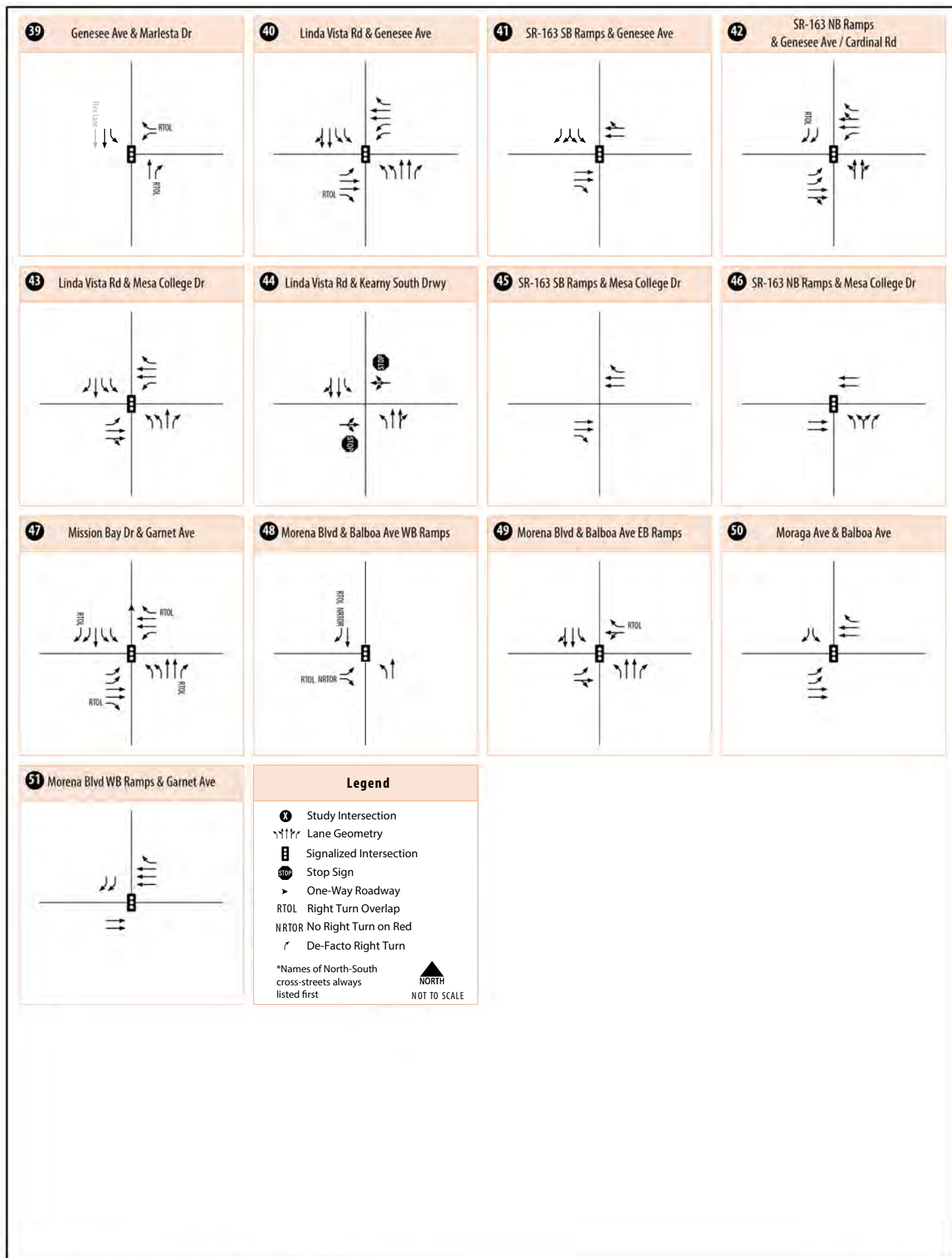














## Pedestrian Mobility

The Proposed Plan's land use vision for Clairemont centers on the creation of mixed-use villages and vibrant, pedestrian-oriented corridors that promote sustainable development, strengthen neighborhood connections, and expand transportation options. A key element of this vision is the development of safe, comfortable, and engaging pedestrian environments, as nearly every trip begins or ends with walking.

To help achieve this, the Proposed Plan identifies pedestrian route types defined in the City of San Diego's Pedestrian Master Plan. These route types guide the design and treatment of pedestrian facilities based on land use context, transit access, the quality of the walking environment, and roadway function. Each route type is associated with recommended levels of pedestrian-friendly enhancements, such as tree-shaded sidewalks, high-visibility crosswalks, protected intersections, and traffic calming measures. These improvements are designed not only to enhance walkability but also create safe, inclusive streets for all users, including people with disabilities and families with strollers.

The following are pedestrian route types particularly relevant within the context of Clairemont under the Proposed Plan:

**District route types** support high pedestrian activity in urban core areas, mixed use developments, and major community thoroughfares. These routes typically feature wider sidewalks, street trees, pedestrian-scale furnishings, median refuge islands, and dedicated pedestrian crossing controls to safely accommodate high pedestrian volumes alongside vehicle traffic.

**Corridor route types** serve areas with moderate to high pedestrian activity near commercial uses, schools, and parks. These routes provide more enhanced pedestrian-friendly features than Connector routes and may include shaded walkways, pedestrian-scale lighting, and other features that improve safety and comfort.

**Connector route types** run along streets with moderate to high vehicular traffic and are typically associated with lower-level pedestrian treatments. They may include basic treatments such as sidewalk buffers, ADA-compliant curb ramps, and marked crossings. Connector routes play a key role in linking residential areas with Corridor and District routes.

**Ancillary pedestrian facilities** include plazas, paseos, multi-use paths, and pedestrian bridges. These off-street facilities provide important pedestrian connections and support moderate to high pedestrian activity in areas where vehicle access is limited or excluded.

Figure 1 illustrates the pedestrian route types that are identified in the Proposed Plan, while **Table 1** summarizes the mileage of each route type within the Clairemont CPU area.

**Table 1 - Mileage by Pedestrian Route Type – Proposed Plan Conditions**

| Route Type                      | Miles       |
|---------------------------------|-------------|
| District                        | 0.3         |
| Corridor                        | 8.2         |
| Connector                       | 43.9        |
| Ancillary Pedestrian Facilities | 8.7         |
| <b>Total</b>                    | <b>61.1</b> |

*Source: CR Associates (2025)*

As shown, the Connector routes, planned along 43.9 miles of roadway, will be the most commonly designated pedestrian route type in the community.

Corridor routes have been identified along streets surrounding existing shopping centers such as Clairemont Town Square, Balboa Mesa Shopping Center, Clairemont Drive Village, and portions of commercial corridors like Morena Corridor, as well as neighborhoods near the Mid-Coast Trolley stations. A small segment of Balboa Avenue, which bisects the Balboa Mesa Shopping Center, has been designated as a District route. Overall, these planned Corridor and District routes are intended to support future mixed-use villages envisioned in the Proposed Plan.

Pedestrian Environmental Quality Evaluation (PEQE) provides an assessment of pedestrian facilities to help identify infrastructure needs and prioritize improvements. For roadway segments, the evaluation considers elements such as horizontal buffers, a clear pedestrian zone, and the posted speed limit. Intersection analyses evaluate for physical safety features, operational enhancements, ADA compliance, and traffic control.

**Figure 5** shows PEQE scores under Proposed Plan conditions within the study area along select walkway segments and crossing locations. These scores reflect the assumed standard of infrastructure and amenities each route type should have. **Table 2** summarizes the PEQE scores by mileage of walkway segments (including both sides of the street) for existing and Proposed Plan conditions. Under Proposed Plan conditions, Low PEQE scoring walkways are reduced by more than half, while High and Medium PEQE scoring walkways increase.

**Table 2 - PEQE Walkway Segment Summarized by Mileage**

| PEQE Score   | Existing Miles | Proposed Plan Miles | Change in Miles (+/-) |
|--------------|----------------|---------------------|-----------------------|
| High         | 0.7            | 3.1                 | +2.4                  |
| Medium       | 24.5           | 36.1                | +11.6                 |
| Low          | 23.0           | 9.0                 | -14.0                 |
| <b>Total</b> | <b>48.2</b>    | <b>48.2</b>         | <b>0</b>              |

Source: CR Associates (2025)





**Table 3** summarizes the PEQE scoring by intersection crossing location and compares the existing and Proposed Plan conditions. Under Proposed Plan conditions, most approaches improve to High PEQE scores, and no Low PEQE scoring crossings remain.

**Table 3 - PEQE Scores by Intersection Crossing Location**

| PEQE Score   | Existing Number of Approaches | Proposed Plan Number of Approaches | Change in Number of Approaches (+/-) |
|--------------|-------------------------------|------------------------------------|--------------------------------------|
| High         | 1                             | 177                                | +176                                 |
| Medium       | 184                           | 37                                 | -147                                 |
| Low          | 27                            | 0                                  | -27                                  |
| <b>Total</b> | <b>212</b>                    | <b>214</b>                         | <b>+2</b>                            |

Source: CR Associates (2025)

**Table 4** summarizes the recommended pedestrian improvements at crossing locations, derived from the changes assumed under Proposed Plan PEQE conditions. Some pedestrian improvements, such as high visibility crosswalks, are recommended throughout the Clairemont CPU area, while other types of improvements, such as Lead Pedestrian Intervals (LPIs), are recommended for District route types as well as some Corridor route types.

**Table 4 - Intersection Pedestrian Improvements – Proposed Plan Conditions**

| Recommended Pedestrian Improvement | Crossing Legs |
|------------------------------------|---------------|
| LPI (by Crossing Leg)              | 77            |
| Countdown Signal                   | 184           |
| High-Visibility Crosswalk          | 125           |
| Advanced Stop Bar                  | 8             |
| Upgrade Curb Ramp to ADA           | 33            |
| <b>Total</b>                       | <b>427</b>    |

Source: CR Associates (2025)

As shown, the most common intersection pedestrian improvements are the addition of countdown signals and the installation of high-visibility crosswalks. A list providing specific pedestrian improvement assumptions under Proposed Plan Conditions is provided in **Attachment B**.

## Pedestrian Opportunities

In addition to improving sidewalks and intersections, the Proposed Plan highlights opportunities beyond the roadway to further enhance pedestrian mobility. These include integrating pedestrian-oriented design into new development through public spaces and identifying off-street locations for shared-use facilities that complement sidewalks and expand community connections.

### Public Spaces

As Clairemont grows, new public spaces, such as greenways, parkways, and paseos, will make it easier and more enjoyable to walk, roll, and connect to transit. Integrated into mixed-use villages and key corridors, these spaces can feature shaded walkways, recreational amenities, and focal points for social interaction. They will create comfortable routes that link homes, shops, parks, and transit stops,

encouraging walking, supporting transit use, and fostering vibrant, pedestrian-oriented community areas.

Greenways and parkways run parallel to streets and will enhance the pedestrian realm between the curb and adjacent development with wider sidewalks, street trees, landscaping, lighting, seating, and other amenities. These public spaces double as gathering areas and inviting routes for walking and rolling. Proposed greenways, with minimum widths of 30 feet, include segments along Clairemont Drive bordering Clairemont Town Square, Balboa Arms Drive at the northern edge of the Community Core Village, and Mount Alifan Drive at the southern edge of the Community Core Village. Parkway, ranging from 10 to 14 feet in width, are proposed along portions of Ingulf Street and Clairemont Drive within the Morena Corridor District, Clairemont Drive within Clairemont Town Square, as well as Balboa Arms Drive and Mount Alifan Drive within the Community Core Village. Collectively, greenways and parkways along development frontages will provide wide, low-stress, high-quality facilities that strengthen pedestrian connections.

Paseos will also improve pedestrian access by linking streets, alleys, public parks, and other open spaces within new development areas. Proposed paseos include connections abutting Tecolote Creek and between Denver Street and Morena Boulevard. These facilities will break down superblocks into permeable, walkable environments that connect internal destinations with surrounding neighborhoods, recreation areas, and nearby transit stops.

Overall, future public spaces in Clairemont will serve as essential infrastructure for connectivity and supporting a more active, and walkable future. By enhancing corridors, transforming superblocks, and weaving together villages, greenways, parkways, and paseos, the community will establish a stronger pedestrian network that supports transit-oriented development and ties into the greater mobility system. These facilities will be built as part of development in higher-density areas near high-frequency transit, as described in the Proposed Plan's Land Use and Urban Design Elements. Specific details on public space requirements are included in the Community Enhancement Overlay Zone (CEOZ).

### **Shared-Use Pedestrian and Bicycle Connections**

Off-street shared-use connections, such as multi-use paths, undercrossing and overcrossings with pedestrian and bicycle facilities, dedicated active transportation bridges, and innovative facilities like aerial skyways or tunnels, offer significant opportunities to enhance mobility, safety, connectivity, comfort. These ancillary facilities help people travel across or along major barriers such as freeways, high-volume roadways, canyons, and rail lines. When effectively designed, they can integrate seamlessly with surrounding topography, architecture, or development, while also establishing direct links to popular destinations. This makes walking and biking more convenient, safe, and attractive.

Several locations in Clairemont have been identified where shared-use connections could provide meaningful community benefits today and under full buildout of the Proposed Plan:

- **Balboa Avenue Station to Pacific Beach.** Potential concepts include multi-use paths, an enhanced I-5 underpass, a shared-use overpass, or an aerial skyway connecting the station area with Pacific Beach.
- **Clairemont Drive and Tecolote Road Stations to Mission Bay.** Shared-use connections such as cycle tracks along Clairemont Drive, upgrades to existing overpasses, or a new active transportation bridge could help overcome the I-5 and Trolley barriers separating the community from Mission Bay and Mission Bay Park.

- **Key interchanges and corridors.** Opportunities include improving mobility along the Sea World Drive/Tecolote Road bridge; building a pedestrian and bicycle bridge linking the east and west segments of the Rose Creek Path near the I-5/SR-52 interchange; reconfiguring the Morena Boulevard and Balboa Avenue interchange to reduce conflicts between vehicles, pedestrians, and cyclists; developing a new multi-use path or aerial skyway adjacent to Balboa Avenue, as well as a continuous multi-use path along the south side of SR-52 through Clairemont.
- **Extensions and new connections:** Extend Damon Avenue to Morena Boulevard to provide multimodal access to the future Rose Canyon Gateway Village and establish an active transportation connection between Morena Boulevard and Santa Fe Street, particularly near Jutland Avenue.
- **Utility easements:** Coordinate with SDG&E and other stakeholders to explore use of the utility easements for a north-south multi-use path.
- **Underutilized right-of-way.** Convert underused right-of-way into exclusive pedestrian paths, multi-use paths, or other public spaces that encourage outdoor activity and support urban greening.

The potential shared-use pedestrian and bicycle connections identified in the Proposed Plan are conceptual and will require further study to confirm feasibility and demand. Advancing these projects involve conducting detailed feasibility studies to:

- Evaluate design concepts and location options.
- Identify and assess cost-benefit trade-offs.
- Address ADA compliance.
- Determine right-of-way constraints and opportunities.
- Resolve potential utility conflicts.
- Avoid sensitive habitats and flood-prone areas.
- Ensure compatibility with future development and rezoning.

Implementation will also require close coordination with Caltrans for projects within or adjacent to their right-of-way, with the Federal Highway Administration (FHWA) for crossings of federal highways such as I-5, the California Public Utilities Commission (CPUC) for projects around rail crossings, and with SANDAG for projects that support regional active transportation and transit goals.



## Bicycle Mobility

Biking offers a sustainable, healthy, and cost-effective way to travel within communities, and in Clairemont, expanding bicycle mobility supports the City's climate goals while promoting active lifestyles that benefit both individual and public health. However, the community's topography, characterized by a series of canyons and plateaus, limits route options, while major roadways often act as chokepoints, creating challenges to bikeability. To address these barriers, the Proposed Plan recommends expanding access to dedicated, low-stress bikeways, including separated facilities along key corridors that connect residents to existing and future major activity centers. These improvements aim to enhance comfort, safety, and connectivity, making biking a more practical and attractive option for travel and recreation throughout the community.

The Proposed Plan recommends implementing the bicycle network previously shown in Figure 2. This network was developed with consideration of the opportunities and constraints identified in the Clairemont CPU Mobility Element - Existing Conditions Report, including concentrations of bicycle-related collisions, levels of cyclist stress, gaps in the network, adjacent land uses, proximity to transit, and areas with existing or high potential for bicycle activity and demand. The planned network is comprised of Class I Multi-Use Paths, Class II Bike Lanes, Class III Bike Routes, Class IV Cycle Tracks (one-way and two-way), and shared bus/bike lanes. The mileage for each classification under existing and Proposed Plan conditions is summarized in **Table 5**.

**Table 5 - Bicycle Mileage by Classification**

| Classification           | Existing Conditions (Miles) <sup>1</sup> | Proposed Plan (Miles) |
|--------------------------|------------------------------------------|-----------------------|
| Class I – Multi-Use Path | 2.6                                      | 4.7                   |
| Class II – Bike Lane     | 11.9                                     | 7.5                   |
| Class III – Bike Route   | 4.8                                      | 30.1                  |
| Class IV – Cycle Track   | 0.3                                      | 14.6                  |
| Bus-Bike Lane            | 0.0                                      | 0.6                   |
| <b>Total</b>             | <b>19.6</b>                              | <b>57.5</b>           |

Source: CR Associates (2025)

Note:

<sup>1</sup> Mostly reflects the conditions documented in the Mobility Element Existing Conditions Report for the Clairemont Community Plan Update prepared by WSP, June 2017 (**Attachment C**). Existing conditions have since changed, and as of 2025, additional bicycle infrastructure has been implemented.

Compared to existing conditions, the overall bicycle network in Clairemont will increase by 37.9 miles (193% increase). This expansion is partially due to the addition of physically separated bicycle facilities, such as Class I Multi-Use Paths and Class IV Cycle Tracks, which will comprise over 34% (19.3 miles) of the planned network, compared to just 15% (2.9 miles) of the existing network.

The expanded bike network is also attributed to the designation of more local neighborhood streets as Class III Bike Routes, which will account for over 52% (30.1 miles) of the Proposed Plan facilities. While bike routes require cyclists to share the roadway with vehicles, they can provide comfortable and effective connections when implemented on residential streets with low traffic volumes and speeds. When enhanced with traffic calming measures, volume management strategies, signage, and pavement markings, these routes, often referred to as bicycle boulevards, can prioritize bicycle travel and increase driver awareness. The Clairemont CPU supports identifying bicycle boulevards as a complementary element of the overall network. While their specific designation and design will be determined at the project level, bicycle boulevards are intended to enhance connectivity within and between neighborhoods.

**Figure 6** shows the Bicycle Level of Traffic Stress (LTS) of all streets within the Clairemont CPU area under Proposed Plan conditions. This measure was applied to all roadways in the community traversable by bicycle, regardless of the presence of a designated bicycle facility. **Table 6** summarizes roadway centerline mileage by LTS score in the Clairemont CPU area.

**Table 6 - Mileage by LTS Score – Proposed Plan Conditions**

| LTS Score    | Miles       |
|--------------|-------------|
| LTS 1-2      | 46.0        |
| LTS 3        | 10.3        |
| LTS 4        | 5.1         |
| <b>Total</b> | <b>61.4</b> |

*Source: CR Associates (2025)*

As shown, 75% of the Clairemont CPU study area roadway mileage is projected to achieve a LTS 1 or 2 with full implementation of the planned bicycle network. The increase in separated bikeways under the Proposed Plan creates lower stress environments more suited for cyclists of all ages and abilities. In contrast, the LTS scores under existing conditions were primarily LTS 3 and 4 along many major corridors, which reflect higher-stress environments appropriate for more experienced cyclists comfortable sharing the road with vehicles traveling at 35 mph or more. The criteria and scoring methodology for the LTS performance measure are provided in **Attachment D**.

## Bicycle Opportunities

The planned bicycle improvements were developed while referencing recommendations identified in the Morena Corridor Specific Plan, Balboa Avenue Station Area Specific Plan, City of San Diego Bicycle Master Plan, and both SANDAG's Regional Bike Plan and 2021 Regional Plan. Outreach efforts associated with the Clairemont CPU also helped inform the final planned bicycle network. Efforts included coordination between City departments, improvements furthering implementation of the goals and policies of the City and region, forwarding the City's Climate Action Plan goals, as well as advancing State Complete Streets aims. Implementation of the Proposed Plan bicycle facilities should consider additional treatments at intersections to improve cyclist safety and comfort (i.e., bike boxes, exclusive bicycle signal phasing, and conflict zone paint).

Bicycle facilities could be implemented through the several mechanisms, as appropriate. These include repurposing existing public right-of-way (ROW), integrating projects into operations and maintenance (O&M) or capital improvement (CIP) efforts, coordinating with adjacent property owners, securing an Irrevocable Offer of Dedication (IOD) for the City to obtain right-of-way, or requiring developers to provide bicycle facilities based on supplemental development regulations and incentives outlined in the CEOZ. The Vehicle Mobility section describes potential ways the proposed bikeways could be accommodated. At the project level, when more information is available, modifications to these recommended bicycle classifications may be considered by the City.

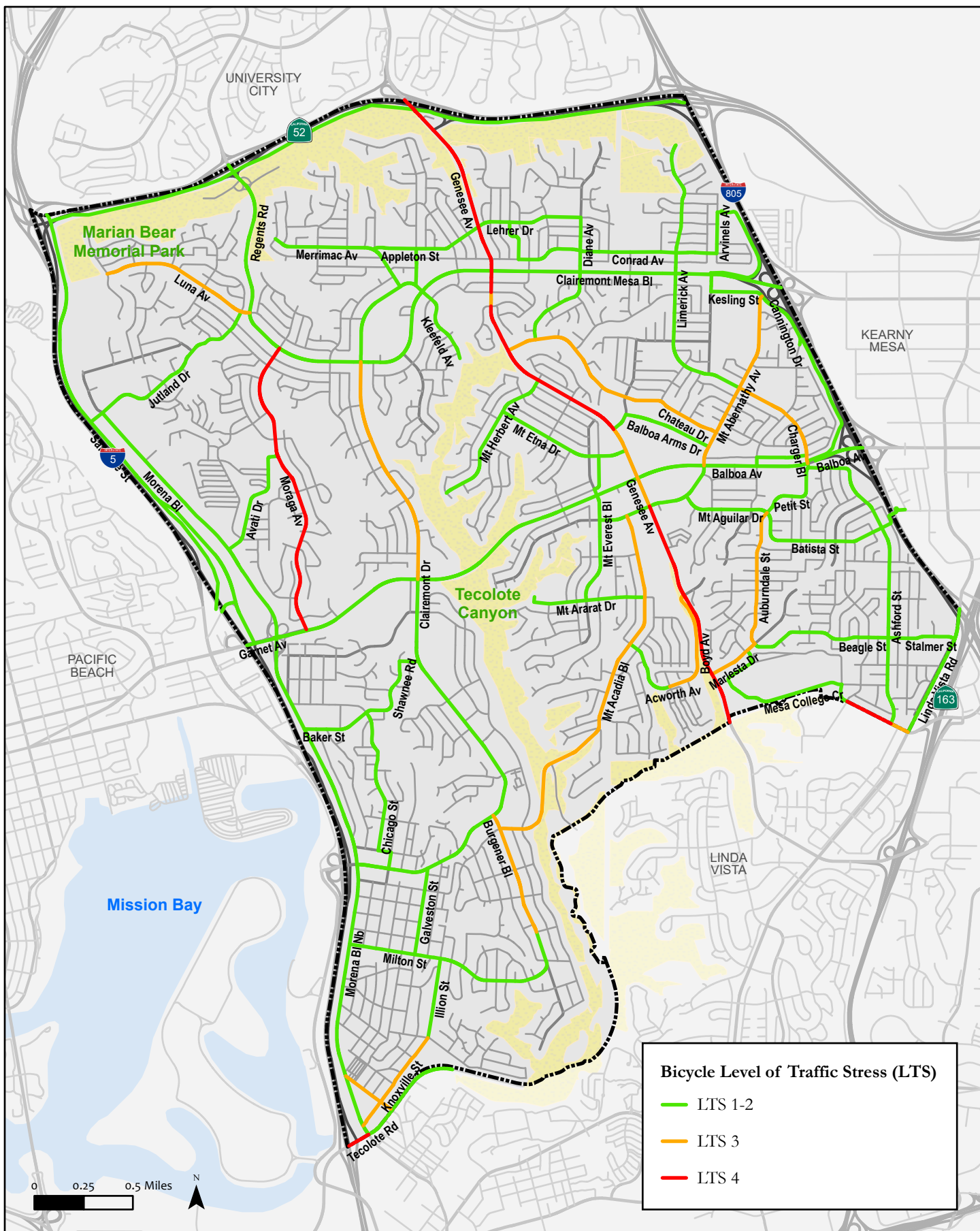
### **Bicycle Signal Phasing**

Bicycle signal phasing is recommended to improve cyclists' safety, efficiency, and compliance at signalized intersections. Key benefits of implementing bicycle signal phasing include the following:

- Reduces conflict points between cyclists and turning vehicles by providing cyclists a dedicated signal phase.
- Clarifies when cyclists should proceed, reducing confusion over right-of-way at intersections.
- Enhances the effectiveness of Class IV separated bikeways and two-way cycle tracks.
- Increases compliance, as cyclists are more likely to obey traffic controls when traffic control signals are specifically designed to support them.
- Encourages bicycling as an alternate mode of transportation by improving visibility and useability.
- Improves multimodal coordination through signal timing strategies that accommodate all users, including bicyclists, pedestrians, and transit riders.

Bike signal phasing is recommended at all intersections where Class IV bikeways intersect in the community.





## Public Transportation Mobility

Clairemont is currently served by bus routes and the trolley, with transit services planned and developed by San Diego Association of Governments (SANDAG) and operated primarily by San Diego Metropolitan Transit System (MTS). Locally, these services rely on roadways and traffic signals maintained by the City of San Diego. To enhance mobility and reduce reliance on driving, the Clairemont CPU promotes the development of a fast, flexible, and reliable transit system that connects to the region's activity centers and surrounding communities.

The planned transit network for Clairemont is shown in **Figure 7**. The planned transit network for the Clairemont community is detailed in the currently adopted 2021 Regional Plan (RP) prepared by SANDAG and further expanded in the 2025 Regional Plan underway and Next Generation (NextGen) Rapid Route studies. Clairemont is expected to experience continued improvements in public transportation access by 2035, aligning with regional goals to enhance mobility, reduce vehicle dependency, and support equitable access to transit.

The most recent and significant transit enhancement for Clairemont has been the Mid-Coast Trolley Extension of the UC San Diego Blue Line, which opened in 2021. This extension connects the Santa Fe Depot in Downtown San Diego to the University community. It provides a high-quality transit option that strengthens regional connectivity and expands public transportation choices for the Clairemont community. As part of this project, the following two new transit stations were added within Clairemont:

- **Clairemont Drive Station:** Providing residents with access to destinations like University Towne Center (UTC), UC San Diego (UCSD), Old Town, and Downtown San Diego via the Blue Line Trolley.
- **Balboa Avenue Transit Center:** Offering park-and-ride and bike-and-ride facilities with direct access to UCSD, Downtown San Diego, and connections to the broader regional trolley system.

In addition to the trolley extension, the 2021 RP identified several transit projects focused on improving the Rapid Bus network including:

- **Rapid 295:** Proposed as a faster east-west connection through Clairemont Mesa Boulevard, linking Spring Valley to Clairemont via Kearny Mesa and La Mesa.
- **Rapid 41:** Planned to connect Fashion Valley to UTC/UC San Diego via Linda Vista and Clairemont, offering enhanced frequency and limited-stop service.
- **Rapid 292:** Phase 1 to connect Pacific Beach to Kearny Mesa, and the route would traverse through Clairemont via Balboa Avenue. Phase 2 would extend the route to Otay Mesa.

Complementing the transit investments, the 2021 RP also called for active transportation improvements, such as the Coastal Rail Trail extension between Clairemont and Tecolote and bikeway upgrades along Clairemont Drive and Genesee Avenue, aimed at promoting safe and direct walking and biking connections to transit. It is important to note that transit facilities shown in Figure 7 may differ from those in other City of San Diego community plans and could be superseded by future transit studies or updates to the Regional Plan. Therefore, transit improvements shown are subject to change and do not preclude the implementation of other transit improvements and projects identified in those plans.

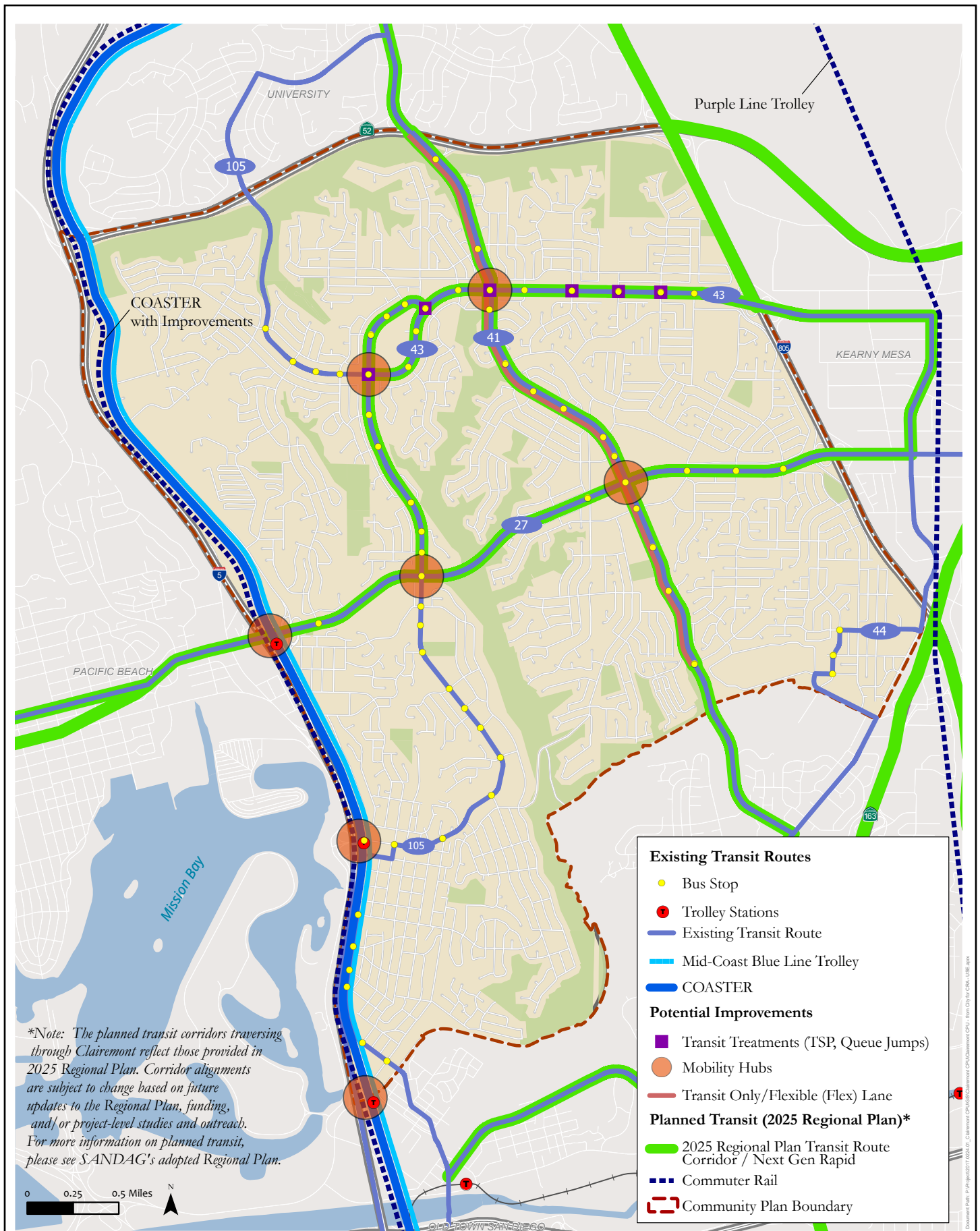
Building upon these improvements, the forthcoming 2025 RP outlines the next phase of major public transportation investments for Clairemont, including the introduction of multiple NextGen Rapid bus routes designed to provide high-frequency, limited-stop service to key regional destinations:

- **Rapid 241** will operate between Hillcrest and UTC, traveling through Linda Vista, Clairemont, and University communities along Genesee Avenue. Rapid 241 will connect residents to UCSD, San Diego Mesa College, Fashion Valley Mall, and the Veterans Administration Medical Center. Phased for implementation by 2035, Rapid 241 will have priority treatments such as dedicated bus lanes and transit signal priority (TSP) proposed along the route.
- **Rapid 243** will operate between Pacific Beach and Kearny Mesa, which will connect Clairemont and Kearny Mesa residents to the beach via transit. In Clairemont, Route 243 will traverse along portions of Clairemont Mesa Boulevard, Clairemont Drive, and Balboa Avenue and is phased for implementation by 2035.
- **Rapid 295** will operate between Clairemont and Spring Valley, traveling through Kearny Mesa, Mission Valley, College Area, and La Mesa. Rapid 295 will improve east-west regional connectivity and is also phased for implementation by 2035.
- **Rapid 207** will provide a direct transit connection from Balboa Avenue Trolley Station through Kearny Mesa via Balboa Avenue, enhancing east-west transit access through Clairemont and Kearny Mesa to major employment hubs by 2035.

NextGen Rapid services will feature consolidated stop spacing (approximately half a mile apart), transit priority measures, upgraded stations with real-time arrival information, shelters, and lighting improvements. These features are intended to provide faster, more reliable travel times compared to traditional local buses.

Recognizing the need for flexible, neighborhood-scale transportation, the upcoming 2025 RP also identifies Clairemont as a designated Microtransit Service Area and the Balboa Avenue Transit Center as part of a neighborhood electric vehicle (NEV) shuttle area. Both microtransit and NEVs are types of Flexible Fleets or on-demand, shared shuttle services that will allow residents to book rides for short neighborhood trips within a defined service area or to connect with major transit routes and trolley stations. These services aim to close first- and last-mile gaps, improve accessibility for seniors, people with disabilities, and residents living farther from major transit corridors.

While no major changes to the local bus network are recommended at this time, Clairemont will benefit from the broader regional strategy focused on multimodal integration, Flexible Fleets, and active transportation improvements that promote walking and biking to transit. Continued investments in bikeway improvements, such as separated lanes along major corridors and connections to the Coastal Rail Trail, will enhance active transportation options within Clairemont.





## Transit Opportunities

Transit is one of the most efficient ways to move large numbers of people, helping to reduce congestion and promote more sustainable travel choices. With several regional investments aimed at improving the convenience and reliability of transit, the City of San Diego has a unique opportunity to strengthen infrastructure needed to make transit a more competitive alternative to driving. At the local level, the City can enhance transit performance through complementary land use designations and targeted improvements to the public right-of-way and traffic signal systems that transit services rely on. To advance this vision, the following sections describe the strategies recommended in the Clairemont CPU or Proposed Plan to make transit more convenient, accessible, and attractive.

### **Land Use & Transit Coordination**

The City of San Diego works closely with MTS and SANDAG to ensure transit services operate efficiently within city streets and that land use planning supports both existing and future transit investments. This interagency coordination is especially critical as SANDAG advances the planning and implementation of transit projects identified in the Regional Plan.

The Clairemont CPU positions the community to support these transit investments through strategic land use changes and design recommendations. The Proposed Plan promotes compact, mixed-use urban villages along major transit corridors, such as Genesee Avenue, and near Mid-Coast Trolley stations at Balboa Avenue and Clairemont Drive. Future land use designations also encourage housing and expanded mixed-uses in Clairemont Town Square, Balboa Mesa Shopping Center, and Clairemont Drive Village. By concentrating new growth and density around high-frequency transit, the Proposed Plan enables more people to live and work within walking distance of reliable transit, which supports increased ridership, reduces vehicle trips, and fosters a more sustainable and connected community.

The Proposed Plan also recognizes the need to improve transit access in northwest Clairemont. Opportunities for expanded service and partnerships could include:

- Coordinate with SANDAG to assess the feasibility of a light rail transit station at Jutland Drive and Morena Boulevard and explore its inclusion in future updates of the Regional Plan.
- Expand bus service or establish microtransit or circulator along Jutland Drive and Morena Boulevard north of Balboa Avenue to strengthen local and regional transit connections.
- Create a shared-use connection linking Morena Boulevard, Santa Fe Street, and the Rose Creek bike path to improve multimodal access.
- Incorporate multi-use paths, greenways, or other public spaces as development opportunities arise, such as during the redevelopment of Rose Canyon Business Park.

These strategies exemplify the coordination needed between land use and transportation planning in Clairemont and show how the community can be better positioned to take full advantage of regional transit investments, such as the Blue Line Trolley.

### **Transit Priority**

As future Rapid Bus and Flexible Fleet routes are identified and established within Clairemont, additional transit priority measures will be considered in coordination with MTS and SANDAG. These efforts aim to improve transit reliability and enhance travel time competitiveness. Examples of transit priority treatments that can be implemented at the project level include transit signal priority, queue jump lanes, transit only lanes, and shared transit/right-turn lanes. These measures can be utilized to give buses an advantage at intersections and congested corridors.

The Proposed Plan recommends exploring transit priority measures along the following corridors through future project efforts, such as corridor studies or NextGen Rapid Route studies:

- Balboa Avenue
- Clairemont Mesa Boulevard
- Genesee Avenue

Assessing and implementing transit priority treatments on these corridors, as needed, will help support more reliable, efficient, and competitive transit service throughout the Clairemont community.

### **Flexible Lanes**

Flexible (flex) lanes would repurpose existing transportation right-of-way, typically travel lanes, for priority use by transit, high-occupancy vehicles (HOVs), or other congestion-reducing modes. These lanes could also operate dynamically, changing function and availability based on time of day or operational needs. For example, a flex lane may be reserved exclusively for buses during peak hours.

Specific lane configurations and the designation of the lanes will be determined at the project level, considering local needs, right-of-way constraints, and other feasibility factors. The Clairemont CPU proposes a dedicated flex lane in each direction along Genesee Avenue between State Route 52 and Marlesta Drive. These lanes are initially intended for transit use to improve service reliability and increase ridership. Where appropriate, other enhancements, such as queue jumps, may be considered in place of flex lanes, based on project-specific analysis.

The proposed flex lanes were identified through an evaluation of traffic patterns, transit routes, ridership trends, and projected growth in the corridor. By improving transit reliability and supporting increased ridership, the flex lanes are intended to help encourage and enhance multimodal mobility along Genesee Avenue.

### **Mobility Hubs**

Mobility hubs are places where multiple travel options come together creating opportunities for seamless multimodal trips. They are a key strategy for improving transit connectivity and boosting ridership, particularly by addressing first- and last-mile challenges. By offering a variety of supportive services and amenities, mobility hubs make it easier for people to access transit and reach their final destinations.

Typically located along high-frequency transit corridors or in areas with a concentration of jobs, housing, retail, and entertainment, mobility hubs help extend the effective reach of the transit system. They encourage people to walk, bike, or use micromobility options like scooters to complete their trips. The design and scale of a mobility hub are tailored to its surrounding context. Potential features may include enhanced transit waiting areas, passenger loading zones, real-time travel information, shared mobility services, bicycle parking, NEVs, microtransit, and electric vehicle charging stations.

The Proposed Plan supports the Regional Plan by identifying the following transit stops and key intersections near mixed-use villages as potential mobility hub locations:

- Clairemont Drive & Balboa Avenue
- Clairemont Drive & Clairemont Mesa Boulevard
- Genesee Avenue & Clairemont Mesa Boulevard
- Genesee Avenue & Balboa Avenue

- Clairemont Drive Station
- Balboa Avenue Transit Center
- Tecolote Road Station

Overall, the introduction of high-frequency NextGen Rapid services, ongoing trolley improvements, new Flexible Fleet services, and expanded active transportation facilities providing access to transit, Clairemont is poised to become a key node within a fast, reliable, and equitable regional public transportation network.

# Vehicular Mobility

## Vehicular Network

A list of proposed roadway and intersection improvements are presented throughout this section. The roadway improvements are predominantly informed by future year traffic volumes that are projected under full buildout conditions of the Proposed Plan and are designed to accommodate multimodal improvements. These improvements reflect the City's Complete Streets approach, which emphasizes attractive, and comfortable mobility for people walking, rolling, biking, riding transit, and driving. By reconfiguring streets to better support active transportation and transit while accommodating vehicles, the plan advances the City's broader goals for a safe, efficient, and well-connected multimodal transportation network.

### Mobility Loading Prioritization

The Proposed Plan's roadway improvements are guided by the mobility loading prioritization framework (also referred to as the roadway mobility priority system), as defined in the City's Complete Streets Policy and referenced in the General Plan. This framework emphasizes user safety and accessibility for roadway users in the following order: 1) people walking or rolling; 2) people who ride a bike or use micromobility; 3) transit riders; and 4) people using shared, commercial, and personal vehicles (including both personal trips and goods delivery).

### Roadway Modifications

Roadway segment modifications described below include changes to street classifications, the number of vehicular travel lanes, and partial or full removal of on-street parking. Planned bicycle facility improvements within these roadway extents are also noted, while the full set of bicycle facility improvements proposed for Clairemont is shown in Figure 2.

- *Balboa Avenue, from Morena Boulevard SB Ramps to Morena Boulevard NB Ramps* - Reclassify this segment from a 4-Lane Major Arterial to a 5-Lane Major Arterial. A Class I multi-use path will be provided on the north side of Balboa Avenue.
- *Balboa Avenue, from Morena Boulevard NB Ramps to Moraga Avenue* - Reclassify this segment from a 4-Lane Major Arterial to a 5-Lane Major Arterial. A Class I multi-use path will be provided on the north side of Balboa Avenue.
- *Clairemont Drive, from Kleefeld Avenue to Clairemont Mesa Boulevard* - Reclassify this segment from a 4-Lane Collector w/ two-way left-turn lane (TWLTL) to a 2-Lane Collector w/ TWLTL. The remaining roadway space will be repurposed to provide a one-way Class IV cycle track in each direction along Clairemont Drive, while retaining on-street parking on the west side. At the project level, or as needed at the time of redevelopment, opportunities may include expanding on-street parking on the east side or using excess right-of-way for mobility hub features and public space.
- *Clairemont Drive, from Balboa Avenue to Iroquois Avenue* - Reclassify this segment from a 4-Lane Major Arterial to a 2-Lane Major Arterial. The remaining roadway space will be repurposed to add a one-way Class IV cycle track in each direction along Clairemont Drive. On-street parking will be maintained on both sides of the roadway.<sup>1</sup>
- *Clairemont Drive, from Iroquois Avenue to Burgener Boulevard* - Reclassify this segment from a 4-Lane Collector w/ TWLTL to a 2-Lane Major Arterial. The remaining roadway space will be repurposed to add one-way Class IV cycle tracks in each direction along Clairemont Drive.

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<sup>1</sup> In June 2025, Clairemont Drive between Balboa Avenue to Iroquois Avenue was reduced to two lanes to accommodate the implementation of one-way cycle tracks with floating parking creating a buffer between cyclists and vehicular traffic.



- *Clairemont Drive, from Burgener Boulevard to Denver Street* – This segment will be maintained as a 2-Lane Collector w/ TWLTL. Partial removal of parking would be necessary to add one-way Class IV cycle tracks in each direction along Clairemont Drive.
- *Clairemont Drive, from Denver Street to I-5 NB Ramps* – This segment will be maintained as a 4-Lane Major Arterial. Removal of parking would be necessary to add one-way Class IV cycle tracks in each direction along Clairemont Drive.
- *Clairemont Mesa Boulevard, from Luna Avenue and Moraga Avenue* – This segment will be maintained as a 4-Lane Major Arterial. Partial removal of parking would be necessary to add a one-way Class IV cycle track in each direction along Clairemont Mesa Boulevard. Preliminary designs have explored alternative parking locations, such as floating parking, where vehicles are parked away from the curb to create a buffer between cyclists and vehicular traffic.
- *Clairemont Mesa Boulevard, from Moraga Avenue to Clairemont Drive* – This segment will be maintained as a 4-Lane Major Arterial. Partial removal of parking would be necessary to add a one-way Class IV cycle track in each direction along Clairemont Mesa Boulevard. Preliminary designs have explored alternative parking locations, such as floating parking, where vehicles are parked away from the curb to create a buffer between cyclists and vehicular traffic.
- *Clairemont Mesa Boulevard, from Rolfe Road to Clairemont Drive/Kleefeld Avenue* – This segment will be maintained as a 4-Lane Major Arterial. Partial removal of parking may be necessary to provide a one-way Class IV cycle track in each direction along Clairemont Mesa Boulevard.
- *Clairemont Mesa Boulevard, from Clairemont Drive/Kleefeld Avenue to Genesee Avenue* – This segment will be maintained as a 4-Lane Major Arterial. Partial removal of parking may be necessary to provide a one-way Class IV cycle track on each side of the roadway along Clairemont Mesa Boulevard.
- *Clairemont Mesa Boulevard, from Genesee Avenue to Doliva Drive* – This segment will be maintained as a 4-Lane Major Arterial. To add a one-way Class IV cycle track in each direction along Clairemont Mesa Boulevard, on-street parking would need to be removed, with parking potentially retained at spot locations. An alternative approach could involve reducing the width of the median and travel lanes to minimize parking loss while introducing floating parking to buffer cyclists from vehicle traffic.
- *Genesee Avenue, from SR-52 to Clairemont Mesa Boulevard* - Reconfigure this segment from a 4-Lane Major Arterial to a 4-Lane Major Arterial consisting of one general-purpose lane and one flexible (flex) lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment, except for the segment between Appleton Street and Clairemont Mesa Boulevard, which will be upgraded from existing Class III bike route to Class II bicycle lanes. Parking removal of existing on-street parking may be necessary to accommodate the Class II bicycle lanes.
- *Genesee Avenue, from Clairemont Mesa Boulevard to Bannock Avenue* - Reconfigure this segment from a 4-Lane Major Arterial to a 4-Lane Major Arterial consisting of one general-purpose lane and one flex lane in each direction. A Class III bike route will continue to be provided along this segment unless dedicated bikeways are deemed feasible during project-level planning and implementation.
- *Genesee Avenue, from Bannock Avenue to Mt. Herbert Avenue* - Reconfigure this segment from a 4-Lane Major Arterial to a 4-Lane Major Arterial consisting of one general-purpose lane and one flex lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment.

- *Genesee Avenue, from Mt. Herbert Avenue to Derrick Drive* - Reconfigure this segment from a 4-Lane Major Arterial to a 6-Lane Major Arterial consisting of two general-purpose lanes and one flex lane in each direction. A Class II bicycle lane will continue to be provided on the east side of this segment and the flex lane on the west side will function as a shared lane for both transit and bicyclists.
- *Genesee Avenue, from Derrick Drive to Mt. Etna Drive* - Reconfigure this segment from a 6-Lane Major Arterial to a 6-Lane Major Arterial consisting of two general-purpose lanes and one flex lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment.
- *Genesee Avenue, from Mt. Etna Drive to Balboa Avenue* - Reconfigure this segment from a 5-Lane Major Arterial to a 6-Lane Major Arterial consisting of two general-purpose lanes and one flex lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment.
- *Genesee Avenue, from Balboa Avenue to Mt. Alifan Drive* - Reconfigure this segment from a 5-Lane Major Arterial to a 6-Lane Major Arterial consisting of two general-purpose lanes and one flex lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment. The removal of existing on-street parking will be necessary to accommodate the multimodal facilities.
- *Genesee Avenue, from Mt. Alifan Drive to Genesee Court* - Reconfigure this segment from a 4-Lane Major Arterial to a 6-Lane Major Arterial consisting of two general-purpose lanes and one flex lane in each direction. A Class II bicycle lane will continue to be provided on the east side of this segment and the flex lane on the west side will function as a shared lane for both transit and bicyclists. The removal of existing on-street parking will be necessary to accommodate the multimodal facilities.
- *Genesee Avenue, from Genesee Court to Boyd Avenue* - Reconfigure this segment from a 4-Lane Major Arterial to a 5-Lane Major Arterial consisting of two northbound general-purpose lanes, one southbound general-purpose lane, and one flex lane in each direction (two total). Class II bicycle lanes will continue to be provided along both sides of this segment.
- *Genesee Avenue, from Boyd Avenue to Marlesta Drive* - Reconfigure this segment from a 4-Lane Major Arterial to a 4-Lane Major Arterial consisting of one general-purpose lane and one flex lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment.
- *Linda Vista Road, from Stalmer Street to Mesa College Drive* - Reclassify this segment from a 4-Lane Collector w/ TWLTL to a 2-Lane Collector w/ TWLTL. One-way Class IV cycle tracks will be provided in each direction along Linda Vista Road while retaining on-street parking on both sides.
- *Morena Boulevard, from Balboa EB-Ramps to Gesner Street* - Reclassify this segment from a 4-Lane Major to a 3-Lane Major Arterial consisting of one southbound lane and two northbound lanes. The remaining roadway space will be repurposed to accommodate a two-way Class IV cycle track along the west side of Morena Boulevard. It is also worth noting that an existing section from Paul Jones Avenue to 2,200 feet north of Gesner Street is already functioning as a 3-Lane Major Arterial. However, in this segment, the current configuration is two lanes southbound and one lane northbound.
- *Morena Boulevard, from Gesner Street to Napier Street* - Reclassify this segment from a 4-Lane Major Arterial to a 4-Lane Collector w/ TWLTL. In constrained areas, left-turn pockets will be provided only at intersections. A two-way Class IV cycle track will be provided on the west side of Morena Boulevard while on-street parking on the east side will be retained.

- *Morena Boulevard, from Napier Street to West Morena Boulevard* - Reclassify this segment from a 4-Lane Major Arterial to a 4-Lane Collector w/ TWLTL. In constrained areas, left-turn pockets will be provided only at intersections. A two-way Class IV cycle track will be provided on the west side of Morena Boulevard, while on-street parking on the east side will be retained.
- *West Morena Boulevard, from Morena Boulevard to Knoxville Street* - Reclassify this segment from a 4-Lane Major Arterial to a 4-Lane Collector w/ TWLTL. In constrained areas, left-turn pockets will be provided only at intersections. A two-way Class IV cycle track will be provided on the west side of West Morena Boulevard, while on-street parking on the east side will be retained.
- *West Morena Boulevard, South of Knoxville Street* - Reclassify this segment from a 4-Lane Major Arterial to a 4-Lane Collector w/ TWLTL. In constrained areas, left-turn pockets will be provided only at intersections. A two-way Class IV cycle track will be provided on the west side of West Morena Boulevard, while on-street parking on the east side will be retained.
- *Mt. Alifan Drive, from Genesee Avenue to Balboa Avenue* - Reclassify this segment from a 3-Lane Collector w/ TWLT to a 2-Lane Collector w/ TWLTL. The remaining roadway space will be repurposed to provide one-way Class IV cycle tracks in each direction along Mt. Alifan Drive, while retaining on-street parking on both sides.
- *Mt. Abernathy Avenue, from Balboa Avenue to Balboa Arms Drive* - Reclassify this segment from a 4-Lane Collector to a 3-Lane Collector w/ TWLTL. Mt. Abernathy Avenue will be classified as a Class III Bike Route along this segment while retaining on-street parking on both sides.
- *Knoxville Street, from Morena Boulevard to West Morena Boulevard* - Extend this 2-Lane Collector segment to create a new “T” intersection at Knoxville Street and West Morena Boulevard. Further study is needed to determine the preferred alignment and right-of-way requirements. Knoxville Street will be designated as a Class III bike route along this segment.
- *Damon Avenue, from Santa Fe Street to Clairemont Community Boundary* – This segment will be maintained as a 2-Lane Collector. Partial removal of parking would be necessary to add a two-way Class IV cycle track on the north side of the road along Damon Avenue.
- *Tecolote Road, from Morena Boulevard to Tecolote Recreation Center parking* – This segment will be maintained as a 2-Lane Collector. To add a one-way Class IV cycle track in each direction along Tecolote Road, removal of some existing on-street parking may be necessary. The extent of parking removal would depend on how far the facility extends, as the roadway narrows heading east into the park. These details can be determined at the project level or as adjacent areas redevelop.

A summary of these roadway modifications is presented in **Table 7**, and the Proposed Plan roadway classifications are illustrated in Figure 3.

### **On-Street Parking Removal**

Many of the Proposed Plan improvements identified throughout this section are intended to be implemented within the existing curb-to-curb environments. As such, the removal of existing on-street parking may be required to aid implementation, in some instances. It is anticipated that any additional parking demand associated with future developments will be accommodated on-site.

The Proposed Plan recommendations are intended to improve the mobility network for all modes of travel, including substantial investments in pedestrian, bicycle, and transit access improvements. When combined with the planned transit network expansions and service enhancements, these improvements will provide attractive alternatives to driving, potentially alleviating future on-street parking demand. Additionally, the Proposed Plan also supports the implementation of parking and curb management programs and strategies to further reduce parking demand, increase turnover, and make more efficient use of available curb space.

On-street parking, some of which were described in the Roadway Modifications subsection, may need to be removed at the following locations as network improvements are implemented:

- Clairemont Drive from Burgener Boulevard to Denver Street
- Clairemont Drive from Denver Street to I-5 NB Ramps
- Clairemont Mesa Boulevard from Luna Avenue to Moraga Avenue
- Clairemont Mesa Boulevard from Moraga Avenue to Clairemont Drive
- Clairemont Mesa Boulevard from Rofle Road to Clairemont Drive/Kleefeld Avenue
- Clairemont Mesa Boulevard from Clairemont Drive/Kleefeld Avenue to Genesee Avenue
- Clairemont Mesa Boulevard from Genesee Avenue to Dolivia Drive
- Genesee Avenue from SR-52 to Clairemont Mesa Boulevard
- Genesee Avenue from Balboa Avenue to Mt. Alifan Drive
- Genesee Avenue from Mt. Alifan Drive to Genesee Court
- Damon Avenue from Santa Fe Street to Clairemont Community Boundary
- Tecolote Road from Morena Boulevard to Tecolote Recreation Center Parking

The extent of on-street parking removal, whether at spot locations, portions of a segment, or along an entire corridor, will be determined at the project-level design of bikeway or transit facilities and other repurposing of the existing roadway. Additionally, it is important to note that on-street parking removal may also be required to meet sight distance and daylighting requirements (i.e., compliance with Assembly Bill 413), which are intended to enhance safety for pedestrians, bicyclists, and motorists at intersections.



**Table 7 - Planned Roadway Modifications**

| Roadway                   | Segment                                                | Existing Functional Classification | Planned Classification Designation                    | Planned Bicycle Facility                  | Parking Removal? |
|---------------------------|--------------------------------------------------------|------------------------------------|-------------------------------------------------------|-------------------------------------------|------------------|
| Balboa Avenue             | Morena Boulevard SB Ramps to Morena Boulevard NB Ramps | 4-Lane Major Arterial              | 5-Lane Major Arterial                                 | Class I (north side)                      | No <sup>1</sup>  |
| Balboa Avenue             | Morena Boulevard NB Ramps to Moraga Avenue             | 4-Lane Major Arterial              | 5-Lane Major Arterial                                 | Class I (north side)                      | No <sup>1</sup>  |
| Clairemont Drive          | Kleefeld Avenue to Clairemont Mesa Boulevard           | 4-Lane Collector w/ TWLTL          | 2-Lane Collector w/ TWLTL                             | Class IV One-Way Cycle Track              | No               |
| Clairemont Drive          | Balboa Avenue to Iroquois Avenue                       | 4-Lane Major Arterial              | 2-Lane Major Arterial <sup>7</sup>                    | Class IV One-Way Cycle Track <sup>7</sup> | No               |
| Clairemont Drive          | Iroquois Avenue to Burgener Boulevard                  | 4-Lane Collector w/ TWLTL          | 2-Lane Major Arterial                                 | Class IV One-Way Cycle Track              | No               |
| Clairemont Drive          | Burgener Boulevard to Denver Street                    | 2-Lane Collector w/ TWLTL          | 2-Lane Collector w/ TWLTL                             | Class IV One-Way Cycle Track              | Partial Removal  |
| Clairemont Drive          | Denver Street to I-5 NB Ramps                          | 4-Lane Major Arterial              | 4-Lane Major Arterial                                 | Class IV One-Way Cycle Track              | Yes              |
| Clairemont Mesa Boulevard | Luna Avenue to Moraga Avenue                           | 4-Lane Major Arterial              | 4-Lane Major Arterial                                 | Class IV One-Way Cycle Track              | Partial Removal  |
| Clairemont Mesa Boulevard | Moraga Avenue to Clairemont Drive                      | 4-Lane Major Arterial              | 4-Lane Major Arterial                                 | Class IV One-Way Cycle Track              | Partial Removal  |
| Clairemont Mesa Boulevard | Rolfe Road to Clairemont Drive / Kleefeld Avenue       | 4-Lane Major Arterial              | 4-Lane Major Arterial                                 | Class IV One-Way Cycle Track              | Partial Removal  |
| Clairemont Mesa Boulevard | Clairemont Drive / Kleefeld Avenue to Genesee Avenue   | 4-Lane Major Arterial              | 4-Lane Major Arterial                                 | Class IV One-Way Cycle Track              | Partial Removal  |
| Clairemont Mesa Boulevard | Genesee Avenue to Doliva Drive                         | 4-Lane Major Arterial              | 4-Lane Major Arterial                                 | Class IV One-Way Cycle Track              | Yes              |
| Genesee Avenue            | SR-52 to Clairemont Mesa Boulevard                     | 4-Lane Major Arterial              | 4-Lane Major Arterial (w/ Flex Lanes) <sup>2, 3</sup> | Class II                                  | Yes              |

**Table 7 - Planned Roadway Modifications**

| Roadway          | Segment                                     | Existing Functional Classification | Planned Classification Designation                        | Planned Bicycle Facility                                   | Parking Removal? |
|------------------|---------------------------------------------|------------------------------------|-----------------------------------------------------------|------------------------------------------------------------|------------------|
| Genesee Avenue   | Clairemont Mesa Boulevard to Bannock Avenue | 4-Lane Major Arterial              | 4-Lane Major Arterial (w/ Flex Lanes) <sup>2, 3</sup>     | Class III                                                  | No               |
| Genesee Avenue   | Bannock Avenue to Mt. Herbert Avenue        | 4-Lane Major Arterial              | 4-Lane Major Arterial (w/ Flex Lanes) <sup>2, 3</sup>     | Class II                                                   | No               |
| Genesee Avenue   | Mt. Herbert Avenue to Derrick Drive         | 4-Lane Major Arterial              | 6-Lane Major Arterial (w/ Flex Lanes) <sup>3, 4*, 6</sup> | Shared Bus / Bike Lane (west side)<br>Class II (east side) | No <sup>1</sup>  |
| Genesee Avenue   | Derrick Drive to Mt. Etna Drive             | 6-Lane Major Arterial              | 6-Lane Major Arterial (w/ Flex Lanes) <sup>3, 4</sup>     | Class II                                                   | No <sup>1</sup>  |
| Genesee Avenue   | Mt. Etna Drive to Balboa Avenue             | 5-Lane Major Arterial              | 6-Lane Major Arterial (w/ Flex Lanes) <sup>3, 4</sup>     | Class II                                                   | No <sup>1</sup>  |
| Genesee Avenue   | Balboa Avenue to Mt. Alifan Drive           | 5-Lane Major Arterial              | 6-Lane Major Arterial (w/ Flex Lanes) <sup>3, 4</sup>     | Class II                                                   | Yes              |
| Genesee Avenue   | Mt. Alifan Drive to Genesee Court           | 4-Lane Major Arterial              | 6-Lane Major Arterial (w/ Flex Lanes) <sup>3, 4*, 6</sup> | Shared Bus / Bike Lane (west side)<br>Class II (east side) | Yes              |
| Genesee Avenue   | Genesee Court to Boyd Avenue                | 4-Lane Major Arterial              | 5-Lane Major Arterial (w/ Flex Lanes) <sup>3, 5</sup>     | Class II                                                   | No <sup>1</sup>  |
| Genesee Avenue   | Boyd Avenue to Marlesta Drive               | 4-Lane Major Arterial              | 4-Lane Major Arterial (w/ Flex Lanes) <sup>2, 3</sup>     | Class II                                                   | No <sup>1</sup>  |
| Linda Vista Road | Stalmer Street to Mesa College Drive        | 4-Lane Collector w/ TWLTL          | 2-Lane Collector w/ TWLTL                                 | Class IV One-Way Cycle Track                               | No               |
| Morena Boulevard | Balboa EB-Ramps to Gesner Street            | 4-Lane Major Arterial              | 3-Lane Major Arterial                                     | Class IV Two-Way Cycle Track (west side)                   | No <sup>1</sup>  |
| Morena Boulevard | Gesner Street to Napier Street              | 4-Lane Major Arterial              | 4-Lane Collector w/ TWLTL                                 | Class IV Two-Way Cycle Track (west side)                   | No               |
| Morena Boulevard | Napier Street to West Morena Boulevard      | 4-Lane Major Arterial              | 4-Lane Collector w/ TWLTL                                 | Class IV Two-Way Cycle Track (west side)                   | No               |

**Table 7 - Planned Roadway Modifications**

| Roadway               | Segment                                                | Existing Functional Classification | Planned Classification Designation | Planned Bicycle Facility                  | Parking Removal? |
|-----------------------|--------------------------------------------------------|------------------------------------|------------------------------------|-------------------------------------------|------------------|
| West Morena Boulevard | Morena Boulevard to Knoxville Street                   | 4-Lane Major Arterial              | 4-Lane Collector w/ TWLTL          | Class IV Two-Way Cycle Track (west side)  | No               |
| West Morena Boulevard | South of Knoxville Street                              | 3-Lane Major Arterial              | 4-Lane Collector w/ TWLTL          | Class IV Two-Way Cycle Track (west side)  | No               |
| Mt. Alifan Drive      | Genesee Avenue to Balboa Avenue                        | 3-Lane Collector w/TWLT            | 2-Lane Collector w/ TWLTL          | Class IV One-Way Cycle Track              | No               |
| Mt. Abernathy Avenue  | Balboa Avenue to Balboa Arms Drive                     | 4-Lane Collector                   | 3-Lane Collector w/ TWLTL          | Class III                                 | No               |
| Knoxville Street      | Morena Boulevard to West Morena Boulevard              | 2-Lane Collector                   | 2-Lane Collector**                 | Class III                                 | No               |
| Damon Avenue          | Santa Fe Street to Clairemont Community Boundary       | 2-Lane Collector                   | 2-Lane Collector                   | Class IV Two-Way Cycle Track (north side) | Partial Removal  |
| Tecolote Road         | Morena Boulevard to Tecolote Recreation Center Parking | 2-Lane Collector                   | 2-Lane Collector                   | Class IV One-Way Cycle Track              | Partial Removal  |

Source: CR Associates (2025)

Notes:

<sup>1</sup> Parking Prohibited

<sup>2</sup> Two vehicular travel or general-purpose lanes and two flex lanes within existing curb-to-curb width.

<sup>3</sup> Queue jumps or other transit improvements may be implemented in lieu of flex lanes, depending on project-specific analyses and available right-of-way.

<sup>4</sup> Four vehicular travel or general-purpose lanes and two flex lanes within existing curb-to-curb width.

<sup>5</sup> Three vehicular travel or general-purpose lanes and two flex lanes within existing curb-to-curb width.

<sup>6</sup> Flex Lane or Shared Bus/Bike Lane

<sup>7</sup> In June 2025, the roadway segment was reduced to two lanes to accommodate the implementation of one-way cycle tracks.

\* The proposed flex lane on the west side will function as a shared bus/bike lane.

\*\* Under buildout of the Proposed Plan, Knoxville Street will extend to connect and create a new intersection with West Morena Boulevard.

TWLTL = Two-Way Left-Turn-Lane

### Intersection Modifications

Several intersections were modified to accommodate buildout of the roadway segment and bicycle classifications, as well as to support the transit corridors and pedestrian treatments associated with the pedestrian route typologies. A summary of intersection modifications to accommodate buildout of the roadway segment classifications, such as new intersection legs, lane geometry, signal modifications, and major traffic control modifications are presented in **Table 8**. These modifications are also illustrated in Figure 4. Additionally, Table 8 identifies intersections where lead pedestrian intervals (LPIs) and/or leading bicycle intervals (LBIs) are recommended to support the Proposed Plan's active transportation improvements.

Consistent with the proposed changes to the California Manual on Uniform Traffic Control Devices (MUTCD) and the Caltrans' Intersection Control Evaluation process, all proposed signal modifications, including new signals, should evaluate alternative intersection controls such as roundabouts, at the project-level. Additionally, before implementing any new traffic signals, signal warrants must be met in accordance with the California MUTCD.



**Table 8 - Planned Intersection Modifications**

| #  | Intersection                                 | Improvement                                                                                                                                                                                                                                                                                                                                                                                               | Geometry Modification <sup>1</sup> | LPI Modification | LBI Modifications | Signal Modification <sup>2</sup> | New Signal |
|----|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------|-------------------|----------------------------------|------------|
| 4  | Genesee Avenue & SR-52 EB Ramps              | Repurpose a through lane from the northbound and southbound approaches to accommodate flex lanes.                                                                                                                                                                                                                                                                                                         | ✓                                  |                  |                   | ✓                                |            |
| 5  | Clairemont Mesa Boulevard & Luna Avenue      | Restripe the eastbound approach to an exclusive left-turn lane and shared through-right turn lane configuration. Remove eastbound-right turn overlap.                                                                                                                                                                                                                                                     | ✓                                  | ✓                | ✓                 | ✓                                |            |
| 6  | Jutland Drive & Luna Avenue                  | Signalize intersection. Restripe the northbound, southbound, and eastbound approaches to an exclusive left-turn lane and shared through/right lane configuration. Protected left-turn phasing on all approaches.                                                                                                                                                                                          | ✓                                  |                  |                   |                                  | ✓          |
| 7  | Morena Boulevard & Jutland Drive             | Signalize intersection.                                                                                                                                                                                                                                                                                                                                                                                   |                                    |                  |                   |                                  | ✓          |
| 9  | Clairemont Drive & Clairemont Mesa Boulevard | Repurpose through lanes from the north and south legs to accommodate one-way cycle tracks. Restripe the northbound and southbound approaches to an exclusive left-turn lane, a through lane, and exclusive right-turn lane configuration. Addition of northbound and southbound right-turn overlap.                                                                                                       | ✓                                  | ✓                | ✓                 | ✓                                |            |
| 12 | Genesee Avenue & Clairemont Mesa Boulevard   | Repurpose a through lane from the northbound and southbound approaches to accommodate flex lanes. Restripe the eastbound and westbound approaches to dual left-turn lanes, two through lanes, and an exclusive right-turn lane configuration. Addition of right-turn overlaps at all approaches.                                                                                                          | ✓                                  | ✓                |                   | ✓                                |            |
| 13 | Limerick Avenue & Clairemont Mesa Boulevard  | Restripe the westbound approach to an exclusive left-turn lane, dual through lanes, and exclusive right-turn lane configuration.                                                                                                                                                                                                                                                                          | ✓                                  | ✓                | ✓                 | ✓                                |            |
| 16 | Genesee Avenue & Derrick Drive               | Repurpose through lanes from northbound and southbound approaches to accommodate flex lanes. Restripe the northbound and southbound approaches to an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane configuration. It is important to note Genesee Avenue between Mt. Herbert Avenue and Derrick Drive is configured with a shared bus/bike lane in the SB direction only. | ✓                                  | ✓                |                   | ✓                                |            |
| 17 | Genesee Avenue & Mt. Etna Drive              | Repurpose a through lane from the northbound approach to accommodate flex lanes. Restripe the northbound approach to an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane configuration.                                                                                                                                                                                      | ✓                                  | ✓                |                   | ✓                                |            |

**Table 8 - Planned Intersection Modifications**

| #  | Intersection                          | Improvement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Geometry Modification <sup>1</sup> | LPI Modification | LBI Modifications | Signal Modification <sup>2</sup> | New Signal |
|----|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------|-------------------|----------------------------------|------------|
| 18 | Genesee Avenue & Balboa Avenue        | Repurpose a through lane from the northbound approach to accommodate flex lanes. Restripe the northbound approach to dual left-turn lanes, two through lanes, and an exclusive right-turn lane configuration.                                                                                                                                                                                                                                                                                                                    | ✓                                  | ✓                | ✓                 | ✓                                |            |
| 19 | Genesee Avenue & Mt. Alifan Drive     | Repurpose a through lane from the northbound approach to accommodate flex lanes. Restripe the northbound approach to an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane configuration. Restripe the westbound approach to an exclusive left-turn lane, through lane, and exclusive right-turn lane configuration. Restripe the eastbound approach to an exclusive left-turn and a shared through-right lane configuration. Protected left-turn phasing for the eastbound and westbound approaches. | ✓                                  | ✓                |                   | ✓                                |            |
| 20 | Mt. Alifan Drive & Mt. Abraham Avenue | Repurpose through lane on southbound approach to accommodate one-way cycle tracks. Restripe the southbound approach to an exclusive left-turn lane and shared through-right lane configuration.                                                                                                                                                                                                                                                                                                                                  | ✓                                  |                  |                   |                                  |            |
| 21 | Mt. Abernathy Avenue & Balboa Avenue  | Through lane removed on southbound approach. Restripe the southbound approach to dual left-turn lanes, a through lane, and an exclusive right-turn lane configuration.                                                                                                                                                                                                                                                                                                                                                           | ✓                                  | ✓                |                   | ✓                                |            |
| 27 | Clairemont Drive & Balboa Avenue      | Restripe the eastbound and westbound approaches to dual left turn lanes, dual through lanes, and an exclusive right-turn lane configuration. Restripe the southbound approach to an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane configuration. Right-turn overlap added to southbound right.                                                                                                                                                                                                   | ✓                                  | ✓                | ✓                 | ✓                                |            |
| 31 | Burgener Boulevard & Clairemont Drive | Repurpose a through lane from the eastbound and westbound approaches to accommodate one-way cycle tracks. Restripe the eastbound and westbound approaches to an exclusive left-turn lane, through lane, and an exclusive right-turn lane configuration.                                                                                                                                                                                                                                                                          | ✓                                  | ✓                | ✓                 | ✓                                |            |
| 33 | Clairemont Drive & Iroquois Avenue    | Restripe the northbound and southbound approaches to an exclusive left-turn lane, a through lane, and an exclusive right-turn lane configuration.                                                                                                                                                                                                                                                                                                                                                                                | ✓                                  | ✓                | ✓                 | ✓                                |            |
| 39 | Genesee Avenue & Marlesta Drive       | Repurpose through lane from southbound approach to accommodate flex lanes. Restripe the southbound approach with an exclusive left-turn lane and through lane configuration.                                                                                                                                                                                                                                                                                                                                                     | ✓                                  |                  |                   | ✓                                |            |
| 40 | Linda Vista Road & Genesee Avenue     | Add a right-turn overlap on the eastbound approach.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                    |                  |                   | ✓                                |            |

**Table 8 - Planned Intersection Modifications**

| #  | Intersection                              | Improvement                                                                                                                                                                                                                                                             | Geometry Modification <sup>1</sup> | LPI Modification | LBI Modifications | Signal Modification <sup>2</sup> | New Signal |
|----|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------|-------------------|----------------------------------|------------|
| 43 | Linda Vista Road & Mesa College Drive     | Restripe the northbound and southbound approaches to dual left-turn lanes, a through lane, and an exclusive right-turn lane configuration. Restripe westbound approach to exclusive left-turn lane, two through lanes, and an exclusive right-turn lane configuration.  | ✓                                  | ✓                | ✓                 | ✓                                |            |
| 48 | Morena Boulevard & Balboa Avenue WB Ramps | Restripe the northbound approach to an exclusive left-turn lane and through lane configuration. Restripe the southbound approach to a through lane and an exclusive right-turn lane configuration. Add a right-turn overlap on the eastbound and southbound approaches. | ✓                                  |                  | ✓                 | ✓                                |            |
| 51 | Morena Boulevard WB Ramps & Garnet Avenue | Signalize and reconfigure intersection. An additional right-turn lane on the southbound approach. An additional through lane on the westbound approach.                                                                                                                 | ✓                                  |                  |                   |                                  | ✓          |

Source: CR Associates (2025)

Notes:

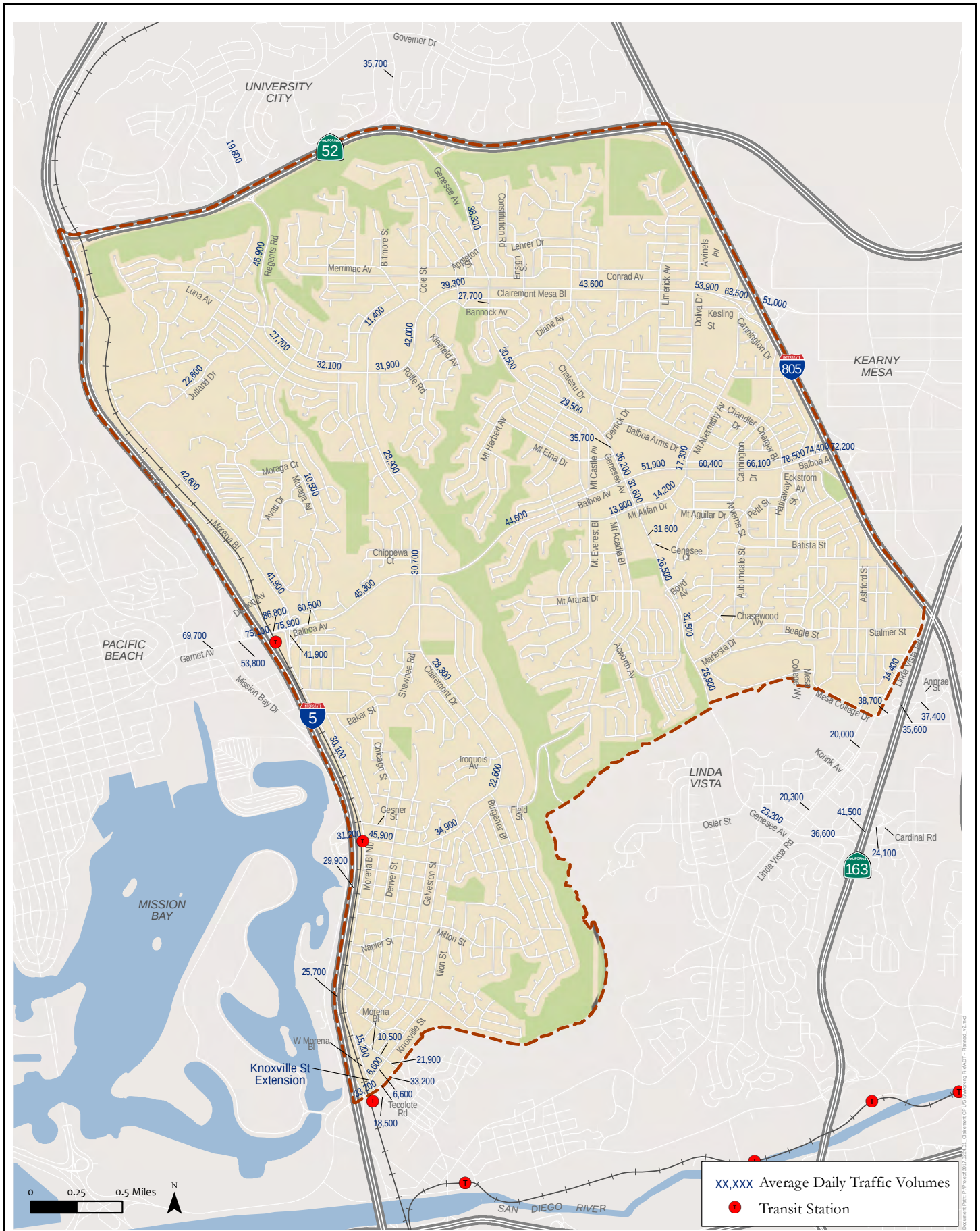
<sup>1</sup>Geometry modifications are changes to the intersection configuration which include the following examples: restriping, lane addition or removal, repurposing lanes, new intersection legs, new turn pockets, and channelization of turning movements.

<sup>2</sup>Signal modifications are changes to the phasing and key timings which includes the following examples: change in left-turn phasing (i.e., protected phasing, permissive phasing) and the addition or removal of a right-turn overlap. It is assumed that intersections along the Genesee Avenue corridor with proposed flex lanes will have signal modifications as part of the mobility concept.

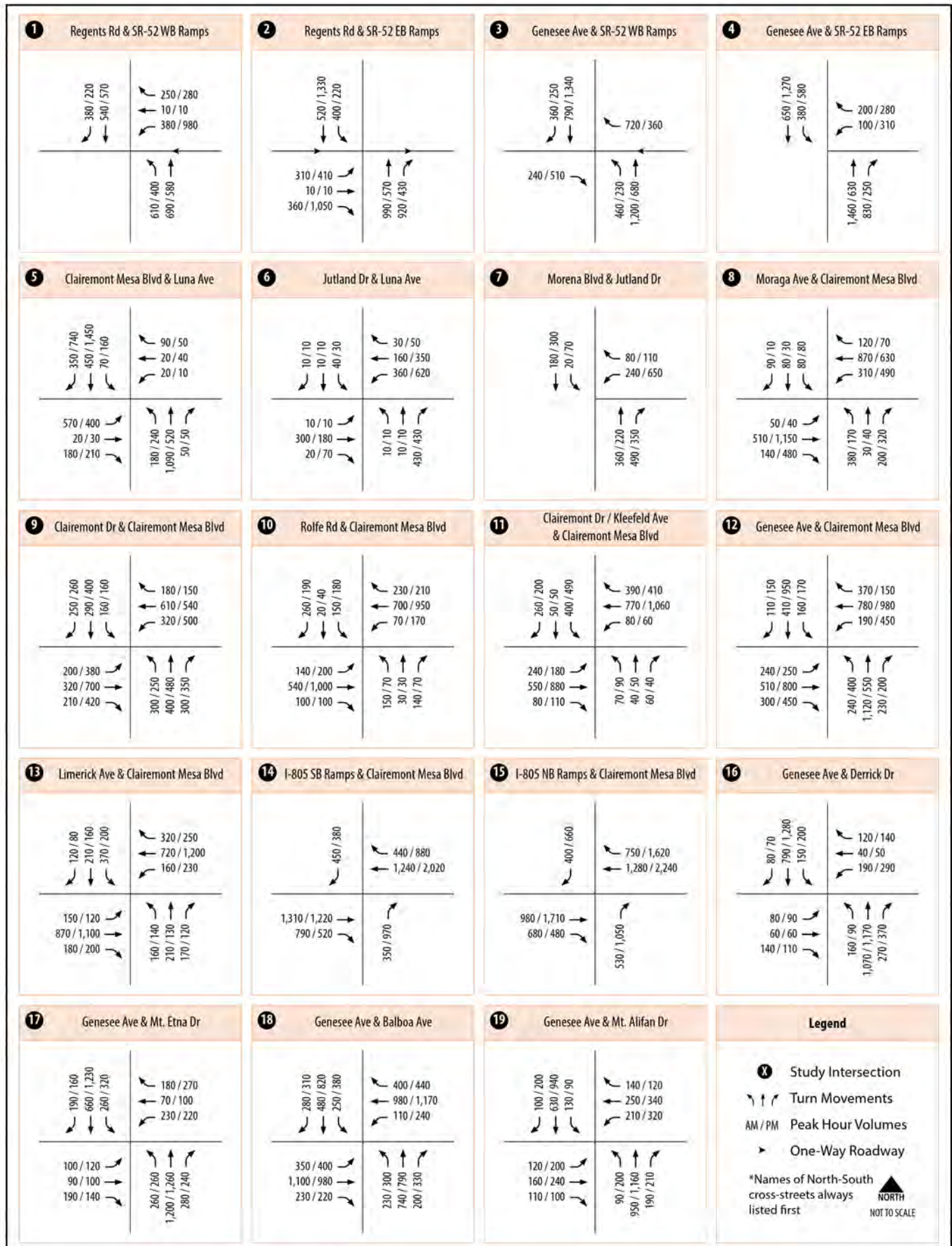
## Vehicular Demand

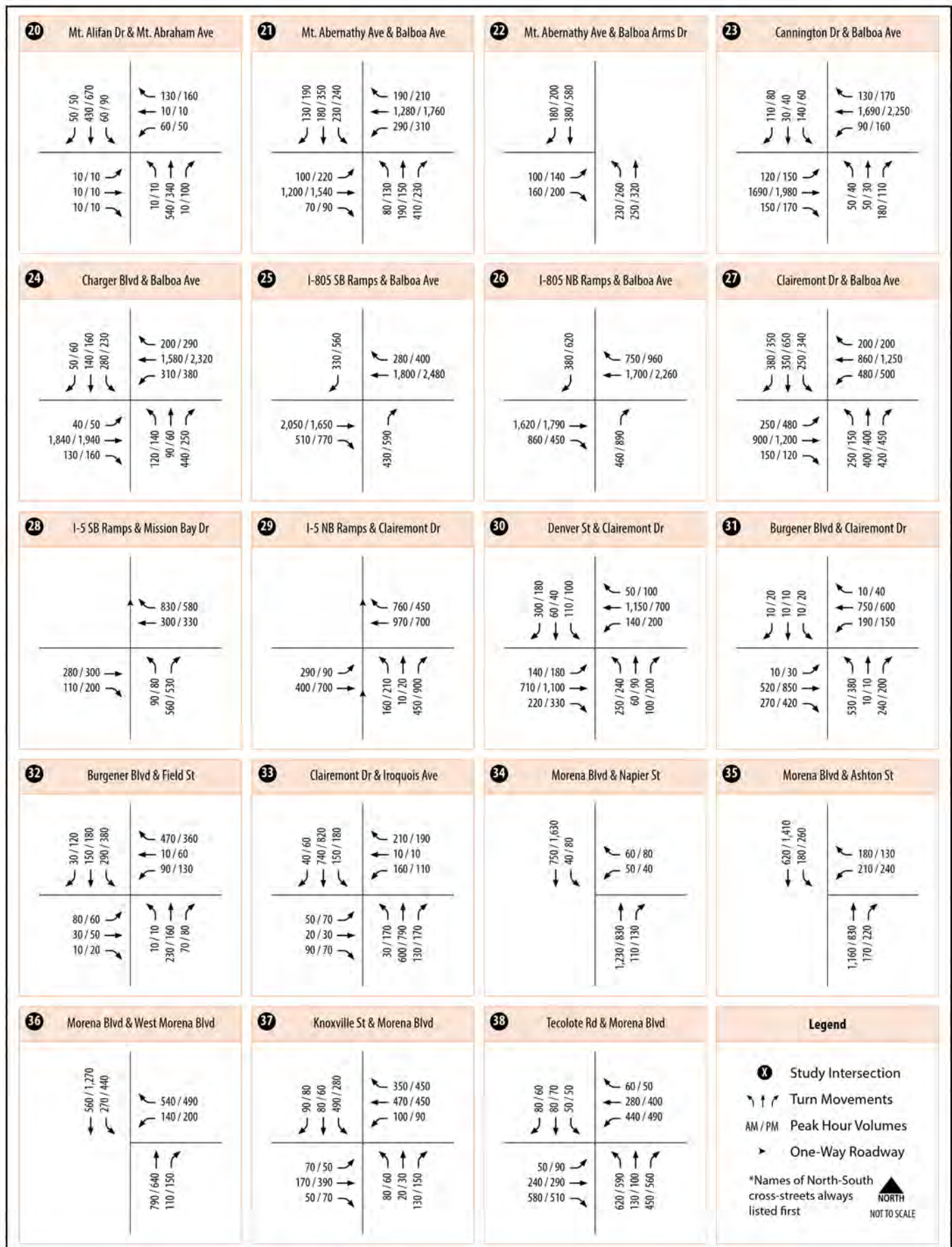
Traffic volumes for the Proposed Plan were derived from the SANDAG Series 13 Regional Plan (RP) model that was locally calibrated and customized for Clairemont. The project team analyzed the model outputs to estimate the traffic volumes upon full buildout of the Clairemont CPU, employing the City of San Diego's Mobility Adjustment Tool. This tool provides a structured approach to estimate future average daily traffic (ADT) volumes and to develop intersection turning movements (ITM) volumes, following the methodology outlined in the National Cooperative Highway Research Program Report (NCHRP) 255. These volumes were then adjusted to better reflect the land use assumptions from the customized SANDAG Series 13 RP model.

Adjustments to traffic volumes also considered changes in the roadway network layout and capacity, particularly the transformation of Genesee Avenue to provide flex lanes aimed at improving transit operations. The ADT under planned conditions for the Clairemont CPU is displayed in **Figure 8** and the ITM volumes are displayed in **Figure 9**.

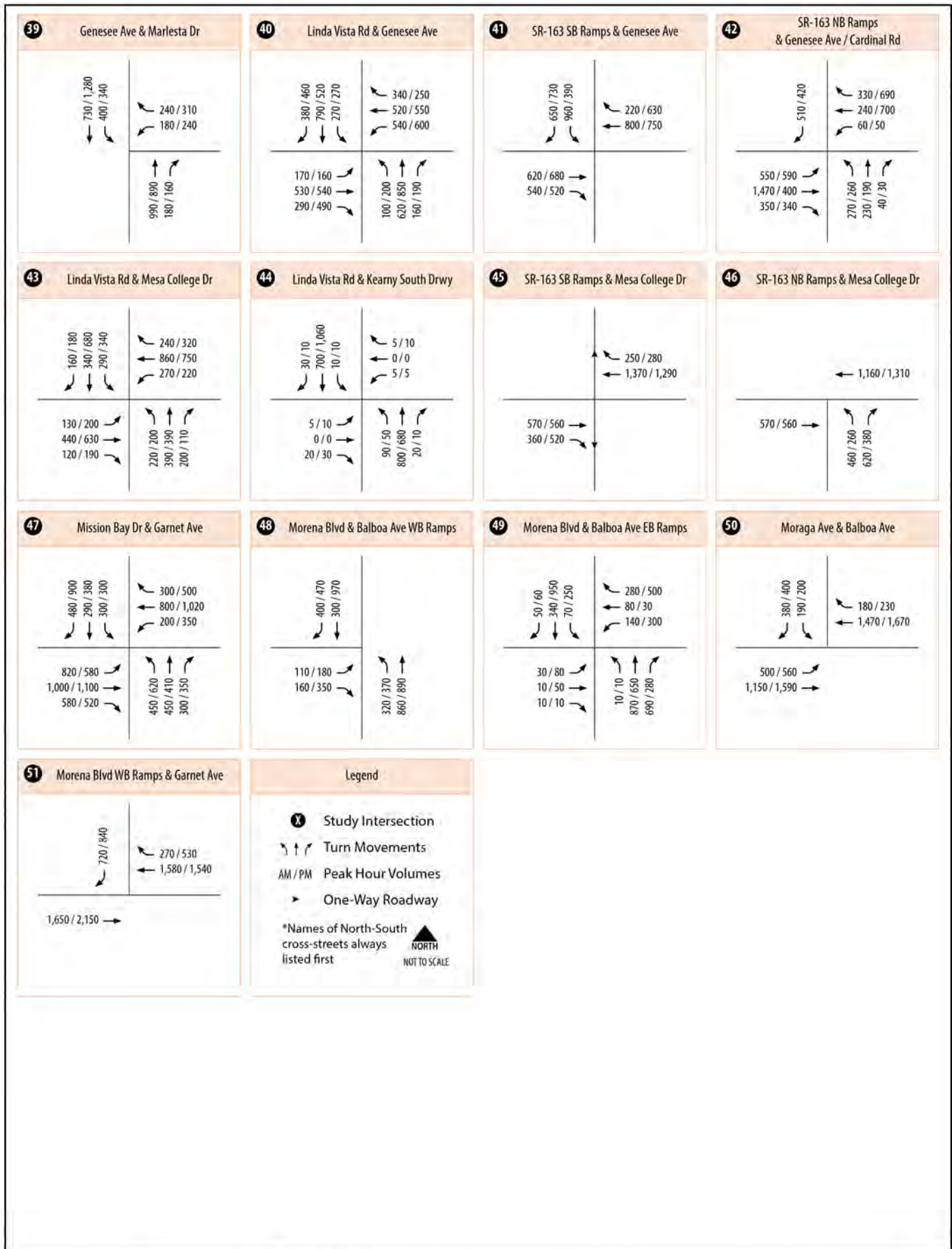












## Vehicular Performance

This section documents the Level of Service (LOS) results for the Clairemont CPU under Proposed Plan conditions. The LOS for each roadway segment was determined utilizing the roadway geometrics illustrated in Figure 3, forecasted ADT under Proposed Plan conditions, and the roadway capacity thresholds per the City of San Diego Transportation Study Manual (COSDTSM). Analysis of intersection operations was performed utilizing the traffic analysis software Synchro, the assumed geometry displayed in Figure 4 and forecasted ITM volumes adhering to the operational analysis methods for both signalized and unsignalized intersections as specified in the 2022 Highway Capacity Manual (HCM 7). A summary of the analysis methodologies and underlying assumptions can be found in **Attachment E**.

### Roadway Operation Analysis

**Table 9** displays the Clairemont CPU roadway classification designations, capacity thresholds, forecasted average daily traffic, volume to capacity ratios, resulting levels of service, and planned bicycle facilities under Proposed Plan conditions. The design of the flex lanes, transit-only lanes, or shared bus/bike lanes should follow the appropriate Mobility Element roadway classification from the City of San Diego Street Design Manual, based on the total number of travel lanes regardless of shared or dedicated use. For instance, a 4-lane Major Arterial with two lanes dedicated to transit would refer to design requirements that correspond to those of a 4-lane Major Arterial. However, from an operational analysis standpoint, these flex lanes were excluded from the LOS analyses, as they do not contribute to general vehicular capacity. This approach provides a more accurate representation of vehicular LOS and driver experience at these locations.

As shown, the implementation of the Clairemont CPU preferred land uses scenario and roadway modifications would result in fifteen (15) roadway segments operating at substandard LOS E and thirty-eight (38) roadway segments operating at substandard LOS F. In comparison to the existing conditions reported in the Clairemont CPU Mobility Element - Existing Conditions Report, three (3) roadway segments operate at substandard LOS E and eighteen (18) roadway segments operate at substandard LOS F. Many of the segments that are projected to operate at LOS E or LOS F under the full buildout of the Proposed Plan include flexible lanes or high-quality bikeways, which could encourage people to use alternative modes of transportation and help reduce single-occupancy vehicle demand.

**Table 9 - Roadway Segment LOS Results – Proposed Plan Conditions**

| Roadway          | Segment                                                | Cross-Section             | Capacity (LOS E) <sup>1</sup> | ADT    | V/C   | LOS | Bicycle Facility             |
|------------------|--------------------------------------------------------|---------------------------|-------------------------------|--------|-------|-----|------------------------------|
| Balboa Avenue    | Morena Boulevard SB Ramps to Morena Boulevard NB Ramps | 5-Lane Major Arterial     | 45,000                        | 75,900 | 1.687 | F   | Class I (north side)         |
| Balboa Avenue    | Morena Boulevard NB Ramps to Moraga Avenue             | 5-Lane Major Arterial     | 45,000                        | 60,500 | 1.344 | F   | Class I (north side)         |
| Balboa Avenue    | Moraga Avenue to Clairemont Drive                      | 4-Lane Major Arterial     | 40,000                        | 45,300 | 1.133 | F   | Class I (north side)         |
| Balboa Avenue    | Clairemont Drive to Genesee Avenue                     | 4-Lane Major Arterial     | 40,000                        | 44,600 | 1.115 | F   | Class IV One-Way Cycle Track |
| Balboa Avenue    | Genesee Avenue to Mt. Abernathy Avenue                 | 6-Lane Major Arterial     | 50,000                        | 51,900 | 1.038 | F   | Class IV One-Way Cycle Track |
| Balboa Avenue    | Mt. Abernathy Avenue to Mt. Albertine Avenue           | 6-Lane Major Arterial     | 50,000                        | 60,400 | 1.208 | F   | Class IV One-Way Cycle Track |
| Balboa Avenue    | Mt. Albertine Avenue to Charger Boulevard              | 6-Lane Major Arterial     | 50,000                        | 66,100 | 1.322 | F   | Class II                     |
| Balboa Avenue    | Charger Boulevard to I-805 SB Ramps                    | 6-Lane Prime Arterial     | 60,000                        | 78,500 | 1.308 | F   | Class IV One-Way Cycle Track |
| Balboa Avenue    | I-805 SB Ramps to I-805 NB Off-ramp (WB)               | 6-Lane Prime Arterial     | 77,000 <sup>2</sup>           | 74,400 | 0.966 | E   | Class IV One-Way Cycle Track |
| Balboa Avenue    | I-805 NB Off-ramp (WB) to I-805 NB Off-ramp (EB)       | 6-Lane Prime Arterial     | 60,000                        | 72,200 | 1.203 | F   | Class IV One-Way Cycle Track |
| Clairemont Drive | Kleefeld Avenue to Clairemont Mesa Boulevard           | 2-Lane Collector w/ TWLTL | 15,000                        | 11,400 | 0.760 | D   | Class IV One-Way Cycle Track |
| Clairemont Drive | Clairemont Mesa Boulevard to Chippewa Court            | 2-Lane Collector w/ TWLTL | 15,000                        | 28,900 | 1.927 | F   | Class II                     |
| Clairemont Drive | Chippewa Court to Balboa Avenue                        | 3-Lane Major Arterial     | 30,000                        | 30,700 | 1.023 | F   | Class II                     |
| Clairemont Drive | Balboa Avenue to Iroquois Avenue                       | 2-Lane Major Arterial     | 20,000                        | 28,300 | 1.415 | F   | Class IV One-Way Cycle Track |
| Clairemont Drive | Iroquois Avenue to Burgener Boulevard                  | 2-Lane Major Arterial     | 20,000                        | 22,600 | 1.130 | F   | Class IV One-Way Cycle Track |
| Clairemont Drive | Burgener Boulevard to Denver Street                    | 2-Lane Collector w/ TWLTL | 15,000                        | 34,900 | 2.327 | F   | Class IV One-Way Cycle Track |
| Clairemont Drive | Denver Street to I-5 NB Ramps                          | 4-Lane Major Arterial     | 40,000                        | 45,900 | 1.148 | F   | Class IV One-Way Cycle Track |



**Table 9 - Roadway Segment LOS Results – Proposed Plan Conditions**

| Roadway                      | Segment                                                    | Cross-Section                                         | Capacity<br>(LOS E) <sup>1</sup> | ADT    | V/C   | LOS | Bicycle Facility                |
|------------------------------|------------------------------------------------------------|-------------------------------------------------------|----------------------------------|--------|-------|-----|---------------------------------|
| Clairemont Drive             | I-5 NB Ramps to<br>I-5 SB Ramps                            | 4-Lane Major Arterial                                 | 40,000                           | 31,200 | 0.780 | D   | Class IV<br>One-Way Cycle Track |
| Clairemont Mesa<br>Boulevard | Luna Avenue to<br>Moraga Avenue                            | 4-Lane Major Arterial                                 | 40,000                           | 27,700 | 0.693 | C   | Class IV<br>One-Way Cycle Track |
| Clairemont Mesa<br>Boulevard | Moraga Avenue to<br>Clairemont Drive                       | 4-Lane Major Arterial                                 | 40,000                           | 32,100 | 0.803 | D   | Class IV<br>One-Way Cycle Track |
| Clairemont Mesa<br>Boulevard | Clairemont Drive to<br>Rolfe Road                          | 4-Lane Major Arterial                                 | 40,000                           | 31,900 | 0.798 | D   | Class IV<br>One-Way Cycle Track |
| Clairemont Mesa<br>Boulevard | Rolfe Road to Clairemont<br>Drive / Kleefeld Avenue        | 4-Lane Major Arterial                                 | 40,000                           | 42,000 | 1.050 | F   | Class IV<br>One-Way Cycle Track |
| Clairemont Mesa<br>Boulevard | Clairemont Drive /<br>Kleefeld Avenue to<br>Genesee Avenue | 4-Lane Major Arterial                                 | 40,000                           | 39,300 | 0.983 | E   | Class IV<br>One-Way Cycle Track |
| Clairemont Mesa<br>Boulevard | Genesee Avenue to<br>Doliva Drive                          | 4-Lane Major Arterial                                 | 40,000                           | 43,600 | 1.090 | F   | Class IV<br>One-Way Cycle Track |
| Clairemont Mesa<br>Boulevard | Doliva Drive to<br>I-805 SB Off-ramp (WB)                  | 5-Lane Major Arterial                                 | 45,000                           | 53,900 | 1.198 | F   | Class IV<br>One-Way Cycle Track |
| Clairemont Mesa<br>Boulevard | I-805 SB Off-ramp (WB) to<br>I-805 NB On-ramp (EB)         | 4-Lane Prime Arterial                                 | 64,100 <sup>2</sup>              | 63,500 | 0.991 | E   | Class IV<br>One-Way Cycle Track |
| Clairemont Mesa<br>Boulevard | I-805 NB On-ramp (EB) to<br>I-805 NB Off-ramp (EB)         | 6-Lane Major Arterial<br>as a SMART Corridor*         | 40,000                           | 51,000 | 1.275 | F   | - <sup>3</sup>                  |
| Garnet Avenue                | West of Mission Bay Drive                                  | 4-Lane Major Arterial                                 | 40,000                           | 69,700 | 1.743 | F   | - <sup>3</sup>                  |
| Garnet Avenue                | Mission Bay Drive to<br>I-5 SB On-ramp                     | 5-Lane Major Arterial                                 | 45,000                           | 53,800 | 1.196 | F   | Class I                         |
| Garnet Avenue                | I-5 SB On-ramp to<br>I-5 NB Off-ramp                       | 5-Lane Major Arterial                                 | 45,000                           | 75,100 | 1.669 | F   | Class I                         |
| Garnet Avenue                | I-5 NB Off-ramp to Morena<br>Boulevard SB On-ramp          | 5-Lane Major Arterial                                 | 45,000                           | 86,800 | 1.929 | F   | Class I                         |
| Genesee Avenue               | Governor Drive to SR-52                                    | 4-Lane Major Arterial                                 | 40,000                           | 35,700 | 0.893 | E   | - <sup>3</sup>                  |
| Genesee Avenue               | SR-52 to Clairemont Mesa<br>Boulevard                      | 4-Lane Major Arterial<br>(w/ Flex Lanes) <sup>4</sup> | 20,000                           | 38,300 | 1.915 | F   | Class II                        |
| Genesee Avenue               | Clairemont Mesa<br>Boulevard to<br>Bannock Avenue          | 4-Lane Major Arterial<br>(w/ Flex Lanes) <sup>4</sup> | 20,000                           | 27,700 | 1.385 | F   | Class III                       |

**Table 9 - Roadway Segment LOS Results – Proposed Plan Conditions**

| Roadway          | Segment                              | Cross-Section                                        | Capacity (LOS E) <sup>1</sup> | ADT    | V/C   | LOS | Bicycle Facility                                              |
|------------------|--------------------------------------|------------------------------------------------------|-------------------------------|--------|-------|-----|---------------------------------------------------------------|
| Genesee Avenue   | Bannock Avenue to Mt. Herbert Avenue | 4-Lane Major Arterial (w/ Flex Lanes) <sup>4</sup>   | 20,000                        | 30,500 | 1.525 | F   | Class II                                                      |
| Genesee Avenue   | Mt. Herbert Avenue to Derrick Drive  | 6-Lane Major Arterial (w/ Flex Lanes) <sup>5**</sup> | 40,000                        | 29,500 | 0.738 | C   | Shared Bus/Bike Lane**<br>(west side)<br>Class II (east side) |
| Genesee Avenue   | Derrick Drive to Mt. Etna Drive      | 6-Lane Major Arterial (w/ Flex Lanes) <sup>5</sup>   | 40,000                        | 35,700 | 0.893 | E   | Class II                                                      |
| Genesee Avenue   | Mt. Etna Drive to Balboa Avenue      | 6-Lane Major Arterial (w/ Flex Lanes) <sup>5</sup>   | 40,000                        | 36,200 | 0.905 | E   | Class II                                                      |
| Genesee Avenue   | Balboa Avenue to Mt. Alifan Drive    | 6-Lane Major Arterial (w/ Flex Lanes) <sup>5</sup>   | 40,000                        | 31,600 | 0.790 | D   | Class II                                                      |
| Genesee Avenue   | Mt. Alifan Drive to Genesee Court    | 6-Lane Major Arterial (w/ Flex Lanes) <sup>5**</sup> | 40,000                        | 31,600 | 0.790 | D   | Shared Bus/Bike Lane**<br>(west side)<br>Class II (east side) |
| Genesee Avenue   | Genesee Court to Boyd Avenue         | 5-Lane Major Arterial (w/ Flex Lanes) <sup>6</sup>   | 30,000                        | 26,500 | 0.883 | E   | Class II                                                      |
| Genesee Avenue   | Boyd Avenue to Marlesta Drive        | 4-Lane Major Arterial (w/ Flex Lanes) <sup>4</sup>   | 20,000                        | 31,500 | 1.575 | F   | Class II                                                      |
| Genesee Avenue   | Marlesta Drive to Osler Street       | 2-Lane Major Arterial                                | 20,000                        | 26,900 | 1.345 | F   | Class II                                                      |
| Genesee Avenue   | Osler Street to Linda Vista Road     | 4-Lane Major Arterial                                | 40,000                        | 23,200 | 0.580 | C   | - <sup>3</sup>                                                |
| Genesee Avenue   | Linda Vista Road to SR-163 SB Ramps  | 4-Lane Major Arterial                                | 40,000                        | 36,600 | 0.915 | E   | - <sup>3</sup>                                                |
| Genesee Avenue   | SR-163 SB Ramps to SR-163 NB Ramps   | 3-Lane Major Arterial                                | 30,000                        | 41,500 | 1.383 | F   | - <sup>3</sup>                                                |
| Genesee Avenue   | SR-163 NB Ramps to Cardinal Rd       | 3-Lane Major Arterial                                | 30,000                        | 24,100 | 0.803 | D   | - <sup>3</sup>                                                |
| Jutland Drive    | Morena Boulevard to Luna Avenue      | 2-Lane Collector                                     | 8,000                         | 22,600 | 2.825 | F   | Class II / Class III                                          |
| Linda Vista Road | Stalmer Street to Mesa College Drive | 2-Lane Collector w/ TWLTL                            | 15,000                        | 14,400 | 0.960 | E   | Class IV<br>One-Way Cycle Track                               |
| Linda Vista Road | Mesa College Drive to Korink Avenue  | 4-Lane Major Arterial                                | 40,000                        | 20,000 | 0.500 | B   | - <sup>3</sup>                                                |
| Linda Vista Road | Korink Avenue to Genesee Avenue      | 4-Lane Major Arterial                                | 40,000                        | 20,300 | 0.508 | B   | - <sup>3</sup>                                                |

**Table 9 - Roadway Segment LOS Results – Proposed Plan Conditions**

| Roadway               | Segment                                    | Cross-Section                | Capacity<br>(LOS E) <sup>1</sup> | ADT    | V/C   | LOS | Bicycle Facility                                              |
|-----------------------|--------------------------------------------|------------------------------|----------------------------------|--------|-------|-----|---------------------------------------------------------------|
| Mesa College Drive    | Linda Vista Road to SR-163 SB Ramps        | 4-Lane Major Arterial        | 40,000                           | 38,700 | 0.968 | E   | - 3                                                           |
| Mesa College Drive    | SR-163 SB Ramps to SR-163 NB Ramps         | 4-Lane Prime Arterial        | 45,000                           | 35,600 | 0.791 | D   | - 3                                                           |
| Mesa College Drive    | SR-163 NB Ramps to Annrae Street           | 4-Lane Prime Arterial        | 45,000                           | 37,400 | 0.831 | D   | - 3                                                           |
| Moraga Avenue         | Clairemont Mesa Boulevard to Balboa Avenue | 2-Lane Collector             | 8,000                            | 10,500 | 1.313 | F   | Class III<br>Moraga PI to Cadden Dr -<br>Class II (east side) |
| Morena Boulevard      | Jutland Drive to Avati Drive               | 4-Lane Major Arterial        | 40,000                           | 42,600 | 1.065 | F   | Class IV<br>Two-Way Cycle Track<br>(west side)                |
| Morena Boulevard      | Avati Drive to Balboa Avenue               | 4-Lane Major Arterial        | 40,000                           | 41,900 | 1.048 | F   | Class IV<br>Two-Way Cycle Track<br>(west side)                |
| Morena Boulevard      | Balboa Avenue to Balboa EB-Ramps           | 4-Lane Major Arterial        | 40,000                           | 41,900 | 1.048 | F   | Class IV<br>Two-Way Cycle Track<br>(west side)                |
| Morena Boulevard      | Balboa EB-Ramps to Gesner Street           | 3-Lane Major Arterial        | 30,000                           | 30,100 | 1.003 | F   | Class IV<br>Two-Way Cycle Track<br>(west side)                |
| Morena Boulevard      | Gesner Street to Napier Street             | 4-Lane Collector<br>w/ TWLTL | 30,000                           | 29,900 | 0.997 | E   | Class IV<br>Two-Way Cycle Track<br>(west side)                |
| Morena Boulevard      | Napier Street to West Morena Boulevard     | 4-Lane Collector<br>w/ TWLTL | 30,000                           | 25,700 | 0.857 | E   | Class IV<br>Two-Way Cycle Track<br>(west side)                |
| Morena Boulevard      | West Morena Boulevard to Knoxville Street  | 2-Lane Collector             | 8,000                            | 10,500 | 1.313 | F   | Class III                                                     |
| Morena Boulevard      | Knoxville Street to Tecolote Road          | 4-Lane Collector             | 15,000                           | 21,900 | 1.460 | F   | None                                                          |
| West Morena Boulevard | Morena Boulevard to Knoxville Street       | 4-Lane Collector<br>w/ TWLTL | 30,000                           | 15,200 | 0.507 | C   | Class IV<br>Two-Way Cycle Track<br>(west side)                |
| West Morena Boulevard | South of Knoxville Street                  | 4-Lane Collector<br>w/ TWLTL | 30,000                           | 18,500 | 0.617 | C   | Class IV<br>Two-Way Cycle Track<br>(west side)                |

**Table 9 - Roadway Segment LOS Results – Proposed Plan Conditions**

| Roadway              | Segment                                   | Cross-Section             | Capacity (LOS E) <sup>1</sup> | ADT    | V/C   | LOS      | Bicycle Facility             |
|----------------------|-------------------------------------------|---------------------------|-------------------------------|--------|-------|----------|------------------------------|
| Mt. Alifan Drive     | Mt. Acadia Boulevard to Genesee Avenue    | 4-Lane Collector          | 15,000                        | 13,900 | 0.927 | <b>E</b> | Class III                    |
| Mt. Alifan Drive     | Genesee Avenue to Balboa Avenue           | 2-Lane Collector w/ TWLTL | 15,000                        | 14,200 | 0.947 | <b>E</b> | Class IV One-Way Cycle Track |
| Mt. Abernathy Avenue | Balboa Avenue to Balboa Arms Drive        | 3-Lane Collector w/ TWLTL | 22,500                        | 17,300 | 0.769 | D        | Class III                    |
| Regents Road         | North of SR-52                            | 4-Lane Major Arterial     | 40,000                        | 19,800 | 0.495 | B        | - <sup>3</sup>               |
| Regents Road         | SR-52 to Luna Avenue                      | 4-Lane Major Arterial     | 40,000                        | 46,900 | 1.173 | <b>F</b> | Class IV One-Way Cycle Track |
| Knoxville Street     | Morena Boulevard to West Morena Boulevard | 2-Lane Collector          | 8,000                         | 6,600  | 0.825 | <b>E</b> | Class III                    |
| Tecolote Road        | I-5 NB Ramps to Morena Boulevard          | 4-Lane Major Arterial     | 40,000                        | 33,200 | 0.830 | D        | Class II                     |

Source: CR Associates (2025)

Notes:

**Bold** indicates substandard LOS E or F.

<sup>1</sup> Roadway capacity based on the number of vehicular travel lanes.

<sup>2</sup> Capacity accounts for auxiliary lanes along this segment.

<sup>3</sup> Segment outside of Clairemont Community Plan area. For planned roadway classifications and bikeways, refer to the adopted Community Plan and the Bicycle Master Plan, respectively.

<sup>4</sup> Two vehicular travel lanes and two flex lanes within existing curb-to-curb width.

<sup>5</sup> Four vehicular travel lanes and two flex lanes within existing curb-to-curb width.

<sup>6</sup> Three vehicular travel lanes and two flex lanes within existing curb-to-curb width.

\* Consistent with the Kearny Mesa Community Plan. A SMART Corridor is a 6-Lane Major with a flex lane in each direction that provides access between at least two freeways. These corridors increase safety, capacity, and efficiency by providing dedicated space for transit and other pooled services; manage demand in real-time; and maximize use of existing roadway space. The roadway segment analysis for a SMART Corridor applies a 25% ADT volume reduction to reflect multimodal use of 2 lanes and assumes the 4-Lane Major Arterial's daily traffic volume capacity and level of service standards.

\*\* The proposed flex lane on the west side will function as a shared bus/bike Lane

ADT = Average Daily Traffic

V/C = Volume to Capacity Ratio

TWLTL = Two-Way Left-Turn-Lane



### Intersection Operation Analysis

**Table 10** displays the traffic control type, peak hour intersection delay, and peak hour LOS for all study area intersections. Intersection LOS calculation worksheets for the Proposed Plan conditions are provided in **Attachment F**.

**Table 10 - Peak Hour Intersection LOS Results – Proposed Plan Conditions**

| #  | Intersection                                                   | Peak Hour | Control             | Delay | LOS |
|----|----------------------------------------------------------------|-----------|---------------------|-------|-----|
| 1  | Regents Road & SR-52 WB Ramps                                  | AM        | Signal              | 22.8  | C   |
|    |                                                                | PM        |                     | 44.6  | D   |
| 2  | Regents Road & SR-52 EB Ramps                                  | AM        | Signal              | 22.4  | C   |
|    |                                                                | PM        |                     | 37.0  | D   |
| 3  | Genesee Avenue & SR-52 WB Ramps                                | AM        | Uncontrolled / Free | -     | -   |
|    |                                                                | PM        |                     | -     | -   |
| 4  | Genesee Avenue & SR-52 EB Ramps                                | AM        | Signal              | 164.6 | F   |
|    |                                                                | PM        |                     | 74.2  | E   |
| 5  | Clairemont Mesa Boulevard & Luna Avenue                        | AM        | Signal              | 36.9  | D   |
|    |                                                                | PM        |                     | 40.2  | D   |
| 6  | Jutland Drive & Luna Avenue                                    | AM        | Signal <sup>1</sup> | 36.0  | D   |
|    |                                                                | PM        |                     | 53.4  | D   |
| 7  | Morena Boulevard & Jutland Drive                               | AM        | Signal <sup>2</sup> | 6.9   | A   |
|    |                                                                | PM        |                     | 11.7  | B   |
| 8  | Clairemont Mesa Boulevard & Moraga Avenue                      | AM        | Signal              | 52.9  | D   |
|    |                                                                | PM        |                     | 35.9  | D   |
| 9  | Clairemont Drive & Clairemont Mesa Boulevard                   | AM        | Signal              | 40.0  | D   |
|    |                                                                | PM        |                     | 46.0  | D   |
| 10 | Rolfe Road & Clairemont Mesa Boulevard                         | AM        | Signal              | 36.6  | D   |
|    |                                                                | PM        |                     | 26.0  | C   |
| 11 | Clairemont Drive / Kleefeld Avenue & Clairemont Mesa Boulevard | AM        | Signal              | 47.7  | D   |
|    |                                                                | PM        |                     | 41.2  | D   |
| 12 | Genesee Avenue & Clairemont Mesa Boulevard                     | AM        | Signal              | 77.3  | E   |
|    |                                                                | PM        |                     | 115.7 | F   |
| 13 | Limerick Avenue & Clairemont Mesa Boulevard                    | AM        | Signal              | 53.5  | D   |
|    |                                                                | PM        |                     | 46.2  | D   |
| 14 | I-805 SB Ramps & Clairemont Mesa Boulevard                     | AM        | Uncontrolled / Free | -     | -   |
|    |                                                                | PM        |                     | -     | -   |
| 15 | I-805 NB Ramps & Clairemont Mesa Boulevard                     | AM        | Signal              | 8.2   | A   |
|    |                                                                | PM        |                     | 29.5  | C   |
| 16 | Genesee Avenue & Derrick Drive                                 | AM        | Signal              | 26.2  | C   |
|    |                                                                | PM        |                     | 65.7  | E   |
| 17 | Genesee Avenue & Mt. Etna Drive                                | AM        | Signal              | 47.3  | D   |
|    |                                                                | PM        |                     | 51.8  | D   |
| 18 | Genesee Avenue & Balboa Avenue                                 | AM        | Signal              | 49.2  | D   |
|    |                                                                | PM        |                     | 40.6  | D   |
| 19 | Genesee Avenue & Mt. Alifan Drive                              | AM        | Signal              | 46.9  | D   |
|    |                                                                | PM        |                     | 59.4  | E   |
| 20 | Mt. Alifan Drive & Mt. Abraham Avenue                          | AM        | SSSC                | 23.4  | C   |
|    |                                                                | PM        |                     | 25.4  | D   |
| 21 | Mt. Abernathy Avenue & Balboa Avenue                           | AM        | Signal              | 27.6  | C   |
|    |                                                                | PM        |                     | 42.6  | D   |

**Table 10 - Peak Hour Intersection LOS Results – Proposed Plan Conditions**

| #  | Intersection                                     | Peak Hour | Control             | Delay | LOS |
|----|--------------------------------------------------|-----------|---------------------|-------|-----|
| 22 | Mt. Abernathy Avenue & Balboa Arms Drive         | AM        | AWSC                | 15.4  | C   |
|    |                                                  | PM        |                     | 29.9  | D   |
| 23 | Cannington Drive & Balboa Avenue                 | AM        | Signal              | 33.8  | C   |
|    |                                                  | PM        |                     | 40.1  | D   |
| 24 | Charger Boulevard & Balboa Avenue                | AM        | Signal              | 35.2  | D   |
|    |                                                  | PM        |                     | 44.4  | D   |
| 25 | I-805 SB Ramps & Balboa Avenue                   | AM        | Signal              | 7.2   | A   |
|    |                                                  | PM        |                     | 14.0  | B   |
| 26 | I-805 NB Ramps & Balboa Avenue                   | AM        | Signal              | 8.5   | A   |
|    |                                                  | PM        |                     | 18.4  | B   |
| 27 | Clairemont Drive & Balboa Avenue                 | AM        | Signal              | 53.1  | D   |
|    |                                                  | PM        |                     | 85.3  | F   |
| 28 | I-5 SB Ramps & Mission Bay Drive                 | AM        | SSSC                | 20.9  | C   |
|    |                                                  | PM        |                     | 24.4  | C   |
| 29 | I-5 NB Ramps & Clairemont Drive                  | AM        | Signal              | 44.7  | D   |
|    |                                                  | PM        |                     | 47.7  | D   |
| 30 | Denver Street & Clairemont Drive                 | AM        | Signal              | 53.7  | D   |
|    |                                                  | PM        |                     | 44.3  | D   |
| 31 | Burgener Boulevard & Clairemont Drive            | AM        | Signal              | 35.9  | D   |
|    |                                                  | PM        |                     | 46.3  | D   |
| 32 | Burgener Boulevard & Field Street                | AM        | AWSC                | 31.3  | D   |
|    |                                                  | PM        |                     | 27.0  | D   |
| 33 | Clairemont Drive & Iroquois Avenue               | AM        | Signal              | 14.4  | B   |
|    |                                                  | PM        |                     | 17.2  | B   |
| 34 | Morena Boulevard & Napier Street                 | AM        | SSSC                | 34.3  | D   |
|    |                                                  | PM        |                     | 26.3  | D   |
| 35 | Morena Boulevard & Ashton Street                 | AM        | Signal              | 29.3  | C   |
|    |                                                  | PM        |                     | 26.2  | C   |
| 36 | Morena Boulevard & West Morena Boulevard         | AM        | Signal              | 39.2  | D   |
|    |                                                  | PM        |                     | 28.3  | C   |
| 37 | Knoxville Street & Morena Boulevard              | AM        | Signal              | 45.2  | D   |
|    |                                                  | PM        |                     | 25.8  | C   |
| 38 | Tecolote Road & Morena Boulevard                 | AM        | Signal              | 42.2  | D   |
|    |                                                  | PM        |                     | 48.6  | D   |
| 39 | Genesee Avenue & Marlesta Drive                  | AM        | Signal              | 54.0  | D   |
|    |                                                  | PM        |                     | 47.7  | D   |
| 40 | Linda Vista Road & Genesee Avenue                | AM        | Signal              | 48.3  | D   |
|    |                                                  | PM        |                     | 48.1  | D   |
| 41 | SR-163 SB Ramps & Genesee Avenue                 | AM        | Signal              | 11.6  | B   |
|    |                                                  | PM        |                     | 9.7   | A   |
| 42 | SR-163 NB Ramps & Genesee Avenue / Cardinal Road | AM        | Signal              | 52.6  | D   |
|    |                                                  | PM        |                     | 33.7  | C   |
| 43 | Linda Vista Road & Mesa College Drive            | AM        | Signal              | 34.4  | C   |
|    |                                                  | PM        |                     | 43.2  | D   |
| 44 | Linda Vista Road & Kearny South Driveway         | AM        | SSSC                | 18.8  | C   |
|    |                                                  | PM        |                     | 13.8  | B   |
| 45 | SR-163 SB Ramps & Mesa College Drive             | AM        | Uncontrolled / Free | -     | -   |
|    |                                                  | PM        |                     | -     | -   |
| 46 | SR-163 NB Ramps & Mesa College Drive             | AM        | Signal              | 9.8   | A   |
|    |                                                  | PM        |                     | 9.5   | A   |

**Table 10** - Peak Hour Intersection LOS Results – Proposed Plan Conditions

| #  | Intersection                              | Peak Hour | Control             | Delay | LOS |
|----|-------------------------------------------|-----------|---------------------|-------|-----|
| 47 | Mission Bay Drive & Garnet Avenue         | AM        | Signal              | 54.5  | D   |
|    |                                           | PM        |                     | 53.7  | D   |
| 48 | Morena Boulevard & Balboa Avenue WB Ramps | AM        | Signal              | 10.3  | B   |
|    |                                           | PM        |                     | 32.6  | C   |
| 49 | Morena Boulevard & Balboa Avenue EB Ramps | AM        | Signal              | 26.5  | C   |
|    |                                           | PM        |                     | 31.2  | C   |
| 50 | Moraga Avenue & Balboa Avenue             | AM        | Signal              | 35.3  | D   |
|    |                                           | PM        |                     | 47.3  | D   |
| 51 | Morena Boulevard WB Ramps & Garnet Avenue | AM        | Signal <sup>3</sup> | 0.8   | A   |
|    |                                           | PM        |                     | 0.9   | A   |

Source: CR Associates (2025)

Note:

**Bold** indicates substandard LOS E or F.

SSSC – Side Street Stop Controlled      AWSC – All Way Stop Controlled

<sup>1</sup> Improved from existing three-way stop-controlled intersection to a signalized intersection.

<sup>2</sup> Improved from existing all-way stop-controlled intersection to a signalized intersection.

<sup>3</sup> Intersection improved from existing uncontrolled/free intersection to signalized intersection per the Balboa Avenue Station Area Specific Plan (BASASP)

As shown, the implementation of the Clairemont CPU preferred land use scenario would result in one (1) intersection operating at substandard LOS E and one (1) intersection at substandard LOS F during the AM peak hour. The PM peak hour would result in three (3) intersections at substandard LOS E and two (2) intersections at substandard LOS F. This represents a change from the conditions described in the Clairemont CPU Mobility Element - Existing Conditions Report, in which all project study intersections operate at LOS D or better during the AM peak hour, while three (3) intersections operate at substandard LOS E and two (2) intersections operate at substandard LOS F during the PM peak hour.

### **95<sup>th</sup> Percentile Queue Analysis**

A 95<sup>th</sup> percentile queueing analysis was conducted using Synchro 11 software at all study intersections adjacent to freeway ramps. **Table 11** displays queueing analysis results under Proposed Plan conditions. Intersection queueing reports are provided in **Attachment G**.

**Table 11 - 95<sup>th</sup> Percentile Queue Results – Proposed Plan Conditions**

| #  | Intersection                                     | Control Type | Lane Group | Storage Length | 95 <sup>th</sup> Percentile Queue <sup>1</sup> |         | Excess Queue |            |
|----|--------------------------------------------------|--------------|------------|----------------|------------------------------------------------|---------|--------------|------------|
|    |                                                  |              |            |                | AM Peak                                        | PM Peak | AM Peak      | PM Peak    |
| 1  | Regents Road & SR-52 WB Ramps                    | Signal       | WBTL       | 1,240          | 325                                            | 1,000   | 0            | 0          |
|    |                                                  |              | WBR        | 250            | 100                                            | 125     | 0            | 0          |
|    |                                                  |              | NBL        | 160            | 125                                            | 200     | 0            | <b>40</b>  |
|    |                                                  |              | SBR        | 400            | 75                                             | 75      | 0            | 0          |
| 2  | Regents Road & SR-52 EB Ramps                    | Signal       | EBL        | 335            | 250                                            | 125     | 0            | 0          |
|    |                                                  |              | EBTR       | 1,575          | 250                                            | 1,100   | 0            | 0          |
|    |                                                  |              | SBL        | 90             | 400                                            | 200     | <b>310</b>   | <b>110</b> |
| 4  | Genesee Avenue & SR-52 EB Ramps                  | Signal       | WBL        | 1,080          | 150                                            | 500     | 0            | 0          |
|    |                                                  |              | WBR        | 200            | 75                                             | 100     | 0            | 0          |
|    |                                                  |              | SBL        | 430            | 800                                            | 750     | <b>370</b>   | <b>320</b> |
| 15 | I-805 NB Ramps & Clairemont Mesa Boulevard       | Signal       | NBR        | 745            | 100                                            | 625     | 0            | 0          |
| 25 | I-805 SB Ramps & Balboa Avenue                   | Signal       | SBR        | 1,000          | 100                                            | 175     | 0            | 0          |
| 26 | I-805 NB Ramps & Balboa Avenue                   | Signal       | NBR        | 970            | 125                                            | 275     | 0            | 0          |
| 29 | I-5 NB Ramps & Clairemont Drive                  | Signal       | EBL        | 230            | 275                                            | 200     | <b>45</b>    | 0          |
|    |                                                  |              | WBR        | 160            | 100                                            | 100     | 0            | 0          |
|    |                                                  |              | NBTL       | 1,142          | 175                                            | 150     | 0            | 0          |
|    |                                                  |              | NBR        | 420            | 550                                            | 1,100   | <b>130</b>   | <b>680</b> |
| 41 | SR-163 SB Ramps & Genesee Avenue                 | Signal       | SBL        | 1,300          | 350                                            | 175     | 0            | 0          |
|    |                                                  |              | SBR        | 490            | 300                                            | 175     | 0            | 0          |
| 42 | SR-163 NB Ramps & Genesee Avenue / Cardinal Road | Signal       | EBL        | 190            | 350                                            | 375     | <b>160</b>   | <b>185</b> |
|    |                                                  |              | WBR        | 135            | 75                                             | 150     | 0            | <b>15</b>  |
| 46 | SR-163 NB Ramps & Mesa College Drive             | Signal       | SBR        | 1,050          | 50                                             | 75      | 0            | 0          |
|    |                                                  |              | NBL        | 1,215          | 125                                            | 100     | 0            | 0          |
|    |                                                  |              | NBR        | 1,215          | 125                                            | 75      | 0            | 0          |

Source: CR Associates (2025)

Notes:

<sup>1</sup> Queues are rounded to the nearest 25 feet to represent one vehicle length.

**Bold** indicates excess queue extending past available storage.

As shown in Table 11, 95<sup>th</sup> percentile queue is anticipated to exceed available storage for the following seven (7) movements at five (5) intersections:

1. Regents Road & SR-52 WB Ramps
  - Northbound Left-Turn – Under Proposed Plan conditions, the 95<sup>th</sup> percentile queue would exceed available storage by 40 feet during the PM peak hour.
2. Regents Road & SR-52 EB Ramps
  - Southbound Left-Turn - Under Proposed Plan conditions, the 95<sup>th</sup> percentile queue would exceed available storage by 310 feet during the AM peak hour and 110 feet during the PM peak hour.
4. Genesee Avenue & SR-52 EB Ramps
  - Southbound Left-Turn - Under Proposed Plan conditions, the 95<sup>th</sup> percentile queue would exceed available storage by 370 feet during the AM peak hour and 320 feet during the PM peak hour.

#### 29. I-5 NB Ramps & Clairemont Drive

- Eastbound Left-Turn - Under Proposed Plan conditions, the 95<sup>th</sup> percentile queue would exceed available storage by 45 feet during the AM peak hour.
- Northbound Right-Turn - Under Proposed Plan conditions, the 95<sup>th</sup> percentile queue would exceed available storage by 130 feet during the AM peak hour and 680 feet during the PM peak hour.

#### 42. SR-163 NB Ramps & Genesee Avenue / Cardinal Road

- Eastbound Left-Turn - Under Proposed Plan conditions, the 95<sup>th</sup> percentile queue would exceed available storage by 160 feet during the AM peak hour and 185 feet during the PM peak hour.
- Westbound Right-Turn - Under Proposed Plan conditions, the 95<sup>th</sup> percentile queue would exceed available storage by 15 feet during the PM peak hour.

## Concept Improvements

As part of the Clairemont Community Plan Update, five (5) conceptual designs have been developed to improve safety, mobility, and connectivity within the community. Each concept targets a key location and applies innovative design strategies to enhance multimodal access, reduce conflicts, and support active transportation. The following section provides an overview of each conceptual design, highlighting the specific improvements proposed at each location. Detailed descriptions, accompanying graphics, and design features are provided to illustrate the vision for a safer and more accessible transportation network in the Clairemont community.



## Clairemont Drive and Clairemont Mesa Boulevard (Alternative Concept)

As part of the Clairemont Community Plan Update, a protected intersection alternative concept was explored at the intersection of Clairemont Drive and Clairemont Mesa Boulevard, as displayed in **Figure 10**. The concept is designed to enhance safety and improve multimodal access for all users, including pedestrians, bicyclists, and motorists, aligning with the City of San Diego's Vision Zero goals and the Climate Action Plan (CAP) mobility targets.

The potential intersection design incorporates the following key features:

- **Separated Bikeways and Crossings:** One-way cycle tracks with physical separation from vehicular lanes extend through the intersection. Green pavement markings increase the visibility of bike facilities and guide cyclists through the conflict zones safely. Bike crossings are set back from the vehicle lanes to enhance sight lines and reduce turning conflicts.
- **Corner Safety Islands:** Concrete corner islands provide a physical buffer between vehicles and vulnerable users. These islands shorten pedestrian crossing distances, offer waiting areas for cyclists, and facilitate safer turning movements for vehicles by reducing speeds at the intersection corners.
- **High-Visibility Crosswalks:** Bold, high-visibility crosswalks are included on all legs of the intersection to improve pedestrian safety. The wide crosswalks are set back from the intersection to accommodate the separated bikeways and minimize conflicts between pedestrians and turning vehicles.

**Figure 10** – Conceptual Protected Intersection at Clairemont Drive and Clairemont Mesa Boulevard



- **Signalization Enhancements:** Traffic signals would be upgraded to include dedicated bicycle signals and pedestrian heads, promoting organized and safe crossing movements. The potential for leading pedestrian intervals (LPI) and dedicated bike signal phases could also be considered to further enhance safety.
- **ADA-Compliant Features:** The design incorporates ADA-compliant curb ramps with tactile warning strips, ensuring accessibility for all users, including those with disabilities.
- **Context-Sensitive Design:** The protected intersection is integrated into the urban fabric of Clairemont, supporting adjacent land uses such as commercial areas, residential developments, and community amenities. The design enhances first-mile/last-mile connectivity, encouraging active transportation, and reducing reliance on single-occupancy vehicles.



This protected intersection could serve as a cornerstone for safer, more efficient mobility in the Clairemont community. It complements broader efforts in the Mobility Element to create a connected network of safe, convenient, and comfortable facilities for people walking, biking, or utilizing transit. By prioritizing the needs of non-motorized users and applying innovative best practices in intersection design, the protected intersection concept aims to significantly reduce conflicts, improve traffic operations, and contribute to a more sustainable and livable Clairemont.

It is important to note that this conceptual design is an alternative concept shown for illustrative purposes only and does not reflect the geometry analyzed at the Clairemont Drive and Clairemont Mesa Boulevard intersection as documented within this MTR. Final improvements, intersection geometry, and design details will need to be determined through future detailed engineering analyses.

## Morena Boulevard and Balboa Avenue

At the intersection of Balboa Avenue and Morena Boulevard, the proposed concept builds upon the existing grade-separated configuration, as displayed in **Figure 11**. Under existing conditions, multiple ramps connect Morena Boulevard to Balboa Avenue, facilitating a series of free-flowing movements that may result in high vehicle speeds and potential numerous pedestrian and bicycle conflict points.

The proposed improvements focus on reconfiguring and consolidating these ramps to simplify vehicle movements and enhance safety for all users.

Key design features include:

- **Ramp Consolidation:** The existing multiple ramp connections will be consolidated into a singular signalized controlled access point. This reduction in the number of free-flowing movements is aimed at minimizing conflict points and improving overall safety for pedestrians and bicyclists.
- **Pedestrian and Bicycle Enhancements:** Improved pedestrian crossings and continuous bicycle facilities (two-way cycle track along Morena Blvd and multi-use path along Balboa Avenue) are proposed to promote safer and more direct connections across the intersection.
- **Roadway Widening on Balboa Avenue:** Balboa Avenue is proposed to be widened in the westbound direction from two lanes to three lanes. This improvement will increase capacity and improve traffic flow for vehicles traveling westbound.

This reconfiguration is intended to maintain regional traffic mobility while substantially improving local access and safety. The design supports the community's broader goals of promoting active transportation and improving the multimodal environment around this key intersection, including connections to nearby transit facilities such as the Balboa Avenue Trolley Station. Additionally, these improvements align with the Balboa Avenue Station Area Specific Plan (BASASP)<sup>2</sup> as the following improvements are described:

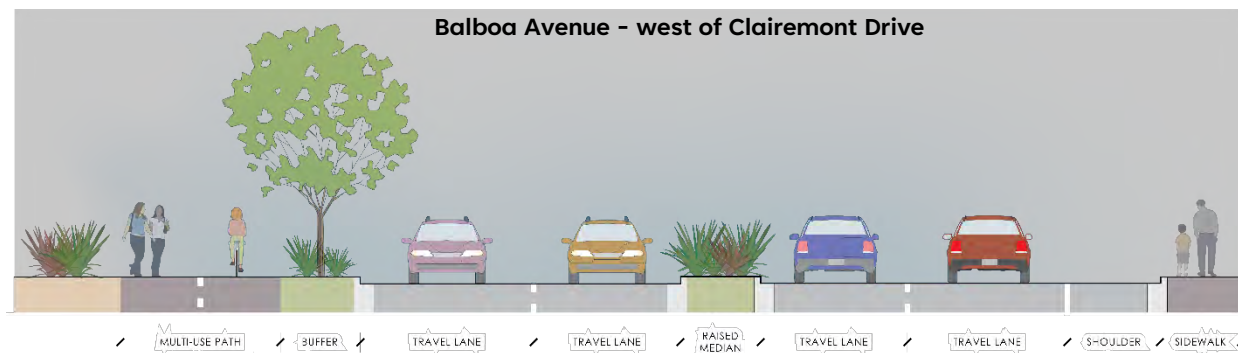
- Support the modification of westbound Balboa Avenue travel lanes to provide three westbound lanes and two eastbound lanes from Moraga Avenue to Morena westbound ramps.
- Support the removal of the northbound Morena Boulevard to westbound Balboa Avenue ramp to remove barriers that deter bicyclists and pedestrians along the roadway.
- Support the modification of the Morena Boulevard ramp roadway and the existing traffic signal at Morena Boulevard north of Balboa Avenue to accommodate northbound Morena Boulevard traffic traveling west to Balboa Avenue.
- Support the installation of a traffic signal at the westbound Balboa Avenue and Morena Boulevard ramps to provide safe crossings for pedestrians and bicyclists while maintaining right turning movements at the intersection.
- Support the removal of the free-right movements at intersections with Morena Boulevard.

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<sup>2</sup> [Balboa Avenue Station Area Specific Plan](#)



**Figure 11 – Conceptual Improvements at Morena Boulevard and Balboa Avenue**



## Clairemont Mesa Boulevard and Frink Avenue

The intersection of Clairemont Mesa Boulevard and Frink Avenue is proposed for enhancements as displayed in **Figure 12** that prioritize multimodal safety and access, particularly for non-motorized users.

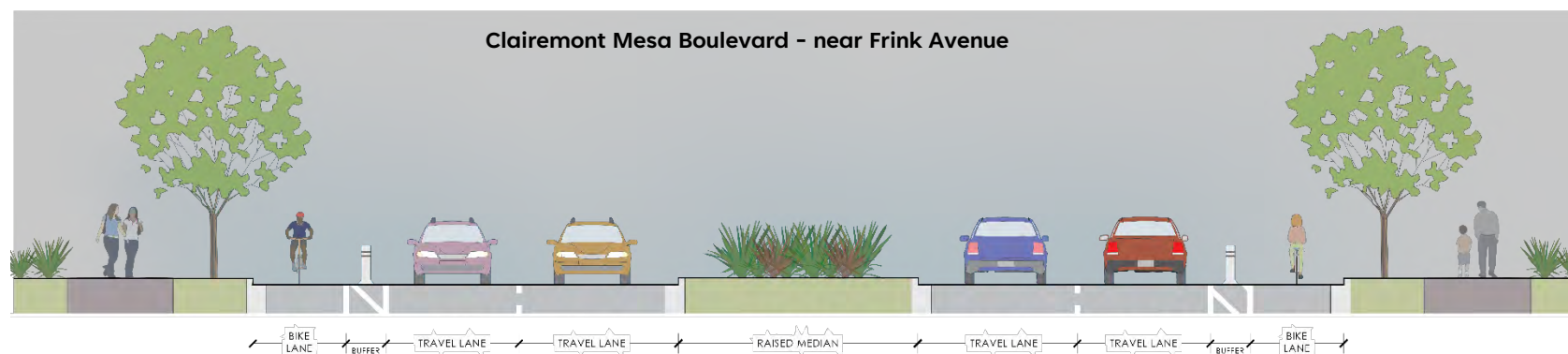
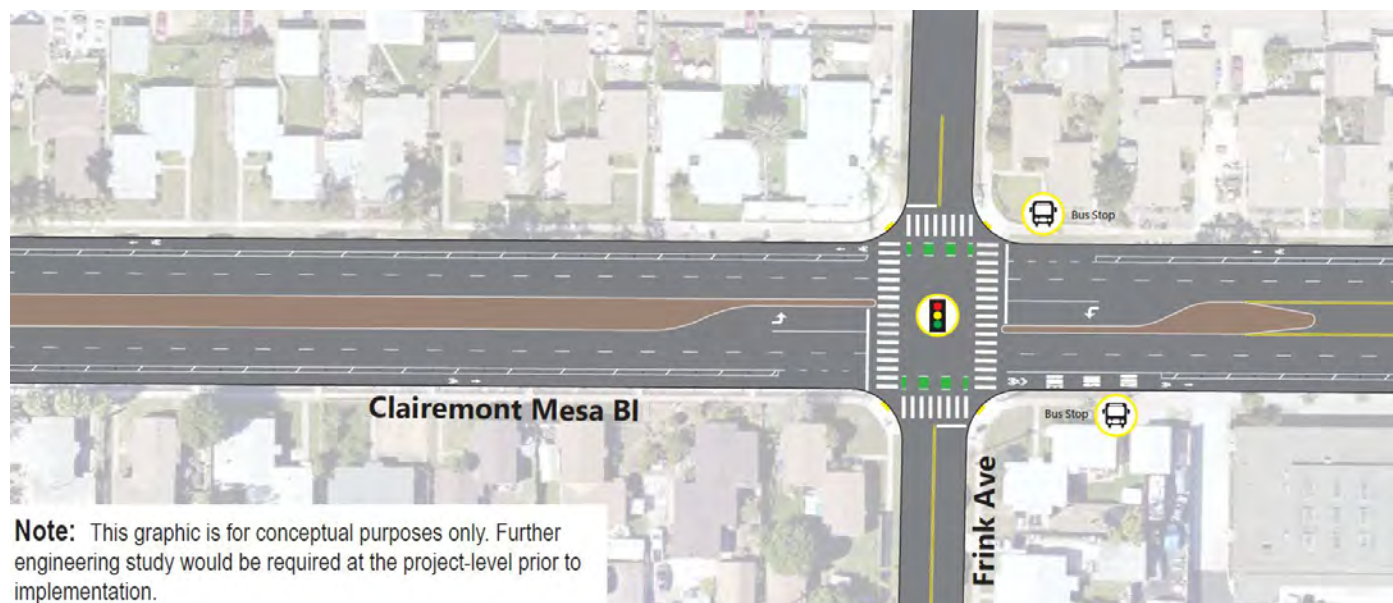
Key design features include:

- **Dedicated Bicycle Facilities:** Buffered or separated bikeways along Clairemont Mesa Boulevard, promoting a safer and more comfortable environment for cyclists.
- **Shared Bus-Bike Lane:** The design includes a bus-bike segment east of Frink Avenue, allowing bicycles and buses to share space. This facilitates access for pedestrians and/or cyclists to access public transit.
- **No-Parking Zone Near Intersection:** Parking restrictions are proposed near the intersection to improve sight lines, enhance safety for turning movements, and accommodate improved bike and pedestrian facilities.
- **Traffic Calming Measures:** Narrower travel lanes are being considered to slow vehicle speeds and promote a safer, more walkable environment.

This intersection improvement aligns with the overall Mobility Element goal of creating a safer and more accessible community by enhancing key pedestrian and bicycle connections.



**Figure 12** – Conceptual Improvements at Frink Avenue and Clairemont Mesa Boulevard



## Genesee Avenue and Mt. Alifan Drive

The proposed enhancements at the Genesee Avenue and Mt. Alifan Drive intersection, as displayed in **Figure 13**, focus on improving transit and bicycle facilities along one of Clairemont's busiest corridors. Genesee Avenue serves as the only continuous north-south corridor that traverses through the Clairemont community, providing critical connectivity to adjacent neighborhoods such as University City to the north and Linda Vista to the south.

Key design features include:

- **Flex Lanes (Bus-Only Lanes):** Dedicated bus-only lanes along Genesee Avenue will facilitate high-frequency and efficient transit operations. The lanes are intended to support bus rapid transit (BRT) services and improve overall transit reliability. However, other transit improvements may be considered as alternatives or complements to flex lanes, depending on funding availability and design constraints. These could include transit signal priority (TSP), queue jump lanes, bus bulb-outs, or enhanced bus stops with real-time arrival information and shelters.
- **Enhanced Bus Stops:** Upgraded bus stops with amenities such as shelters, seating, and real-time arrival information are recommended to improve the rider experience.<sup>3</sup>
- **Bicycle Connectivity:** Green bike boxes positioned at the intersection approaches provide a designated space for bicyclists to wait ahead of vehicles at signalized intersections, enhancing visibility and reducing potential conflicts with turning vehicles. This treatment improves safety for cyclists making through or turning movements and supports a more predictable and comfortable riding experience.

This design concept advances regional efforts to create a robust, multimodal transportation network by prioritizing transit and active transportation modes. Additionally, these improvements align with SANDAG's conceptual plans for Rapid Route 41 to operate along Genesee Avenue, connecting major regional destinations including Fashion Valley, Linda Vista, Clairemont Mesa, and the UC San Diego/UTC area. The Rapid 41 corridor is envisioned to include transit-priority treatments such as bus-only lanes, transit signal priority (TSP), and enhanced stations, many of which are reflected in the conceptual improvements planned at Mt. Alifan Drive. By integrating local intersection upgrades with regional transit strategies, the Genesee-Mt. Alifan concept supports broader efforts to enhance transit reliability, connectivity, and multimodal accessibility throughout the corridor.

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<sup>3</sup> It is important to note that the City of San Diego does not have control over bus stop amenities. Therefore, it is recommended coordination take place between City of San Diego and San Diego Metropolitan Transit System (SDMTS). Additionally, transit amenities for each bus stop should be determined based on SDMTS' *Designing for Transit A Manual for Integrating Public Transportation and Land Development in the San Diego Metropolitan Area* (February 2018).

**Figure 13** – Conceptual Improvements at Genesee Avenue and Mt. Alifan Drive



**Genesee Avenue - near Mt. Alifan Drive**



## Linda Vista Road and Mesa College Drive

At the intersection of Linda Vista Road and Mesa College Drive, as displayed in **Figure 14**, a concept with Complete Streets elements is proposed to support students, faculty, and staff accessing both Kearny High School and Mesa College, as well as surrounding community members.

Key design features include:

- **High-Visibility Crosswalks:** High-visibility crosswalks improve pedestrian comfort and safety.
- **Bikeway Improvements:** Dedicated and separated bikeways are proposed to create safe and direct connections to Kearny High School, Mesa College, and surrounding neighborhoods.

This concept promotes a more accessible, safe, and inviting environment for all modes, with a particular emphasis on enhancing access to education facilities and supporting first-mile/last-mile connectivity. Additionally, these improvements align with the Linda Vista Comprehensive Active Transportation Plan<sup>4</sup> as the following recommendations are described:

- Provide buffered areas to the existing bicycle facilities (Class II bike lanes) to create more separation between the vehicular travel lanes and the bike lanes and sidewalk.
- Reduce travel lanes to accomplish the provision of buffered areas.

It is important to note that the concept proposes improvements on the eastern and southern legs of the intersection, which fall within the Linda Vista community. Therefore, coordination with the community will be necessary at the project level. This graphic is for conceptual purposes only. Further engineering study would be required prior to implementation.

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<sup>4</sup> [Linda Vista Comprehensive Active Transportation Plan](#)



**Figure 14** – Conceptual Improvements at Intersection Linda Vista Road and Mesa College Drive





## Goods Movement

The efficient movement of goods is vital to supporting Clairemont's diverse commercial corridors, facilitating local economic development, and ensuring convenient access to commercial goods and services for residents and businesses. To sustain these activities, the community's roadway network must maintain adequate accommodation for freight and delivery vehicles.

Clairemont has several key areas that generate (and are expected to continue generating) freight traffic, distributed primarily along major arterial corridors:

- Clairemont Mesa Boulevard, which serves as the community's central commercial spine, supporting a wide range of retail, service, dining establishments, and future mixed-use villages.
- Balboa Avenue, home to larger shopping centers, grocery stores, service-oriented businesses, and future mixed-use villages.
- Morena Boulevard, located on the community's western edge adjacent to the Interstate 5 corridor, is home to industrial uses, warehouses, and distribution centers primarily concentrated in the Rose Creek/Canyon Industrial District and Tecolote Gateway.

Most goods and freight in Clairemont are transported by trucks using the adjacent state and interstate highways. As outlined above, trucks primarily utilize Balboa Avenue, Clairemont Mesa Boulevard, and Morena Boulevard for goods movement. These thoroughfares facilitate efficient access to and from Clairemont's existing and planned neighborhood commercial areas, mixed-use villages, and industrial zones, while also connecting to the broader regional and interstate trucking networks. However, truck freight traffic can contribute to localized impacts, including increased noise, emissions, and congestion, especially along corridors adjacent to residential neighborhoods, schools, and parks.

According to the City of San Diego Municipal Code Chapter 8, Article 5, heavy freight vehicles exceeding two tons gross vehicle weight are prohibited from using specific residential streets not designated for truck traffic. Designated truck routes near Clairemont include Interstate 5, Interstate 805, and State Route 52, all of which are part of the national truck route network under the Surface Transportation Assistance Act (STAA). Transportation permits are required for oversized loads per California Vehicle Code §15 and are restricted during peak commute periods (7:00–9:00 AM and 4:00–6:00 PM) and within 30 minutes before sunset or after sunrise.

As Clairemont continues to evolve, it will be essential to balance the need for efficient goods movement and commercial vitality with the community's residential character and environmental goals. The CPU includes policies aimed at accommodating goods movement while minimizing the impacts of truck traffic, deliveries, and staging. Design considerations, such as appropriate curb and corner radii, designated loading and unloading areas, and sufficient vertical and horizontal clearances, help ensure that trucks can safely navigate roadways and intersections and coexist with multimodal facilities. Specific design concepts and operational features to facilitate goods movement will be further developed at the project level as infrastructure improvements and new development are implemented.

## Implementation

The Clairemont CPU, together with this Mobility Technical Report, are high-level planning documents that set the policies and vision for future mobility improvements that will make it easier and safe for people to travel throughout the community as it grows. While the Proposed Plan identifies improvements at key intersections and corridors as well as new multimodal infrastructure, the design, timing, and funding will be determined at the project level or as projects move forward.

## Considerations

While the City's mobility loading priority framework provides overarching guidance, the actual design and implementation of mobility improvements are influenced by a range of considerations, including:

- Safety and mobility for all users.
- Transit performance and reliability.
- Emergency response access.
- Goods movement needs.
- Travel time and congestion impacts.
- Adjacent land uses and future development.
- Context-sensitive design principles.
- City of San Diego Street Design Manual guidelines and standards.
- Right-of-way constraints.
- Access management.
- American with Disabilities Act (ADA) requirements.
- Environmental sensitives.
- Parking and curb space demand and supply.
- Community support.

These factors ensure that improvements are not only equitable and forward-looking, but also responsive to the unique needs and characteristics of each corridor and community.

## Pathways to Deliver

Mobility projects and public improvements described in the Clairemont CPU include both new and upgraded facilities, and would therefore vary in scope, cost and delivery approach. Some can be implemented during routine street maintenance, coordinated with private development, or funded through the collection of appropriate fees, and fairshare contributions. Others may be implemented incrementally through City programs or as capital funding becomes available from local, state, regional, and federal agencies.

Opportunities and pathways for implementation include:

- Capital Improvement Program (CIP).
- Operations and maintenance (O&M) efforts.
- Bundling multimodal upgrades into larger CIP projects.

- Repurposing existing public right-of-way to support Complete Streets improvements.
- Developer-constructed improvements tied to supplemental development regulations, incentives, mitigation, or local mobility analysis findings.
- Quick-build and near-term projects initiated by community groups, business associations, or special districts.
- Public-private partnerships.
- Interagency collaboration, such as projects funded by partner agencies (e.g., SANDAG Caltrans, MTS) or managed and permitted separately with the City's Development Services Department.
- Region, state, or federal grant programs.

The City's CIP is the primary tool for programming and funding mobility projects in San Diego. Through prioritization and annual allocations, the CIP delivers pedestrian and bicycle facilities, safety enhancements, traffic control measures, and roadway upgrades. It also funds the maintenance and repair of existing roadways, sidewalks, and signal systems, which is critical to addressing immediate mobility challenges while ensuring the long-term functionality of the transportation network.

## Flexibility

Prior to implementing certain mobility projects, especially corridor-level Complete Streets improvements, additional analysis will be needed to confirm feasibility and the latest project effectiveness at the time of implementation. This may include operational analyses to assess queues and level of service, as well as corridor studies to evaluate alternatives and determine the best strategies for repurposing right-of-way for Complete Street features.

To remain responsive to community needs, emerging best practices, and state and federal requirements, the mobility improvements identified in this Proposed Plan should be considered dynamic. Priorities may shift, projects may be updated, and additional improvements may be proposed for Clairemont as part of development proposals, capital improvements, other local and regional projects, and citywide initiatives.

By leveraging multiple project delivery pathways, aligning with Complete Streets principles, and maintaining flexibility to adapt to evolving needs, the Clairemont CPU sets the foundation for a robust multimodal mobility network. These investments will not only enhance daily travel but also support a thriving, sustainable community prepared for future growth while advancing citywide goals for mode share.



## Attachment A - Blueprint Technical Memorandum - Supplemental Analysis





TO: Christine Mercado, TE; City of San Diego

FROM: Jonathan Sanchez, PE, TE; CR Associates  
Joseph Perez, EIT; CR Associates

DATE: July 25, 2025

RE: Clairemont Community Plan Update vs. Blueprint SD – Traffic Operations Analysis Technical Memorandum

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The Clairemont Community Plan Update (CPU) process was initiated in 2016 to guide future growth and development in the Clairemont community through the year 2050. As part of this effort, a Mobility Technical Report was drafted in 2022, which analyzed how the CPU's proposed land use scenario, referred to herein as the CPU P9 Scenario, could be supported by the future transportation network, with emphasis on multimodal mobility, network connectivity, and overall system performance.

To evaluate future traffic conditions, the analysis used the San Diego Association of Government's (SANDAG) Series 13 Activity Based Model (ABM), which was calibrated at the local level and specifically customized for the Clairemont CPU. The model incorporated the CPU P9 Scenario, which featured high density mixed-use centers and residential corridors, along with proposed mobility improvements designed to support active transportation and enhance transit access. For areas outside Clairemont, the model defaulted to land use and mobility assumptions from the City's General Plan and SANDAG's Regional Plan, as available at the time.

Since the development of the Mobility Technical Report, the City of San Diego adopted a General Plan Amendment, known as the Blueprint SD Initiative (Blueprint SD), in July 2024. Blueprint SD updates the City's land use and policy framework to promote infill development near high-quality transit, reduce vehicle miles traveled (VMT), and support the City's climate, housing, and mobility goals. As part of this initiative, the City customized SANDAG's Series 14 ABM to reflect Blueprint SD's citywide land use assumptions with the planned regional mobility network from the 2021 Regional Plan. For this memo, the transportation modeling and analysis conducted under this effort is referred to as the Blueprint SD Scenario.

While both the CPU P9 and Blueprint SD scenarios rely on the same underlying Sustainable Communities Strategy, which considers housing opportunities in relation to job access and transportation infrastructure, they differ in modeling sources, land use inputs, socioeconomic forecasts, and mobility investment assumptions, resulting in variations in projected regional growth traffic volumes. To evaluate the implications of these differences, a supplemental analysis was conducted comparing traffic operations results between the two scenarios. The purpose of this analysis is to assess the mobility recommendations and conclusions presented in the draft Mobility Technical Report (based on CPU P9 data) using the updated Blueprint SD data. This comparison ensures the Clairemont CPU's mobility strategy remains consistent with the City's most recent planning assumptions and policy direction under Blueprint SD.

## Blueprint SD Model Background and Comparison

The travel demand model used for Blueprint SD was developed by customizing the adopted model from the 2021 Regional Plan. A separate analysis comparing the two found that the customized Blueprint SD model projects higher citywide VMT, population, and employment than the 2021 Regional Plan model. These differences reflect the distinct objectives of each effort: Blueprint SD is focused on strategically maximizing housing capacity within the City of San Diego, while the 2021 Regional Plan is centered around regional transportation planning based on projected population growth.

Although the Blueprint SD model forecasts an increase in citywide VMT, this growth is modest relative to the projected increases in population and employment. This suggests improved transportation efficiency under the Blueprint SD Scenario, with lower VMT per capita due to more higher-density development with greater access to transit and active transportation options, compared to the assumptions in the 2021 Regional Plan. To maintain alignment with regional trends and avoid overstating future roadway demands, traffic volumes generated by the Blueprint SD model are adjusted downward for use in community-level mobility infrastructure planning, such as ongoing Community Plan Updates (CPUs) and for comparison with the CPU P9 Scenario.

This supplemental analysis compared traffic volumes from the CPU P9 model and the adjusted Blueprint SD model across all roadway segments within the Clairemont CPU study area. On average, the adjusted Blueprint SD traffic model volumes were found to be lower than those from the CPU P9 model, supporting the conclusion that the CPU P9 model provided a conservative foundation for the draft mobility analysis in the Clairemont CPU Mobility Technical Report. However, several specific roadway segments were identified where the adjusted Blueprint SD model still forecasted higher traffic volumes than the CPU P9 model. These differences informed the selection of study locations for further evaluation in this memorandum, as described in the following section.

## Project Description & Study Area

The focused study area for this supplemental analysis was developed to evaluate the potential differences in traffic operations between the CPU P9 and Blueprint SD scenarios, identify any additional localized operational issues or deficiencies that may need to be addressed in the Clairemont CPU, and determine whether updates to previously recommended mobility improvements are warranted. The selection of roadway segments and intersections was guided by the traffic operations analysis results from the CPU P9 Scenario, as prepared for the draft Mobility Technical Report, as well as the projected traffic volume changes under the Blueprint SD Scenario.

The study area includes locations projected to operate at a substandard level of service (LOS E or F) under the CPU P9 Scenario, or likely to approach these thresholds when considering Blueprint SD forecasts. Priority was given to major corridors where future growth in travel demand is expected to be most pronounced and where mobility improvements have been proposed. Among these, Genesee Avenue was identified as a critical corridor to assess due to the projected increase in traffic volumes under both scenarios. The Clairemont CPU also proposes converting an existing travel lane in each direction along Genesee Avenue, from SR-52 and Marlesta Drive, into flexible (flex) lanes designed to accommodate transit and other congestion-reducing mobility forms.

The following section outlines the specific roadway segments and intersections selected for evaluation.

### Roadway Segments

- Clairemont Drive, between Kleefeld Avenue and Clairemont Mesa Boulevard
- Genesee Avenue, between Clairemont Mesa Boulevard and Bannock Avenue
- Genesee Avenue, between Bannock Avenue and Mt. Herbert
- Genesee Avenue, between Derrick Drive and Mt. Etna Drive
- Genesee Avenue, between Mt. Etna Drive and Balboa Avenue
- Genesee Avenue, between Genesee Court and Boyd Avenue
- Genesee Avenue, between Boyd Avenue and Marlesta Drive
- Linda Vista Road, between Stalmer Street and Mesa College Drive
- Morena Boulevard, between Gesner Street and Napier Street
- Morena Boulevard, between Napier Street and West Morena Boulevard
- Mt. Alifan Drive, between Balboa Avenue and Genesee Avenue

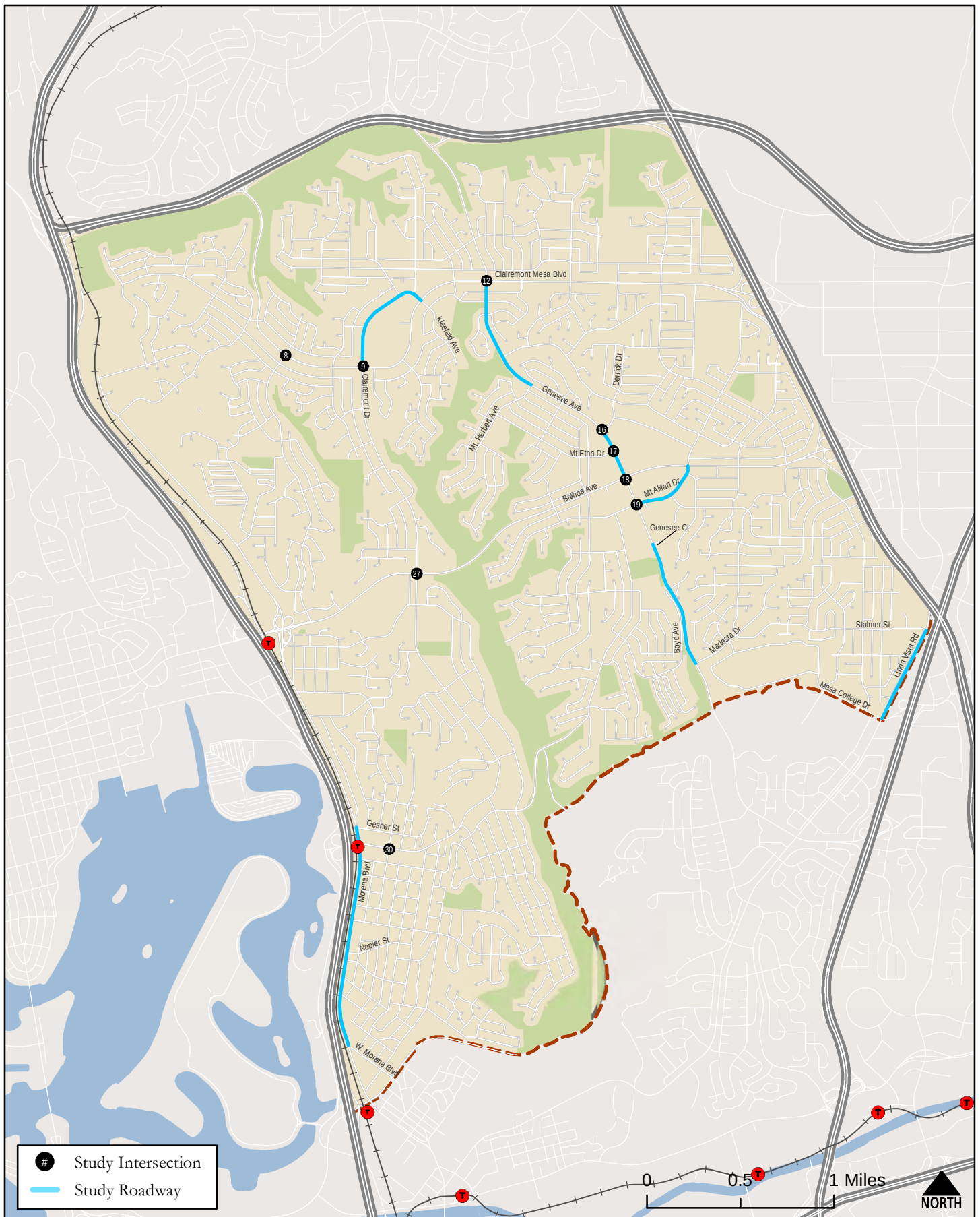
### Intersections

- **Intersections operating at LOS E or F in one or both peak hours under the CPU P9 Scenario (current analysis):**
  - 12. Genesee Blvd & Clairemont Mesa Blvd
  - 16. Genesee Blvd & Derrick Dr
  - 19. Genesee Blvd & Mt. Alifan Dr
  - 27. Clairemont Dr & Balboa Ave
- **Intersections approaching LOS E in one or both peak hours under the CPU P9 Scenario:**
  - 8. Moraga Ave & Clairemont Mesa Blvd
  - 9. Clairemont Dr & Clairemont Mesa Blvd
  - 17. Genesee Blvd & Mt. Etna Dr
  - 18. Genesee Blvd & Balboa Ave
  - 30. Denver St & Clairemont Dr

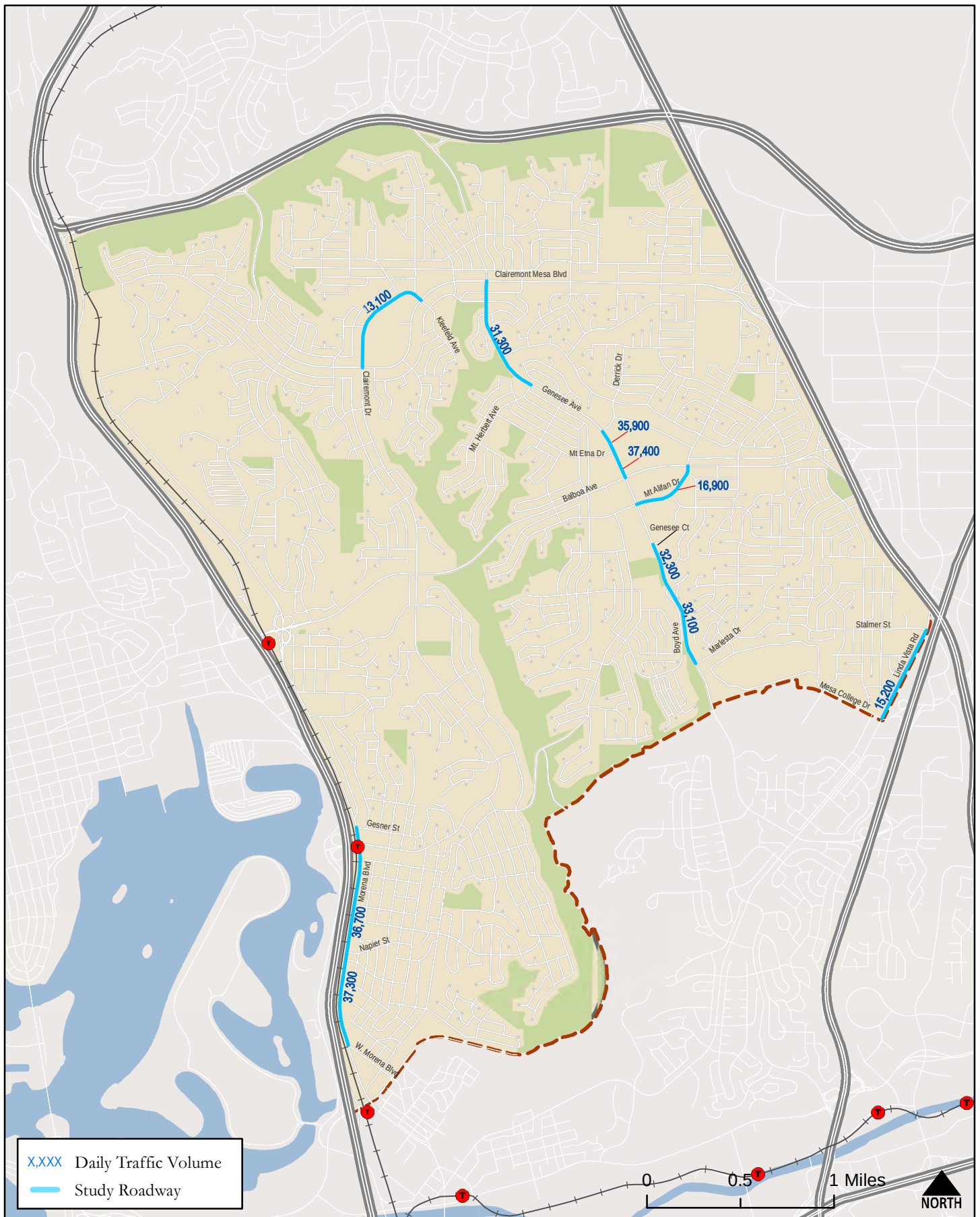
**Figure 1** displays the study area for the supplemental analysis. **Figure 2** presents the roadway average daily traffic (ADT) volumes, while **Figure 3** displays the peak hour intersection turning movement volumes under the Blueprint SD Scenario.

The roadway and intersection operations analysis for this supplemental study was conducted using the methodology outlined in the City of San Diego's Transportation Study Manual (TSM). This approach is consistent with the analytical methods previously utilized in the Clairemont Community Plan Update (CPU) effort. Maintaining consistency in methodology ensures that the results remain comparable and aligned with the City's established transportation analysis standards.

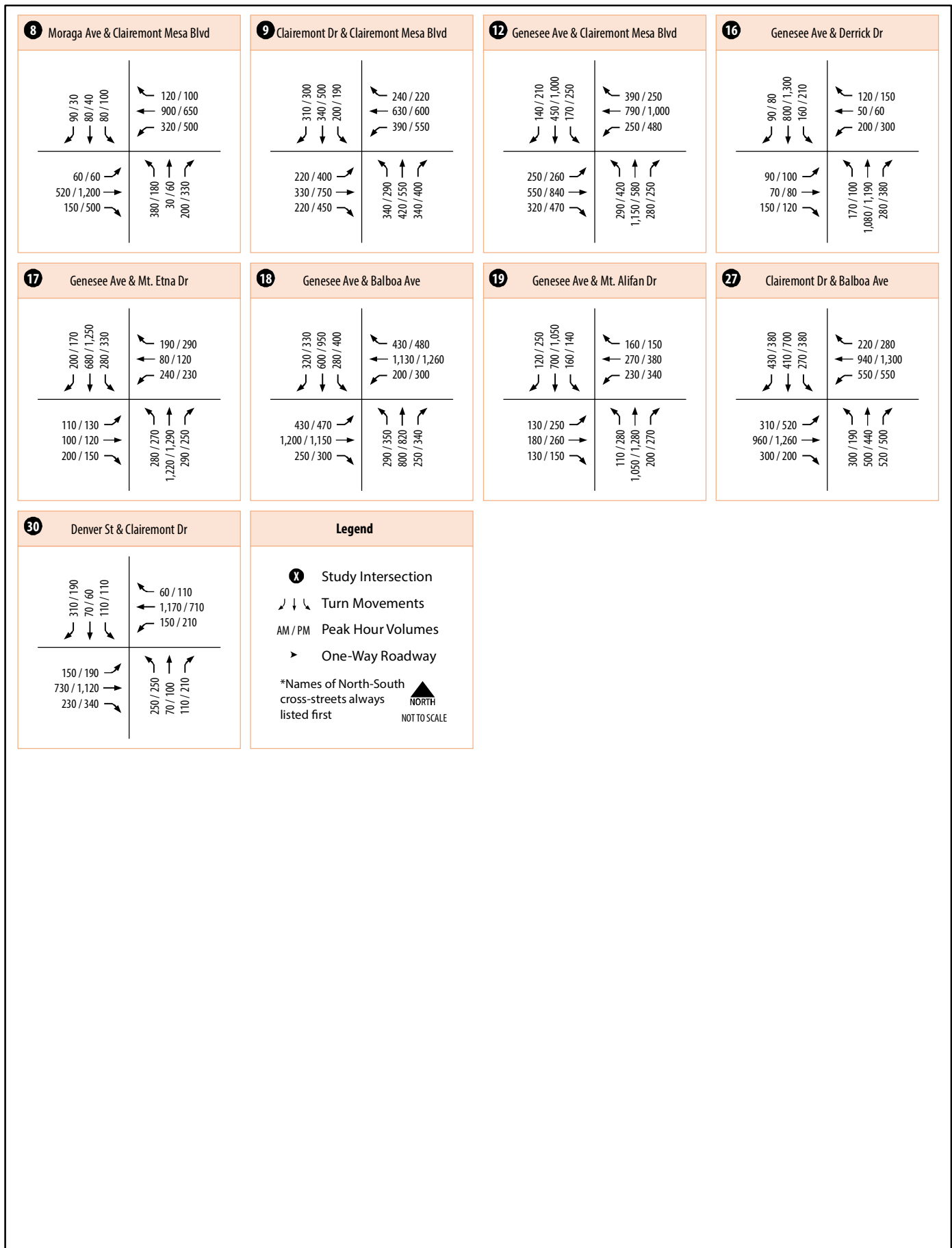
LOS calculation worksheets for the CPU P9 Scenario are provided in the Clairemont CPU Mobility Technical Report, while the LOS calculation worksheets for the Blueprint Scenario are provided in **Attachment A-1**.













## Roadway Analysis

**Table 1** displays the roadway segment level of service (LOS) results under both the CPU P9 and Blueprint SD scenarios.

**Table 1 - Roadway LOS Results**

| Roadway          | Segment                                      | Planned Classification Designation                   | Capacity (LOS E) <sup>1</sup> | CPU P9 |       |     | Blueprint SD |       |     |       |
|------------------|----------------------------------------------|------------------------------------------------------|-------------------------------|--------|-------|-----|--------------|-------|-----|-------|
|                  |                                              |                                                      |                               | ADT    | V/C   | LOS | ADT          | V/C   | LOS | ΔV/C  |
| Clairemont Drive | Kleefeld Avenue to Clairemont Mesa Boulevard | 2-Lane Collector w/ TWLTL                            | 15,000                        | 11,400 | 0.760 | D   | 13,100       | 0.873 | E   | 0.113 |
| Genesee Avenue   | Clairemont Mesa Drive to Bannock Avenue      | 4-Lane Major Arterial (with Flex Lanes) <sup>2</sup> | 20,000                        | 27,700 | 1.385 | F   | 31,300       | 1.565 | F   | 0.180 |
| Genesee Avenue   | Bannock Avenue to Mt. Herbert Avenue         | 4-Lane Major Arterial (with Flex Lanes) <sup>2</sup> | 20,000                        | 30,500 | 1.525 | F   | 31,300       | 1.565 | F   | 0.040 |
| Genesee Avenue   | Derrick Drive to Mt. Etna Drive              | 6-Lane Major Arterial (with Flex Lanes) <sup>3</sup> | 40,000                        | 35,700 | 0.893 | E   | 35,900       | 0.898 | E   | 0.005 |
| Genesee Avenue   | Mt. Etna Drive to Balboa Avenue              | 6-Lane Major Arterial (with Flex Lanes) <sup>3</sup> | 40,000                        | 36,200 | 0.905 | E   | 37,400       | 0.935 | E   | 0.030 |
| Genesee Avenue   | Genesee Court to Boyd Avenue                 | 5-Lane Major Arterial (with Flex Lanes) <sup>4</sup> | 30,000                        | 26,500 | 0.883 | E   | 32,300       | 1.077 | F   | 0.194 |
| Genesee Avenue   | Boyd Avenue to Marlesta Drive                | 4-Lane Major Arterial (with Flex Lanes) <sup>2</sup> | 20,000                        | 31,500 | 1.575 | F   | 33,100       | 1.655 | F   | 0.080 |
| Linda Vista Road | Stalmer Street to Mesa College Drive         | 2-Lane Collector w/ TWLTL                            | 15,000                        | 14,400 | 0.960 | E   | 15,200       | 1.013 | F   | 0.053 |
| Morena Boulevard | Gesner Street to Napier Street               | 4-Lane Collector w/ TWLTL                            | 30,000                        | 29,900 | 0.997 | E   | 36,700       | 1.223 | F   | 0.226 |
| Morena Boulevard | Napier Street to W. Morena Boulevard         | 4-Lane Collector w/ TWLTL                            | 30,000                        | 25,700 | 0.857 | E   | 37,300       | 1.243 | F   | 0.386 |
| Mt. Alifan Drive | Genesee Avenue to Balboa Avenue              | 2-Lane Collector w/ TWLTL                            | 15,000                        | 14,200 | 0.947 | E   | 16,900       | 1.127 | F   | 0.180 |

Source: CR Associates (2025)

**Notes:**

LOS = Level of Service    ADT = Average Daily Traffic    V/C = Volume to Capacity Ratio    TWLTL = Two-way Left-turn Lane    **Bold** = LOS E or F

<sup>1</sup> Roadway Capacity based on number of vehicular travel lanes.

<sup>2</sup> Two vehicular travel lanes and two flex lanes within existing curb-to-curb width.

<sup>3</sup> Four vehicular travel lanes and two flex lanes within existing curb-to-curb width.

<sup>4</sup> Three vehicular travel lanes and two flex lanes within existing curb-to-curb width.

As shown in Table 1, all roadway segments would remain with the same LOS under the Blueprint SD Scenario, except for the following six (6) roadway segments:

- Clairemont Drive (Kleefeld Avenue to Clairemont Mesa Boulevard) - from LOS D (CPU P9) to LOS E (Blueprint SD).
- Genesee Avenue (Genesee Court to Boyd Avenue) - from LOS E (CPU P9) to LOS F (Blueprint SD).
- Linda Vista Road (Stalmer Street to Mesa College Drive) - from LOS E (CPU P9) to LOS F (Blueprint SD).
- Morena Boulevard (Gesner Street to Napier Street) – from LOS E (CPU P9) to LOS F (Blueprint SD).
- Morena Boulevard (Napier Street to W. Morena Boulevard) – from LOS E (CPU P9) to LOS F (Blueprint SD).
- Mt. Alifan Drive (Genesee Avenue to Balboa Avenue) – from LOS E (CPU P9) to LOS F (Blueprint SD).

## Intersection Analysis

**Table 2** displays the intersection LOS results under both the CPU P9 and Blueprint SD scenarios.

**Table 2 - Peak Hour Intersection LOS Results**

| #  | Intersection                          | Peak Hour | CPU P9 |     | Blueprint SD |     | Δ in Delay |
|----|---------------------------------------|-----------|--------|-----|--------------|-----|------------|
|    |                                       |           | Delay  | LOS | Delay        | LOS |            |
| 8  | Moraga Ave. & Clairemont Mesa Blvd    | AM        | 52.9   | D   | 57.4         | E   | 4.5        |
|    |                                       | PM        | 35.9   | D   | 53.6         | D   | 17.7       |
| 9  | Clairemont Dr. & Clairemont Mesa Blvd | AM        | 40.0   | D   | 52.3         | D   | 12.3       |
|    |                                       | PM        | 46.0   | D   | 66.4         | E   | 20.4       |
| 12 | Genesee Ave. & Clairemont Mesa Blvd   | AM        | 77.3   | E   | 89.3         | F   | 12.0       |
|    |                                       | PM        | 115.7  | F   | 139.1        | F   | 23.4       |
| 16 | Genesee Ave. & Derrick Dr.            | AM        | 26.2   | C   | 40.2         | D   | 14.0       |
|    |                                       | PM        | 65.7   | E   | 92.3         | F   | 26.6       |
| 17 | Genesee Ave. & Mt. Etna Dr.           | AM        | 47.3   | D   | 54.6         | D   | 7.3        |
|    |                                       | PM        | 51.8   | D   | 52.1         | D   | 0.3        |
| 18 | Genesee Ave. & Balboa Ave.            | AM        | 49.2   | D   | 62.4         | E   | 13.2       |
|    |                                       | PM        | 40.6   | D   | 63.2         | E   | 22.6       |
| 19 | Genesee Ave. & Mt. Alifan Dr.         | AM        | 46.9   | D   | 56.9         | E   | 10.0       |
|    |                                       | PM        | 59.4   | E   | 78.3         | E   | 18.9       |
| 27 | Clairemont Dr. & Balboa Ave.          | AM        | 53.1   | D   | 67.4         | E   | 14.3       |
|    |                                       | PM        | 85.3   | F   | 113.3        | F   | 28.0       |
| 30 | Denver St. & Clairemont Dr.           | AM        | 53.7   | D   | 54.2         | D   | 0.5        |
|    |                                       | PM        | 44.3   | D   | 50.0         | D   | 5.7        |

Source: CR Associates (2025)

Notes:

**Bold** = LOS E or F

As shown in Table 2, the following seven (7) intersections would either degrade from an acceptable LOS D or better under the Blueprint SD Scenario, or potentially experience a worsening deficiency from LOS E to LOS F:

8. **Moraga Avenue & Clairemont Mesa Boulevard** would degrade from LOS D (AM) under CPU P9 to LOS E (AM) under Blueprint SD.
9. **Clairemont Drive & Clairemont Mesa Boulevard** would degrade from LOS D (PM) under CPU P9 to LOS E (PM) under Blueprint SD.
12. **Genesee Avenue & Clairemont Mesa Boulevard** would degrade from LOS E (AM) under CPU P9 to LOS F (AM) under Blueprint SD.
16. **Genesee Avenue & Derrick Drive** would degrade from LOS E (PM) under CPU P9 to LOS F (PM) under Blueprint SD.
18. **Genesee Avenue & Balboa Avenue** would degrade from LOS D (AM and PM) under CPU P9 to LOS E (AM and PM) under Blueprint SD.
19. **Genesee Avenue & Mt. Alifan Drive** would degrade from LOS D (AM) under CPU P9 to LOS E (AM) under Blueprint SD.
27. **Clairemont Drive & Balboa Avenue** would degrade from LOS D (AM) under CPU P9 to LOS E (AM) under Blueprint SD.

**Figure 4** displays the roadway and intersection analysis results under the Blueprint SD Scenario.

## Conclusion

While the CPU P9 travel demand model has been determined to provide a conservative and appropriate foundation for assessing future mobility needs within Clairemont, the supplemental operational analysis has identified additional potential roadway segment and intersection LOS deficiencies when using volume data derived from the Blueprint SD model. These following new deficiencies occur at locations where facilities are projected to operate at acceptable LOS D under the CPU P9 Scenario but would degrade to a substandard LOS E or F under the Blueprint SD Scenario:

- Clairemont Drive from Kleefeld Avenue to Clairemont Mesa Boulevard (roadway segment)
- Moraga Avenue & Clairemont Mesa Boulevard (AM Peak Hour) (intersection)
- Clairemont Drive & Clairemont Mesa Boulevard (PM Peak Hour) (intersection)
- Genesee Avenue & Balboa Avenue (AM and PM Peak Hours) (intersection)
- Genesee Avenue & Mount Alifan Drive (AM Peak Hour) (intersection)
- Clairemont Drive & Balboa Avenue (AM Peak Hour) (intersection)

These study locations were strategically selected for the supplemental analysis based on their projected traffic volumes under the Blueprint SD model or their proximity to LOS E or F thresholds under the CPU P9 Scenario. As such, the identification of new deficiencies was not unexpected. This was an intentional part of the analysis to uncover local traffic challenges that may arise under Blueprint SD conditions and to help determine whether any updates to the mobility recommendations in the draft Clairemont CPU's Mobility Technical Report might be needed.

With the exception of the Moraga Avenue and Clairemont Mesa Boulevard intersection, all locations with newly identified deficiencies include mobility improvements proposed in the Clairemont CPU.

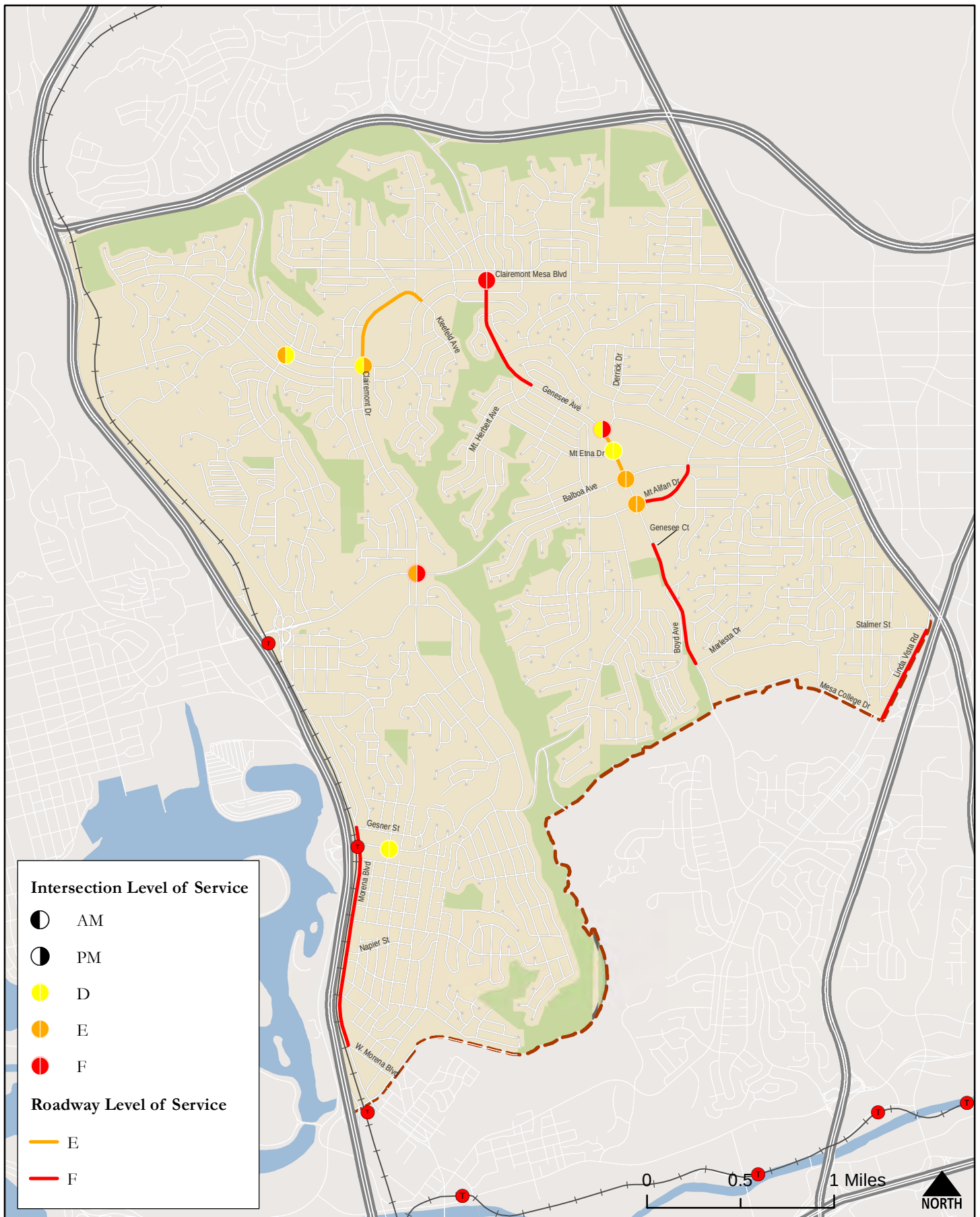


These improvements include repurposing vehicle lanes for one-way cycle tracks along portions of Clairemont Drive, and flex lanes for transit and other congestion-reducing mobility forms along Genesee Avenue. These proposed changes reflect a broader policy objective to reallocate roadway space to improve safety, comfort, and efficiency for people using sustainable travel modes.

The new LOS deficiencies identified using Blueprint SD forecasts can be attributed both to additional traffic volumes and the intentional reallocation of roadway space for multimodal infrastructure. Rather than indicating a need to revise the Clairemont CPU's mobility recommendations, these findings underscore the tradeoffs involved with advancing the City's mobility and sustainability goals, as outlined in the General Plan, Climate Action Plan, Mobility Master Plan, and Complete Streets Policy. They also reflect a conscious policy direction that values multimodal access and long-term community benefits over vehicle-only performance metrics.

In conclusion, while the Blueprint SD Scenario identifies additional vehicle LOS deficiencies, these are considered acceptable within the context of the City's vision for a safe, balanced, and sustainable transportation system for all users. Therefore, the originally developed mobility improvements for the Clairemont CPU remain unchanged.







Attachment **A-1** - Peak Hour Intersection LOS  
Calculation Worksheets – Blueprint SD  
Scenario

# HCM 7th Signalized Intersection Summary 8: Moraga Ave. & Clairemont Mesa Blvd

Proposed Plan under Blueprint SD Conditions  
AM Peak Hour

|                              |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                   |      |
|------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|
| Movement                     | EBL                                                                                | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL  | NBT                                                                               | NBR  | SBL  | SBT                                                                               | SBR  |
| Lane Configurations          |   |  |  |  |  |  |      |  |      |      |  |      |
| Traffic Volume (veh/h)       | 60                                                                                 | 520                                                                               | 150                                                                               | 320                                                                               | 900                                                                               | 120                                                                               | 380  | 30                                                                                | 200  | 80   | 80                                                                                | 90   |
| Future Volume (veh/h)        | 60                                                                                 | 520                                                                               | 150                                                                               | 320                                                                               | 900                                                                               | 120                                                                               | 380  | 30                                                                                | 200  | 80   | 80                                                                                | 90   |
| Initial Q (Qb), veh          | 0                                                                                  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    | 0    | 0                                                                                 | 0    |
| Lane Width Adj.              | 1.00                                                                               | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00 | 1.00                                                                              | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                               |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00 |                                                                                   | 0.98 | 1.00 |                                                                                   | 0.98 |
| Parking Bus, Adj             | 1.00                                                                               | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00 | 1.00                                                                              | 1.00 |
| Work Zone On Approach        | No                                                                                 |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No   |                                                                                   |      | No   |                                                                                   |      |
| Adj Sat Flow, veh/h/ln       | 1841                                                                               | 1841                                                                              | 1841                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1841 | 1841                                                                              | 1841 | 1870 | 1870                                                                              | 1870 |
| Adj Flow Rate, veh/h         | 63                                                                                 | 547                                                                               | 133                                                                               | 337                                                                               | 947                                                                               | 105                                                                               | 400  | 32                                                                                | 191  | 84   | 84                                                                                | 91   |
| Peak Hour Factor             | 0.95                                                                               | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95 | 0.95 | 0.95                                                                              | 0.95 |
| Percent Heavy Veh, %         | 4                                                                                  | 4                                                                                 | 4                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 4    | 4                                                                                 | 4    | 2    | 2                                                                                 | 2    |
| Cap, veh/h                   | 130                                                                                | 638                                                                               | 281                                                                               | 346                                                                               | 1074                                                                              | 477                                                                               | 456  | 33                                                                                | 196  | 282  | 282                                                                               | 285  |
| Arrive On Green              | 0.07                                                                               | 0.18                                                                              | 0.18                                                                              | 0.06                                                                              | 0.10                                                                              | 0.10                                                                              | 0.51 | 0.51                                                                              | 0.51 | 0.51 | 0.51                                                                              | 0.51 |
| Sat Flow, veh/h              | 1753                                                                               | 3497                                                                              | 1543                                                                              | 1781                                                                              | 3554                                                                              | 1577                                                                              | 804  | 64                                                                                | 384  | 480  | 551                                                                               | 558  |
| Grp Volume(v), veh/h         | 63                                                                                 | 547                                                                               | 133                                                                               | 337                                                                               | 947                                                                               | 105                                                                               | 623  | 0                                                                                 | 0    | 259  | 0                                                                                 | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1753                                                                               | 1749                                                                              | 1543                                                                              | 1781                                                                              | 1777                                                                              | 1577                                                                              | 1253 | 0                                                                                 | 0    | 1589 | 0                                                                                 | 0    |
| Q Serve(g_s), s              | 4.5                                                                                | 19.7                                                                              | 10.0                                                                              | 24.5                                                                              | 34.2                                                                              | 8.0                                                                               | 51.3 | 0.0                                                                               | 0.0  | 0.0  | 0.0                                                                               | 0.0  |
| Cycle Q Clear(g_c), s        | 4.5                                                                                | 19.7                                                                              | 10.0                                                                              | 24.5                                                                              | 34.2                                                                              | 8.0                                                                               | 63.2 | 0.0                                                                               | 0.0  | 11.9 | 0.0                                                                               | 0.0  |
| Prop In Lane                 | 1.00                                                                               |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 0.64 |                                                                                   | 0.31 | 0.32 |                                                                                   | 0.35 |
| Lane Grp Cap(c), veh/h       | 130                                                                                | 638                                                                               | 281                                                                               | 346                                                                               | 1074                                                                              | 477                                                                               | 686  | 0                                                                                 | 0    | 849  | 0                                                                                 | 0    |
| V/C Ratio(X)                 | 0.48                                                                               | 0.86                                                                              | 0.47                                                                              | 0.97                                                                              | 0.88                                                                              | 0.22                                                                              | 0.91 | 0.00                                                                              | 0.00 | 0.31 | 0.00                                                                              | 0.00 |
| Avail Cap(c_a), veh/h        | 130                                                                                | 638                                                                               | 281                                                                               | 346                                                                               | 1074                                                                              | 477                                                                               | 712  | 0                                                                                 | 0    | 879  | 0                                                                                 | 0    |
| HCM Platoon Ratio            | 1.00                                                                               | 1.00                                                                              | 1.00                                                                              | 0.33                                                                              | 0.33                                                                              | 0.33                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00 | 1.00                                                                              | 1.00 |
| Upstream Filter(I)           | 1.00                                                                               | 1.00                                                                              | 1.00                                                                              | 0.47                                                                              | 0.47                                                                              | 0.47                                                                              | 1.00 | 0.00                                                                              | 0.00 | 1.00 | 0.00                                                                              | 0.00 |
| Uniform Delay (d), s/veh     | 57.8                                                                               | 51.5                                                                              | 47.6                                                                              | 60.5                                                                              | 56.2                                                                              | 44.4                                                                              | 32.0 | 0.0                                                                               | 0.0  | 18.4 | 0.0                                                                               | 0.0  |
| Incr Delay (d2), s/veh       | 1.0                                                                                | 14.0                                                                              | 5.6                                                                               | 26.5                                                                              | 5.3                                                                               | 0.5                                                                               | 14.8 | 0.0                                                                               | 0.0  | 0.1  | 0.0                                                                               | 0.0  |
| Initial Q Delay(d3), s/veh   | 0.0                                                                                | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0  | 0.0  | 0.0                                                                               | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 2.0                                                                                | 9.8                                                                               | 4.3                                                                               | 14.3                                                                              | 17.1                                                                              | 3.3                                                                               | 21.3 | 0.0                                                                               | 0.0  | 4.6  | 0.0                                                                               | 0.0  |
| Unsig. Movement Delay, s/veh |                                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                   |      |
| LnGrp Delay(d), s/veh        | 58.8                                                                               | 65.5                                                                              | 53.2                                                                              | 87.0                                                                              | 61.5                                                                              | 44.9                                                                              | 46.8 | 0.0                                                                               | 0.0  | 18.4 | 0.0                                                                               | 0.0  |
| LnGrp LOS                    | E                                                                                  | E                                                                                 | D                                                                                 | F                                                                                 | E                                                                                 | D                                                                                 | D    |                                                                                   |      | B    |                                                                                   |      |
| Approach Vol, veh/h          | 743                                                                                |                                                                                   |                                                                                   | 1389                                                                              |                                                                                   |                                                                                   | 623  |                                                                                   |      | 259  |                                                                                   |      |
| Approach Delay, s/veh        | 62.7                                                                               |                                                                                   |                                                                                   | 66.5                                                                              |                                                                                   |                                                                                   | 46.8 |                                                                                   |      | 18.4 |                                                                                   |      |
| Approach LOS                 | E                                                                                  |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | D    |                                                                                   |      | B    |                                                                                   |      |
| Timer - Assigned Phs         | 1                                                                                  | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |      | 8                                                                                 |      |      |                                                                                   |      |
| Phs Duration (G+Y+Rc), s     | 29.7                                                                               | 29.0                                                                              |                                                                                   | 71.3                                                                              | 14.1                                                                              | 44.6                                                                              |      | 71.3                                                                              |      |      |                                                                                   |      |
| Change Period (Y+Rc), s      | 4.4                                                                                | 5.3                                                                               |                                                                                   | 4.9                                                                               | 4.4                                                                               | 5.3                                                                               |      | 4.9                                                                               |      |      |                                                                                   |      |
| Max Green Setting (Gmax), s  | 22.6                                                                               | 23.7                                                                              |                                                                                   | 69.1                                                                              | 7.0                                                                               | 39.3                                                                              |      | 69.1                                                                              |      |      |                                                                                   |      |
| Max Q Clear Time (g_c+I1), s | 26.5                                                                               | 21.7                                                                              |                                                                                   | 13.9                                                                              | 6.5                                                                               | 36.2                                                                              |      | 65.2                                                                              |      |      |                                                                                   |      |
| Green Ext Time (p_c), s      | 0.0                                                                                | 1.1                                                                               |                                                                                   | 1.2                                                                               | 0.0                                                                               | 2.3                                                                               |      | 1.3                                                                               |      |      |                                                                                   |      |
| <b>Intersection Summary</b>  |                                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                   |      |
| HCM 7th Control Delay, s/veh | 57.4                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                   |      |
| HCM 7th LOS                  | E                                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |      |                                                                                   |      |

# HCM 7th Signalized Intersection Summary 9: Clairemont Dr. & Clairemont Mesa Blvd

## Proposed Plan under Blueprint SD Conditions AM Peak Hour

|                                                                                                    |                                                                                    |                                                                                    |  |                                                                                    |                                                                                    |  |   |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                                                                                                                 | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                                                                                                                 | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |   |   |                                                                                   |   |   |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)                                                                             | 220                                                                                                                                                                 | 330                                                                                                                                                                 | 220                                                                               | 390                                                                                                                                                                 | 630                                                                                                                                                                 | 240                                                                               | 340                                                                                 | 420                                                                                 | 340                                                                                 | 200                                                                                 | 340                                                                                 | 310                                                                                 |
| Future Volume (veh/h)                                                                              | 220                                                                                                                                                                 | 330                                                                                                                                                                 | 220                                                                               | 390                                                                                                                                                                 | 630                                                                                                                                                                 | 240                                                                               | 340                                                                                 | 420                                                                                 | 340                                                                                 | 200                                                                                 | 340                                                                                 | 310                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                                                                                                                |                                                                                                                                                                     | 0.99                                                                              | 1.00                                                                                                                                                                |                                                                                                                                                                     | 0.96                                                                              | 1.00                                                                                |                                                                                     | 0.98                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                                                                                                  |                                                                                                                                                                     |                                                                                   | No                                                                                                                                                                  |                                                                                                                                                                     |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1870                                                                                                                                                                | 1870                                                                                                                                                                | 1870                                                                              | 1870                                                                                                                                                                | 1870                                                                                                                                                                | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1856                                                                                | 1856                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h                                                                               | 232                                                                                                                                                                 | 347                                                                                                                                                                 | 214                                                                               | 411                                                                                                                                                                 | 663                                                                                                                                                                 | 228                                                                               | 358                                                                                 | 442                                                                                 | 286                                                                                 | 211                                                                                 | 358                                                                                 | 261                                                                                 |
| Peak Hour Factor                                                                                   | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                                                                                         | 283                                                                                                                                                                 | 471                                                                                                                                                                 | 285                                                                               | 676                                                                                                                                                                 | 877                                                                                                                                                                 | 301                                                                               | 382                                                                                 | 551                                                                                 | 767                                                                                 | 236                                                                                 | 396                                                                                 | 460                                                                                 |
| Arrive On Green                                                                                    | 0.08                                                                                                                                                                | 0.22                                                                                                                                                                | 0.22                                                                              | 0.20                                                                                                                                                                | 0.34                                                                                                                                                                | 0.34                                                                              | 0.21                                                                                | 0.29                                                                                | 0.29                                                                                | 0.13                                                                                | 0.21                                                                                | 0.21                                                                                |
| Sat Flow, veh/h                                                                                    | 3456                                                                                                                                                                | 2121                                                                                                                                                                | 1282                                                                              | 3456                                                                                                                                                                | 2562                                                                                                                                                                | 881                                                                               | 1781                                                                                | 1870                                                                                | 1551                                                                                | 1767                                                                                | 1856                                                                                | 1550                                                                                |
| Grp Volume(v), veh/h                                                                               | 232                                                                                                                                                                 | 290                                                                                                                                                                 | 271                                                                               | 411                                                                                                                                                                 | 460                                                                                                                                                                 | 431                                                                               | 358                                                                                 | 442                                                                                 | 286                                                                                 | 211                                                                                 | 358                                                                                 | 261                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1728                                                                                                                                                                | 1777                                                                                                                                                                | 1626                                                                              | 1728                                                                                                                                                                | 1777                                                                                                                                                                | 1666                                                                              | 1781                                                                                | 1870                                                                                | 1551                                                                                | 1767                                                                                | 1856                                                                                | 1550                                                                                |
| Q Serve(g_s), s                                                                                    | 8.6                                                                                                                                                                 | 19.7                                                                                                                                                                | 20.3                                                                              | 14.1                                                                                                                                                                | 29.8                                                                                                                                                                | 29.9                                                                              | 25.7                                                                                | 28.4                                                                                | 4.9                                                                                 | 15.3                                                                                | 24.4                                                                                | 18.5                                                                                |
| Cycle Q Clear(g_c), s                                                                              | 8.6                                                                                                                                                                 | 19.7                                                                                                                                                                | 20.3                                                                              | 14.1                                                                                                                                                                | 29.8                                                                                                                                                                | 29.9                                                                              | 25.7                                                                                | 28.4                                                                                | 4.9                                                                                 | 15.3                                                                                | 24.4                                                                                | 18.5                                                                                |
| Prop In Lane                                                                                       | 1.00                                                                                                                                                                |                                                                                                                                                                     | 0.79                                                                              | 1.00                                                                                                                                                                |                                                                                                                                                                     | 0.53                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 283                                                                                                                                                                 | 395                                                                                                                                                                 | 361                                                                               | 676                                                                                                                                                                 | 608                                                                                                                                                                 | 570                                                                               | 382                                                                                 | 551                                                                                 | 767                                                                                 | 236                                                                                 | 396                                                                                 | 460                                                                                 |
| V/C Ratio(X)                                                                                       | 0.82                                                                                                                                                                | 0.73                                                                                                                                                                | 0.75                                                                              | 0.61                                                                                                                                                                | 0.76                                                                                                                                                                | 0.76                                                                              | 0.94                                                                                | 0.80                                                                                | 0.37                                                                                | 0.89                                                                                | 0.90                                                                                | 0.57                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 306                                                                                                                                                                 | 395                                                                                                                                                                 | 361                                                                               | 676                                                                                                                                                                 | 608                                                                                                                                                                 | 570                                                                               | 433                                                                                 | 599                                                                                 | 806                                                                                 | 275                                                                                 | 434                                                                                 | 491                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 0.38                                                                                                                                                                | 0.38                                                                                                                                                                | 0.38                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 58.7                                                                                                                                                                | 47.0                                                                                                                                                                | 47.2                                                                              | 47.7                                                                                                                                                                | 37.9                                                                                                                                                                | 38.0                                                                              | 50.2                                                                                | 42.3                                                                                | 7.7                                                                                 | 55.4                                                                                | 49.8                                                                                | 38.8                                                                                |
| Incr Delay (d2), s/veh                                                                             | 5.8                                                                                                                                                                 | 4.6                                                                                                                                                                 | 5.4                                                                               | 1.1                                                                                                                                                                 | 8.5                                                                                                                                                                 | 9.1                                                                               | 25.1                                                                                | 7.4                                                                                 | 0.3                                                                                 | 24.5                                                                                | 21.1                                                                                | 1.5                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 4.0                                                                                                                                                                 | 9.2                                                                                                                                                                 | 8.7                                                                               | 6.2                                                                                                                                                                 | 14.2                                                                                                                                                                | 13.5                                                                              | 14.0                                                                                | 14.1                                                                                | 2.3                                                                                 | 8.4                                                                                 | 13.5                                                                                | 7.2                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 64.5                                                                                                                                                                | 51.6                                                                                                                                                                | 52.6                                                                              | 48.9                                                                                                                                                                | 46.5                                                                                                                                                                | 47.0                                                                              | 75.2                                                                                | 49.7                                                                                | 8.0                                                                                 | 79.9                                                                                | 70.9                                                                                | 40.3                                                                                |
| LnGrp LOS                                                                                          | E                                                                                                                                                                   | D                                                                                                                                                                   | D                                                                                 | D                                                                                                                                                                   | D                                                                                                                                                                   | D                                                                                 | E                                                                                   | D                                                                                   | A                                                                                   | E                                                                                   | E                                                                                   | D                                                                                   |
| Approach Vol, veh/h                                                                                | 793                                                                                                                                                                 |                                                                                                                                                                     | 1302                                                                              |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   | 1086                                                                                |                                                                                     | 830                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 55.7                                                                                                                                                                |                                                                                                                                                                     | 47.4                                                                              |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   | 47.1                                                                                |                                                                                     | 63.6                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | E                                                                                                                                                                   |                                                                                                                                                                     | D                                                                                 |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   | D                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                                                                                                   | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 30.5                                                                                                                                                                | 34.1                                                                                                                                                                | 32.3                                                                              | 33.1                                                                                                                                                                | 15.0                                                                                                                                                                | 49.6                                                                              | 21.8                                                                                | 43.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 5.1                                                                                                                                                                 | * 5.2                                                                                                                                                               | 4.4                                                                               | * 5.3                                                                                                                                                               | 4.4                                                                                                                                                                 | 5.1                                                                               | 4.4                                                                                 | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 20.0                                                                                                                                                                | * 29                                                                                                                                                                | 31.6                                                                              | * 30                                                                                                                                                                | 11.5                                                                                                                                                                | 37.5                                                                              | 20.2                                                                                | 41.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                       | 16.1                                                                                                                                                                | 22.3                                                                                                                                                                | 27.7                                                                              | 26.4                                                                                                                                                                | 10.6                                                                                                                                                                | 31.9                                                                              | 17.3                                                                                | 30.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.3                                                                                                                                                                 | 2.1                                                                                                                                                                 | 0.2                                                                               | 1.3                                                                                                                                                                 | 0.0                                                                                                                                                                 | 3.0                                                                               | 0.1                                                                                 | 3.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 52.3                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 12: Genesee Ave. & Clairemont Mesa Blvd

## Proposed Plan under Blueprint SD Conditions AM Peak Hour

|                                                                                                    |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |  |  |  |  |  |  |   |    |   |  |  |  |
| Traffic Volume (veh/h)                                                                             | 250                                                                               | 550                                                                               | 320                                                                               | 250                                                                               | 790                                                                               | 390                                                                               | 290                                                                                | 1150                                                                                | 280                                                                                 | 170                                                                                 | 450                                                                                 | 140                                                                                 |
| Future Volume (veh/h)                                                                              | 250                                                                               | 550                                                                               | 320                                                                               | 250                                                                               | 790                                                                               | 390                                                                               | 290                                                                                | 1150                                                                                | 280                                                                                 | 170                                                                                 | 450                                                                                 | 140                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1841                                                                              | 1841                                                                              | 1841                                                                              | 1796                                                                              | 1796                                                                              | 1796                                                                              | 1856                                                                               | 1856                                                                                | 1856                                                                                | 1826                                                                                | 1826                                                                                | 1826                                                                                |
| Adj Flow Rate, veh/h                                                                               | 258                                                                               | 567                                                                               | 285                                                                               | 263                                                                               | 832                                                                               | 329                                                                               | 305                                                                                | 1211                                                                                | 221                                                                                 | 179                                                                                 | 474                                                                                 | 118                                                                                 |
| Peak Hour Factor                                                                                   | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 4                                                                                 | 4                                                                                 | 4                                                                                 | 7                                                                                 | 7                                                                                 | 7                                                                                 | 3                                                                                  | 3                                                                                   | 3                                                                                   | 5                                                                                   | 5                                                                                   | 5                                                                                   |
| Cap, veh/h                                                                                         | 199                                                                               | 931                                                                               | 565                                                                               | 1029                                                                              | 1783                                                                              | 901                                                                               | 360                                                                                | 901                                                                                 | 1248                                                                                | 128                                                                                 | 836                                                                                 | 796                                                                                 |
| Arrive On Green                                                                                    | 0.06                                                                              | 0.27                                                                              | 0.27                                                                              | 0.31                                                                              | 0.52                                                                              | 0.52                                                                              | 0.11                                                                               | 0.49                                                                                | 0.49                                                                                | 0.07                                                                                | 0.46                                                                                | 0.46                                                                                |
| Sat Flow, veh/h                                                                                    | 3401                                                                              | 3497                                                                              | 1506                                                                              | 3319                                                                              | 3413                                                                              | 1510                                                                              | 3428                                                                               | 1856                                                                                | 1568                                                                                | 1739                                                                                | 1826                                                                                | 1540                                                                                |
| Grp Volume(v), veh/h                                                                               | 258                                                                               | 567                                                                               | 285                                                                               | 263                                                                               | 832                                                                               | 329                                                                               | 305                                                                                | 1211                                                                                | 221                                                                                 | 179                                                                                 | 474                                                                                 | 118                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1700                                                                              | 1749                                                                              | 1506                                                                              | 1659                                                                              | 1706                                                                              | 1510                                                                              | 1714                                                                               | 1856                                                                                | 1568                                                                                | 1739                                                                                | 1826                                                                                | 1540                                                                                |
| Q Serve(g_s), s                                                                                    | 7.6                                                                               | 18.5                                                                              | 15.0                                                                              | 7.7                                                                               | 20.0                                                                              | 12.6                                                                              | 11.4                                                                               | 63.1                                                                                | 0.0                                                                                 | 9.6                                                                                 | 24.7                                                                                | 5.2                                                                                 |
| Cycle Q Clear(g_c), s                                                                              | 7.6                                                                               | 18.5                                                                              | 15.0                                                                              | 7.7                                                                               | 20.0                                                                              | 12.6                                                                              | 11.4                                                                               | 63.1                                                                                | 0.0                                                                                 | 9.6                                                                                 | 24.7                                                                                | 5.2                                                                                 |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 199                                                                               | 931                                                                               | 565                                                                               | 1029                                                                              | 1783                                                                              | 901                                                                               | 360                                                                                | 901                                                                                 | 1248                                                                                | 128                                                                                 | 836                                                                                 | 796                                                                                 |
| V/C Ratio(X)                                                                                       | 1.30                                                                              | 0.61                                                                              | 0.50                                                                              | 0.26                                                                              | 0.47                                                                              | 0.37                                                                              | 0.85                                                                               | 1.34                                                                                | 0.18                                                                                | 1.39                                                                                | 0.57                                                                                | 0.15                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 199                                                                               | 931                                                                               | 565                                                                               | 1029                                                                              | 1783                                                                              | 901                                                                               | 498                                                                                | 901                                                                                 | 1248                                                                                | 128                                                                                 | 836                                                                                 | 796                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 61.2                                                                              | 41.8                                                                              | 29.4                                                                              | 33.6                                                                              | 19.6                                                                              | 27.3                                                                              | 57.1                                                                               | 33.5                                                                                | 3.2                                                                                 | 60.2                                                                                | 25.8                                                                                | 16.5                                                                                |
| Incr Delay (d2), s/veh                                                                             | 165.8                                                                             | 3.0                                                                               | 3.2                                                                               | 0.0                                                                               | 0.9                                                                               | 1.1                                                                               | 7.2                                                                                | 162.5                                                                               | 0.0                                                                                 | 217.7                                                                               | 0.6                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 7.8                                                                               | 8.3                                                                               | 5.6                                                                               | 3.1                                                                               | 8.0                                                                               | 4.2                                                                               | 5.2                                                                                | 67.3                                                                                | 1.1                                                                                 | 11.9                                                                                | 10.4                                                                                | 1.8                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 227.0                                                                             | 44.7                                                                              | 32.6                                                                              | 33.7                                                                              | 20.5                                                                              | 28.5                                                                              | 64.3                                                                               | 196.0                                                                               | 3.2                                                                                 | 277.9                                                                               | 26.4                                                                                | 16.5                                                                                |
| LnGrp LOS                                                                                          | F                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 | E                                                                                  | F                                                                                   | A                                                                                   | F                                                                                   | C                                                                                   | B                                                                                   |
| Approach Vol, veh/h                                                                                | 1110                                                                              |                                                                                   | 1424                                                                              |                                                                                   |                                                                                   |                                                                                   | 1737                                                                               |                                                                                     | 771                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 84.0                                                                              |                                                                                   | 24.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 148.3                                                                              |                                                                                     | 83.2                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | F                                                                                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   | F                                                                                  |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 46.4                                                                              | 39.6                                                                              | 18.1                                                                              | 64.4                                                                              | 12.0                                                                              | 74.0                                                                              | 14.5                                                                               | 68.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 5.0                                                                               | * 5                                                                               | 4.4                                                                               | 4.9                                                                               | 4.4                                                                               | 5.0                                                                               | 4.9                                                                                | * 4.9                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 4.0                                                                               | * 35                                                                              | 18.9                                                                              | 53.8                                                                              | 7.6                                                                               | 31.0                                                                              | 9.6                                                                                | * 63                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                       | 9.7                                                                               | 20.5                                                                              | 13.4                                                                              | 26.7                                                                              | 9.6                                                                               | 22.0                                                                              | 11.6                                                                               | 65.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                               | 4.4                                                                               | 0.3                                                                               | 1.8                                                                               | 0.0                                                                               | 4.7                                                                               | 0.0                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 89.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | F                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



HCM 7th Signalized Intersection Summary  
16: Genesee Ave. & Derrick Dr.

Proposed Plan under Blueprint SD Conditions  
AM Peak Hour

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|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |                                                                                   |  |                                                                                   |                                                                                   |  |  |   |    |  |  |  |  |
| Traffic Volume (veh/h)                                                                             | 90                                                                                | 70                                                                                | 150                                                                               | 200                                                                               | 50                                                                                | 120                                                                               | 170                                                                                | 1080                                                                                | 280                                                                                 | 160                                                                                 | 800                                                                                 | 90                                                                                  |
| Future Volume (veh/h)                                                                              | 90                                                                                | 70                                                                                | 150                                                                               | 200                                                                               | 50                                                                                | 120                                                                               | 170                                                                                | 1080                                                                                | 280                                                                                 | 160                                                                                 | 800                                                                                 | 90                                                                                  |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.98                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1856                                                                                | 1856                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h                                                                               | 95                                                                                | 74                                                                                | 137                                                                               | 211                                                                               | 53                                                                                | 103                                                                               | 179                                                                                | 1137                                                                                | 230                                                                                 | 167                                                                                 | 833                                                                                 | 65                                                                                  |
| Peak Hour Factor                                                                                   | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.96                                                                                | 0.96                                                                                | 0.96                                                                                |
| Percent Heavy Veh, %                                                                               | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                                                                                         | 83                                                                                | 71                                                                                | 82                                                                                | 304                                                                               | 60                                                                                | 668                                                                               | 150                                                                                | 1852                                                                                | 826                                                                                 | 149                                                                                 | 1837                                                                                | 800                                                                                 |
| Arrive On Green                                                                                    | 0.42                                                                              | 0.42                                                                              | 0.42                                                                              | 0.42                                                                              | 0.42                                                                              | 0.42                                                                              | 0.17                                                                               | 1.00                                                                                | 1.00                                                                                | 0.08                                                                                | 0.52                                                                                | 0.52                                                                                |
| Sat Flow, veh/h                                                                                    | 72                                                                                | 168                                                                               | 195                                                                               | 547                                                                               | 142                                                                               | 1578                                                                              | 1781                                                                               | 3554                                                                                | 1585                                                                                | 1767                                                                                | 3526                                                                                | 1535                                                                                |
| Grp Volume(v), veh/h                                                                               | 306                                                                               | 0                                                                                 | 0                                                                                 | 264                                                                               | 0                                                                                 | 103                                                                               | 179                                                                                | 1137                                                                                | 230                                                                                 | 167                                                                                 | 833                                                                                 | 65                                                                                  |
| Grp Sat Flow(s),veh/h/ln                                                                           | 435                                                                               | 0                                                                                 | 0                                                                                 | 689                                                                               | 0                                                                                 | 1578                                                                              | 1781                                                                               | 1777                                                                                | 1585                                                                                | 1767                                                                                | 1763                                                                                | 1535                                                                                |
| Q Serve(g_s), s                                                                                    | 5.9                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 3.6                                                                               | 7.6                                                                                | 0.0                                                                                 | 0.0                                                                                 | 7.6                                                                                 | 13.3                                                                                | 1.9                                                                                 |
| Cycle Q Clear(g_c), s                                                                              | 38.1                                                                              | 0.0                                                                               | 0.0                                                                               | 32.2                                                                              | 0.0                                                                               | 3.6                                                                               | 7.6                                                                                | 0.0                                                                                 | 0.0                                                                                 | 7.6                                                                                 | 13.3                                                                                | 1.9                                                                                 |
| Prop In Lane                                                                                       | 0.31                                                                              |                                                                                   | 0.45                                                                              | 0.80                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 236                                                                               | 0                                                                                 | 0                                                                                 | 364                                                                               | 0                                                                                 | 668                                                                               | 150                                                                                | 1852                                                                                | 826                                                                                 | 149                                                                                 | 1837                                                                                | 800                                                                                 |
| V/C Ratio(X)                                                                                       | 1.29                                                                              | 0.00                                                                              | 0.00                                                                              | 0.73                                                                              | 0.00                                                                              | 0.15                                                                              | 1.19                                                                               | 0.61                                                                                | 0.28                                                                                | 1.12                                                                                | 0.45                                                                                | 0.08                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 236                                                                               | 0                                                                                 | 0                                                                                 | 364                                                                               | 0                                                                                 | 668                                                                               | 150                                                                                | 1852                                                                                | 826                                                                                 | 149                                                                                 | 1837                                                                                | 800                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                               | 2.00                                                                                | 2.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.32                                                                               | 0.32                                                                                | 0.32                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 30.8                                                                              | 0.0                                                                               | 0.0                                                                               | 24.2                                                                              | 0.0                                                                               | 16.0                                                                              | 37.4                                                                               | 0.0                                                                                 | 0.0                                                                                 | 41.2                                                                                | 13.5                                                                                | 10.8                                                                                |
| Incr Delay (d2), s/veh                                                                             | 160.2                                                                             | 0.0                                                                               | 0.0                                                                               | 6.2                                                                               | 0.0                                                                               | 0.0                                                                               | 105.0                                                                              | 0.5                                                                                 | 0.3                                                                                 | 109.2                                                                               | 0.8                                                                                 | 0.2                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 15.7                                                                              | 0.0                                                                               | 0.0                                                                               | 5.5                                                                               | 0.0                                                                               | 1.3                                                                               | 7.3                                                                                | 0.1                                                                                 | 0.1                                                                                 | 7.7                                                                                 | 4.9                                                                                 | 0.6                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 191.1                                                                             | 0.0                                                                               | 0.0                                                                               | 30.4                                                                              | 0.0                                                                               | 16.0                                                                              | 142.4                                                                              | 0.5                                                                                 | 0.3                                                                                 | 150.4                                                                               | 14.3                                                                                | 11.0                                                                                |
| LnGrp LOS                                                                                          | F                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   | B                                                                                 | F                                                                                  | A                                                                                   | A                                                                                   | F                                                                                   | B                                                                                   | B                                                                                   |
| Approach Vol, veh/h                                                                                | 306                                                                               |                                                                                   |                                                                                   | 367                                                                               |                                                                                   |                                                                                   | 1546                                                                               |                                                                                     |                                                                                     | 1065                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 191.1                                                                             |                                                                                   |                                                                                   | 26.3                                                                              |                                                                                   |                                                                                   | 16.9                                                                               |                                                                                     |                                                                                     | 35.5                                                                                |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | F                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | B                                                                                  |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                    | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 12.0                                                                              | 53.2                                                                              |                                                                                   | 43.0                                                                              | 12.0                                                                              | 53.2                                                                              |                                                                                    | 43.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 4.4                                                                               | * 5.6                                                                             |                                                                                   | 4.9                                                                               | 4.4                                                                               | 5.6                                                                               |                                                                                    | 4.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 7.6                                                                               | * 30                                                                              |                                                                                   | 38.1                                                                              | 7.6                                                                               | 29.4                                                                              |                                                                                    | 38.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                       | 9.6                                                                               | 2.0                                                                               |                                                                                   | 40.1                                                                              | 9.6                                                                               | 15.3                                                                              |                                                                                    | 34.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                               | 24.7                                                                              |                                                                                   | 0.0                                                                               | 0.0                                                                               | 8.9                                                                               |                                                                                    | 0.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 40.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 7th Signalized Intersection Summary  
17: Genesee Ave. & Mt. Etna Dr.

Proposed Plan under Blueprint SD Conditions  
AM Peak Hour

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|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 110                                                                               | 100                                                                               | 200                                                                               | 240                                                                               | 80                                                                                | 190                                                                               | 280                                                                                 | 1220                                                                                | 290                                                                                 | 280                                                                                 | 680                                                                                 | 200                                                                                 |
| Future Volume (veh/h)        | 110                                                                               | 100                                                                               | 200                                                                               | 240                                                                               | 80                                                                                | 190                                                                               | 280                                                                                 | 1220                                                                                | 290                                                                                 | 280                                                                                 | 680                                                                                 | 200                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                     | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1856                                                                                | 1856                                                                                | 1856                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 116                                                                               | 105                                                                               | 190                                                                               | 253                                                                               | 84                                                                                | 175                                                                               | 295                                                                                 | 1284                                                                                | 267                                                                                 | 295                                                                                 | 716                                                                                 | 165                                                                                 |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 3                                                                                   | 3                                                                                   | 3                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 381                                                                               | 229                                                                               | 414                                                                               | 353                                                                               | 205                                                                               | 428                                                                               | 322                                                                                 | 1198                                                                                | 532                                                                                 | 210                                                                                 | 978                                                                                 | 435                                                                                 |
| Arrive On Green              | 0.38                                                                              | 0.38                                                                              | 0.38                                                                              | 0.38                                                                              | 0.38                                                                              | 0.38                                                                              | 0.18                                                                                | 0.34                                                                                | 0.34                                                                                | 0.24                                                                                | 0.55                                                                                | 0.55                                                                                |
| Sat Flow, veh/h              | 1117                                                                              | 594                                                                               | 1075                                                                              | 1081                                                                              | 534                                                                               | 1112                                                                              | 1767                                                                                | 3526                                                                                | 1566                                                                                | 1781                                                                                | 3554                                                                                | 1579                                                                                |
| Grp Volume(v), veh/h         | 116                                                                               | 0                                                                                 | 295                                                                               | 253                                                                               | 0                                                                                 | 259                                                                               | 295                                                                                 | 1284                                                                                | 267                                                                                 | 295                                                                                 | 716                                                                                 | 165                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1117                                                                              | 0                                                                                 | 1670                                                                              | 1081                                                                              | 0                                                                                 | 1646                                                                              | 1767                                                                                | 1763                                                                                | 1566                                                                                | 1781                                                                                | 1777                                                                                | 1579                                                                                |
| Q Serve(g_s), s              | 7.6                                                                               | 0.0                                                                               | 11.9                                                                              | 20.6                                                                              | 0.0                                                                               | 10.3                                                                              | 14.7                                                                                | 30.6                                                                                | 12.2                                                                                | 10.6                                                                                | 13.7                                                                                | 5.3                                                                                 |
| Cycle Q Clear(g_c), s        | 18.0                                                                              | 0.0                                                                               | 11.9                                                                              | 32.4                                                                              | 0.0                                                                               | 10.3                                                                              | 14.7                                                                                | 30.6                                                                                | 12.2                                                                                | 10.6                                                                                | 13.7                                                                                | 5.3                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.64                                                                              | 1.00                                                                              |                                                                                   | 0.68                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 381                                                                               | 0                                                                                 | 642                                                                               | 353                                                                               | 0                                                                                 | 633                                                                               | 322                                                                                 | 1198                                                                                | 532                                                                                 | 210                                                                                 | 978                                                                                 | 435                                                                                 |
| V/C Ratio(X)                 | 0.30                                                                              | 0.00                                                                              | 0.46                                                                              | 0.72                                                                              | 0.00                                                                              | 0.41                                                                              | 0.92                                                                                | 1.07                                                                                | 0.50                                                                                | 1.41                                                                                | 0.73                                                                                | 0.38                                                                                |
| Avail Cap(c_a), veh/h        | 386                                                                               | 0                                                                                 | 649                                                                               | 358                                                                               | 0                                                                                 | 640                                                                               | 322                                                                                 | 1198                                                                                | 532                                                                                 | 210                                                                                 | 978                                                                                 | 435                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 2.00                                                                                | 2.00                                                                                | 2.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.13                                                                                | 0.13                                                                                | 0.13                                                                                | 0.82                                                                                | 0.82                                                                                | 0.82                                                                                |
| Uniform Delay (d), s/veh     | 26.8                                                                              | 0.0                                                                               | 20.7                                                                              | 32.8                                                                              | 0.0                                                                               | 20.2                                                                              | 36.1                                                                                | 29.7                                                                                | 23.7                                                                                | 34.4                                                                                | 17.7                                                                                | 15.9                                                                                |
| Incr Delay (d2), s/veh       | 0.3                                                                               | 0.0                                                                               | 0.4                                                                               | 6.2                                                                               | 0.0                                                                               | 0.3                                                                               | 5.8                                                                                 | 35.1                                                                                | 0.4                                                                                 | 204.5                                                                               | 4.0                                                                                 | 2.1                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.0                                                                               | 0.0                                                                               | 4.5                                                                               | 5.8                                                                               | 0.0                                                                               | 3.9                                                                               | 6.7                                                                                 | 18.0                                                                                | 4.4                                                                                 | 15.8                                                                                | 4.4                                                                                 | 1.9                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 27.1                                                                              | 0.0                                                                               | 21.1                                                                              | 39.1                                                                              | 0.0                                                                               | 20.5                                                                              | 41.9                                                                                | 64.8                                                                                | 24.1                                                                                | 238.9                                                                               | 21.7                                                                                | 17.9                                                                                |
| LnGrp LOS                    | C                                                                                 |                                                                                   | C                                                                                 | D                                                                                 |                                                                                   | C                                                                                 | D                                                                                   | F                                                                                   | C                                                                                   | F                                                                                   | C                                                                                   | B                                                                                   |
| Approach Vol, veh/h          | 411                                                                               |                                                                                   |                                                                                   | 512                                                                               |                                                                                   |                                                                                   | 1846                                                                                |                                                                                     |                                                                                     | 1176                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 22.8                                                                              |                                                                                   |                                                                                   | 29.7                                                                              |                                                                                   |                                                                                   | 55.3                                                                                |                                                                                     |                                                                                     | 75.7                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 15.0                                                                              | 35.5                                                                              |                                                                                   | 39.5                                                                              | 20.8                                                                              | 29.7                                                                              |                                                                                     | 39.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.4                                                                               | 4.9                                                                               |                                                                                   | 4.9                                                                               | 4.4                                                                               | 4.9                                                                               |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 10.6                                                                              | 30.2                                                                              |                                                                                   | 35.0                                                                              | 16.4                                                                              | 24.4                                                                              |                                                                                     | 35.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 12.6                                                                              | 32.6                                                                              |                                                                                   | 20.0                                                                              | 16.7                                                                              | 15.7                                                                              |                                                                                     | 34.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                               |                                                                                   | 1.7                                                                               | 0.0                                                                               | 4.0                                                                               |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 54.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 18: Genesee Ave. & Balboa Ave.

## Proposed Plan under Blueprint SD Conditions AM Peak Hour

|                                                                                                    |  |                                                                                    |  |                                                                                    |                                                                                                                                                                      |  |                                                                                      |                                                                                      |  |                                                                                      |                                                                                      |  |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                                                                                                                 | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                                                                                                    | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                                                                                                     | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations                                                                                |  |   |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)                                                                             | 430                                                                               | 1200                                                                                                                                                                | 250                                                                               | 200                                                                                                                                                                 | 1130                                                                                                                                                                                                                                                  | 430                                                                               | 290                                                                                                                                                                    | 800                                                                                                                                                                     | 250                                                                                 | 280                                                                                                                                                                     | 600                                                                                                                                                                     | 320                                                                                 |
| Future Volume (veh/h)                                                                              | 430                                                                               | 1200                                                                                                                                                                | 250                                                                               | 200                                                                                                                                                                 | 1130                                                                                                                                                                                                                                                  | 430                                                                               | 290                                                                                                                                                                    | 800                                                                                                                                                                     | 250                                                                                 | 280                                                                                                                                                                     | 600                                                                                                                                                                     | 320                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                                                                                                      | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                                                                                                       | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                                                                                                   | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                                                                                                     | 0.99                                                                              | 1.00                                                                                                                                                                |                                                                                                                                                                                                                                                       | 1.00                                                                              | 1.00                                                                                                                                                                   |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                                                                                                    |                                                                                                                                                                         | 0.99                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                                                                                                   | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                                                                                                     |                                                                                   | No                                                                                                                                                                  |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                                                                                                     |                                                                                                                                                                         |                                                                                     | No                                                                                                                                                                      |                                                                                                                                                                         |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1856                                                                              | 1856                                                                                                                                                                | 1856                                                                              | 1870                                                                                                                                                                | 1870                                                                                                                                                                                                                                                  | 1870                                                                              | 1811                                                                                                                                                                   | 1811                                                                                                                                                                    | 1811                                                                                | 1856                                                                                                                                                                    | 1856                                                                                                                                                                    | 1856                                                                                |
| Adj Flow Rate, veh/h                                                                               | 453                                                                               | 1263                                                                                                                                                                | 230                                                                               | 208                                                                                                                                                                 | 1177                                                                                                                                                                                                                                                  | 403                                                                               | 305                                                                                                                                                                    | 842                                                                                                                                                                     | 202                                                                                 | 295                                                                                                                                                                     | 632                                                                                                                                                                     | 270                                                                                 |
| Peak Hour Factor                                                                                   | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                              | 0.96                                                                                                                                                                | 0.96                                                                                                                                                                                                                                                  | 0.96                                                                              | 0.95                                                                                                                                                                   | 0.95                                                                                                                                                                    | 0.95                                                                                | 0.95                                                                                                                                                                    | 0.95                                                                                                                                                                    | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 3                                                                                 | 3                                                                                                                                                                   | 3                                                                                 | 2                                                                                                                                                                   | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 6                                                                                                                                                                      | 6                                                                                                                                                                       | 6                                                                                   | 3                                                                                                                                                                       | 3                                                                                                                                                                       | 3                                                                                   |
| Cap, veh/h                                                                                         | 361                                                                               | 1638                                                                                                                                                                | 726                                                                               | 808                                                                                                                                                                 | 2555                                                                                                                                                                                                                                                  | 793                                                                               | 350                                                                                                                                                                    | 894                                                                                                                                                                     | 399                                                                                 | 265                                                                                                                                                                     | 832                                                                                                                                                                     | 368                                                                                 |
| Arrive On Green                                                                                    | 0.20                                                                              | 0.46                                                                                                                                                                | 0.46                                                                              | 0.23                                                                                                                                                                | 0.50                                                                                                                                                                                                                                                  | 0.50                                                                              | 0.03                                                                                                                                                                   | 0.09                                                                                                                                                                    | 0.09                                                                                | 0.08                                                                                                                                                                    | 0.24                                                                                                                                                                    | 0.24                                                                                |
| Sat Flow, veh/h                                                                                    | 1767                                                                              | 3526                                                                                                                                                                | 1562                                                                              | 3456                                                                                                                                                                | 5106                                                                                                                                                                                                                                                  | 1585                                                                              | 3346                                                                                                                                                                   | 3441                                                                                                                                                                    | 1535                                                                                | 3428                                                                                                                                                                    | 3526                                                                                                                                                                    | 1558                                                                                |
| Grp Volume(v), veh/h                                                                               | 453                                                                               | 1263                                                                                                                                                                | 230                                                                               | 208                                                                                                                                                                 | 1177                                                                                                                                                                                                                                                  | 403                                                                               | 305                                                                                                                                                                    | 842                                                                                                                                                                     | 202                                                                                 | 295                                                                                                                                                                     | 632                                                                                                                                                                     | 270                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1767                                                                              | 1763                                                                                                                                                                | 1562                                                                              | 1728                                                                                                                                                                | 1702                                                                                                                                                                                                                                                  | 1585                                                                              | 1673                                                                                                                                                                   | 1721                                                                                                                                                                    | 1535                                                                                | 1714                                                                                                                                                                    | 1763                                                                                                                                                                    | 1558                                                                                |
| Q Serve(g_s), s                                                                                    | 30.6                                                                              | 44.8                                                                                                                                                                | 13.9                                                                              | 7.4                                                                                                                                                                 | 22.4                                                                                                                                                                                                                                                  | 26.9                                                                              | 13.6                                                                                                                                                                   | 36.5                                                                                                                                                                    | 18.9                                                                                | 11.6                                                                                                                                                                    | 25.0                                                                                                                                                                    | 24.0                                                                                |
| Cycle Q Clear(g_c), s                                                                              | 30.6                                                                              | 44.8                                                                                                                                                                | 13.9                                                                              | 7.4                                                                                                                                                                 | 22.4                                                                                                                                                                                                                                                  | 26.9                                                                              | 13.6                                                                                                                                                                   | 36.5                                                                                                                                                                    | 18.9                                                                                | 11.6                                                                                                                                                                    | 25.0                                                                                                                                                                    | 24.0                                                                                |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                                                                                                |                                                                                                                                                                                                                                                       | 1.00                                                                              | 1.00                                                                                                                                                                   |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                                                                                                    |                                                                                                                                                                         | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 361                                                                               | 1638                                                                                                                                                                | 726                                                                               | 808                                                                                                                                                                 | 2555                                                                                                                                                                                                                                                  | 793                                                                               | 350                                                                                                                                                                    | 894                                                                                                                                                                     | 399                                                                                 | 265                                                                                                                                                                     | 832                                                                                                                                                                     | 368                                                                                 |
| V/C Ratio(X)                                                                                       | 1.26                                                                              | 0.77                                                                                                                                                                | 0.32                                                                              | 0.26                                                                                                                                                                | 0.46                                                                                                                                                                                                                                                  | 0.51                                                                              | 0.87                                                                                                                                                                   | 0.94                                                                                                                                                                    | 0.51                                                                                | 1.11                                                                                                                                                                    | 0.76                                                                                                                                                                    | 0.73                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 361                                                                               | 1638                                                                                                                                                                | 726                                                                               | 808                                                                                                                                                                 | 2555                                                                                                                                                                                                                                                  | 793                                                                               | 366                                                                                                                                                                    | 897                                                                                                                                                                     | 400                                                                                 | 265                                                                                                                                                                     | 832                                                                                                                                                                     | 368                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 0.33                                                                                                                                                                   | 0.33                                                                                                                                                                    | 0.33                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 0.54                                                                                                                                                                   | 0.54                                                                                                                                                                    | 0.54                                                                                | 0.64                                                                                                                                                                    | 0.64                                                                                                                                                                    | 0.64                                                                                |
| Uniform Delay (d), s/veh                                                                           | 59.7                                                                              | 33.5                                                                                                                                                                | 25.5                                                                              | 46.9                                                                                                                                                                | 24.3                                                                                                                                                                                                                                                  | 27.8                                                                              | 71.4                                                                                                                                                                   | 67.4                                                                                                                                                                    | 59.4                                                                                | 69.2                                                                                                                                                                    | 53.3                                                                                                                                                                    | 53.0                                                                                |
| Incr Delay (d2), s/veh                                                                             | 136.2                                                                             | 3.6                                                                                                                                                                 | 1.1                                                                               | 0.1                                                                                                                                                                 | 0.6                                                                                                                                                                                                                                                   | 2.3                                                                               | 11.1                                                                                                                                                                   | 11.4                                                                                                                                                                    | 1.0                                                                                 | 78.4                                                                                                                                                                    | 3.0                                                                                                                                                                     | 5.5                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                                                                                                    | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 27.0                                                                              | 19.2                                                                                                                                                                | 5.4                                                                               | 3.1                                                                                                                                                                 | 8.9                                                                                                                                                                                                                                                   | 10.7                                                                              | 6.7                                                                                                                                                                    | 18.4                                                                                                                                                                    | 7.9                                                                                 | 8.0                                                                                                                                                                     | 11.4                                                                                                                                                                    | 9.9                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                                                                                                        |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 195.9                                                                             | 37.1                                                                                                                                                                | 26.6                                                                              | 46.9                                                                                                                                                                | 24.9                                                                                                                                                                                                                                                  | 30.1                                                                              | 82.5                                                                                                                                                                   | 78.8                                                                                                                                                                    | 60.4                                                                                | 147.6                                                                                                                                                                   | 56.3                                                                                                                                                                    | 58.5                                                                                |
| LnGrp LOS                                                                                          | F                                                                                 | D                                                                                                                                                                   | C                                                                                 | D                                                                                                                                                                   | C                                                                                                                                                                                                                                                     | C                                                                                 | F                                                                                                                                                                      | E                                                                                                                                                                       | E                                                                                   | F                                                                                                                                                                       | E                                                                                                                                                                       | E                                                                                   |
| Approach Vol, veh/h                                                                                | 1946                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                                                                                                       | 1788                                                                              |                                                                                                                                                                        | 1349                                                                                                                                                                    |                                                                                     | 1197                                                                                                                                                                    |                                                                                                                                                                         |                                                                                     |
| Approach Delay, s/veh                                                                              | 72.8                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                                                                                                       | 28.7                                                                              |                                                                                                                                                                        | 76.9                                                                                                                                                                    |                                                                                     | 79.3                                                                                                                                                                    |                                                                                                                                                                         |                                                                                     |
| Approach LOS                                                                                       | E                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                                                                                                       | C                                                                                 |                                                                                                                                                                        | E                                                                                                                                                                       |                                                                                     | E                                                                                                                                                                       |                                                                                                                                                                         |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                                                                                                   | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                                                                                                      | 8                                                                                                                                                                       |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 40.8                                                                              | 75.0                                                                                                                                                                | 20.1                                                                              | 40.3                                                                                                                                                                | 35.0                                                                                                                                                                                                                                                  | 80.8                                                                              | 16.5                                                                                                                                                                   | 43.9                                                                                                                                                                    |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 5.4                                                                               | * 5.3                                                                                                                                                               | 4.4                                                                               | 4.9                                                                                                                                                                 | 4.4                                                                                                                                                                                                                                                   | 5.4                                                                               | 4.9                                                                                                                                                                    | * 4.9                                                                                                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 10.6                                                                              | * 70                                                                                                                                                                | 16.4                                                                              | 34.3                                                                                                                                                                | 30.6                                                                                                                                                                                                                                                  | 49.6                                                                              | 11.6                                                                                                                                                                   | * 39                                                                                                                                                                    |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                       | 9.4                                                                               | 46.8                                                                                                                                                                | 15.6                                                                              | 27.0                                                                                                                                                                | 32.6                                                                                                                                                                                                                                                  | 28.9                                                                              | 13.6                                                                                                                                                                   | 38.5                                                                                                                                                                    |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                               | 11.3                                                                                                                                                                | 0.1                                                                               | 4.1                                                                                                                                                                 | 0.0                                                                                                                                                                                                                                                   | 9.2                                                                               | 0.0                                                                                                                                                                    | 0.5                                                                                                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                                                                                                        |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 62.4                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                                                                                                        |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| HCM 7th LOS                                                                                        | E                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                                                                                                        |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                                                                                                        |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                                                                                                        |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |

HCM 7th Signalized Intersection Summary  
19: Genesee Ave. & Mt. Alifan Dr.

Proposed Plan under Blueprint SD Conditions  
AM Peak Hour

|                                                                                                    |  |  |  |  |  |  |   |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |  |  |                                                                                   |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)                                                                             | 130                                                                               | 180                                                                               | 130                                                                               | 230                                                                               | 270                                                                               | 160                                                                               | 110                                                                                 | 1050                                                                                | 200                                                                                 | 160                                                                                 | 700                                                                                 | 120                                                                                 |
| Future Volume (veh/h)                                                                              | 130                                                                               | 180                                                                               | 130                                                                               | 230                                                                               | 270                                                                               | 160                                                                               | 110                                                                                 | 1050                                                                                | 200                                                                                 | 160                                                                                 | 700                                                                                 | 120                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                                |                                                                                     | 0.98                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1811                                                                                | 1811                                                                                | 1811                                                                                | 1811                                                                                | 1811                                                                                | 1811                                                                                |
| Adj Flow Rate, veh/h                                                                               | 137                                                                               | 189                                                                               | 120                                                                               | 242                                                                               | 284                                                                               | 124                                                                               | 116                                                                                 | 1105                                                                                | 182                                                                                 | 168                                                                                 | 737                                                                                 | 94                                                                                  |
| Peak Hour Factor                                                                                   | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 6                                                                                   | 6                                                                                   | 6                                                                                   | 6                                                                                   | 6                                                                                   | 6                                                                                   |
| Cap, veh/h                                                                                         | 160                                                                               | 204                                                                               | 130                                                                               | 265                                                                               | 472                                                                               | 389                                                                               | 138                                                                                 | 1140                                                                                | 496                                                                                 | 331                                                                                 | 1552                                                                                | 686                                                                                 |
| Arrive On Green                                                                                    | 0.09                                                                              | 0.19                                                                              | 0.19                                                                              | 0.15                                                                              | 0.25                                                                              | 0.25                                                                              | 0.08                                                                                | 0.33                                                                                | 0.33                                                                                | 0.19                                                                                | 0.45                                                                                | 0.45                                                                                |
| Sat Flow, veh/h                                                                                    | 1781                                                                              | 1058                                                                              | 672                                                                               | 1781                                                                              | 1870                                                                              | 1542                                                                              | 1725                                                                                | 3441                                                                                | 1498                                                                                | 1725                                                                                | 3441                                                                                | 1522                                                                                |
| Grp Volume(v), veh/h                                                                               | 137                                                                               | 0                                                                                 | 309                                                                               | 242                                                                               | 284                                                                               | 124                                                                               | 116                                                                                 | 1105                                                                                | 182                                                                                 | 168                                                                                 | 737                                                                                 | 94                                                                                  |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1781                                                                              | 0                                                                                 | 1729                                                                              | 1781                                                                              | 1870                                                                              | 1542                                                                              | 1725                                                                                | 1721                                                                                | 1498                                                                                | 1725                                                                                | 1721                                                                                | 1522                                                                                |
| Q Serve(g_s), s                                                                                    | 11.4                                                                              | 0.0                                                                               | 26.3                                                                              | 20.1                                                                              | 20.1                                                                              | 6.4                                                                               | 10.0                                                                                | 47.4                                                                                | 13.9                                                                                | 13.1                                                                                | 22.4                                                                                | 5.4                                                                                 |
| Cycle Q Clear(g_c), s                                                                              | 11.4                                                                              | 0.0                                                                               | 26.3                                                                              | 20.1                                                                              | 20.1                                                                              | 6.4                                                                               | 10.0                                                                                | 47.4                                                                                | 13.9                                                                                | 13.1                                                                                | 22.4                                                                                | 5.4                                                                                 |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                   | 0.39                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 160                                                                               | 0                                                                                 | 334                                                                               | 265                                                                               | 472                                                                               | 389                                                                               | 138                                                                                 | 1140                                                                                | 496                                                                                 | 331                                                                                 | 1552                                                                                | 686                                                                                 |
| V/C Ratio(X)                                                                                       | 0.86                                                                              | 0.00                                                                              | 0.92                                                                              | 0.91                                                                              | 0.60                                                                              | 0.32                                                                              | 0.84                                                                                | 0.97                                                                                | 0.37                                                                                | 0.51                                                                                | 0.47                                                                                | 0.14                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 368                                                                               | 0                                                                                 | 357                                                                               | 368                                                                               | 472                                                                               | 389                                                                               | 293                                                                                 | 1140                                                                                | 496                                                                                 | 331                                                                                 | 1552                                                                                | 686                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.66                                                                                | 0.66                                                                                | 0.66                                                                                |
| Uniform Delay (d), s/veh                                                                           | 67.3                                                                              | 0.0                                                                               | 59.4                                                                              | 62.9                                                                              | 49.5                                                                              | 19.6                                                                              | 68.1                                                                                | 49.4                                                                                | 38.2                                                                                | 54.3                                                                                | 28.8                                                                                | 24.1                                                                                |
| Incr Delay (d2), s/veh                                                                             | 5.0                                                                               | 0.0                                                                               | 27.4                                                                              | 18.1                                                                              | 1.5                                                                               | 0.2                                                                               | 5.3                                                                                 | 20.2                                                                                | 2.1                                                                                 | 0.3                                                                                 | 0.7                                                                                 | 0.3                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 5.4                                                                               | 0.0                                                                               | 14.1                                                                              | 10.5                                                                              | 9.7                                                                               | 2.4                                                                               | 4.5                                                                                 | 23.0                                                                                | 5.5                                                                                 | 5.7                                                                                 | 9.4                                                                                 | 2.1                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 72.3                                                                              | 0.0                                                                               | 86.9                                                                              | 81.0                                                                              | 51.0                                                                              | 19.8                                                                              | 73.4                                                                                | 69.6                                                                                | 40.3                                                                                | 54.6                                                                                | 29.5                                                                                | 24.4                                                                                |
| LnGrp LOS                                                                                          | E                                                                                 |                                                                                   | F                                                                                 | F                                                                                 | D                                                                                 | B                                                                                 | E                                                                                   | E                                                                                   | D                                                                                   | D                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h                                                                                | 446                                                                               |                                                                                   | 650                                                                               |                                                                                   |                                                                                   |                                                                                   | 1403                                                                                |                                                                                     | 999                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 82.4                                                                              |                                                                                   | 56.2                                                                              |                                                                                   |                                                                                   |                                                                                   | 66.1                                                                                |                                                                                     | 33.2                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | F                                                                                 |                                                                                   | E                                                                                 |                                                                                   |                                                                                   |                                                                                   | E                                                                                   |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 33.7                                                                              | 55.2                                                                              | 27.2                                                                              | 33.9                                                                              | 16.4                                                                              | 72.5                                                                              | 18.4                                                                                | 42.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 4.9                                                                               | * 5.5                                                                             | 4.9                                                                               | 4.9                                                                               | 4.4                                                                               | 4.9                                                                               | 4.9                                                                                 | 4.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 18.6                                                                              | * 50                                                                              | 31.0                                                                              | 31.0                                                                              | 25.5                                                                              | 43.4                                                                              | 31.0                                                                                | 31.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+l1), s                                                                       | 15.1                                                                              | 49.4                                                                              | 22.1                                                                              | 28.3                                                                              | 12.0                                                                              | 24.4                                                                              | 13.4                                                                                | 22.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.1                                                                               | 0.2                                                                               | 0.2                                                                               | 0.3                                                                               | 0.1                                                                               | 13.3                                                                              | 0.2                                                                                 | 0.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 56.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | E                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 27: Clairemont Dr. & Balboa Ave.

Proposed Plan under Blueprint SD Conditions  
AM Peak Hour

|                                                                                                    |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |  |  |  |  |  |  |   |    |   |  |  |  |
| Traffic Volume (veh/h)                                                                             | 310                                                                               | 960                                                                               | 300                                                                               | 550                                                                               | 940                                                                               | 220                                                                               | 300                                                                                | 500                                                                                 | 520                                                                                 | 270                                                                                 | 410                                                                                 | 430                                                                                 |
| Future Volume (veh/h)                                                                              | 310                                                                               | 960                                                                               | 300                                                                               | 550                                                                               | 940                                                                               | 220                                                                               | 300                                                                                | 500                                                                                 | 520                                                                                 | 270                                                                                 | 410                                                                                 | 430                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                               |                                                                                     | 0.98                                                                                | 1.00                                                                                |                                                                                     | 0.98                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1856                                                                              | 1856                                                                              | 1856                                                                              | 1856                                                                              | 1856                                                                              | 1856                                                                              | 1841                                                                               | 1841                                                                                | 1841                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h                                                                               | 326                                                                               | 1011                                                                              | 253                                                                               | 579                                                                               | 989                                                                               | 179                                                                               | 316                                                                                | 526                                                                                 | 547                                                                                 | 284                                                                                 | 432                                                                                 | 362                                                                                 |
| Peak Hour Factor                                                                                   | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 4                                                                                  | 4                                                                                   | 4                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                                                                                         | 433                                                                               | 983                                                                               | 419                                                                               | 619                                                                               | 1127                                                                              | 487                                                                               | 337                                                                                | 949                                                                                 | 695                                                                                 | 245                                                                                 | 770                                                                                 | 535                                                                                 |
| Arrive On Green                                                                                    | 0.13                                                                              | 0.28                                                                              | 0.28                                                                              | 0.18                                                                              | 0.32                                                                              | 0.32                                                                              | 0.19                                                                               | 0.27                                                                                | 0.27                                                                                | 0.14                                                                                | 0.22                                                                                | 0.22                                                                                |
| Sat Flow, veh/h                                                                                    | 3428                                                                              | 3526                                                                              | 1504                                                                              | 3428                                                                              | 3526                                                                              | 1523                                                                              | 1753                                                                               | 3497                                                                                | 1524                                                                                | 1781                                                                                | 3554                                                                                | 1546                                                                                |
| Grp Volume(v), veh/h                                                                               | 326                                                                               | 1011                                                                              | 253                                                                               | 579                                                                               | 989                                                                               | 179                                                                               | 316                                                                                | 526                                                                                 | 547                                                                                 | 284                                                                                 | 432                                                                                 | 362                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1714                                                                              | 1763                                                                              | 1504                                                                              | 1714                                                                              | 1763                                                                              | 1523                                                                              | 1753                                                                               | 1749                                                                                | 1524                                                                                | 1781                                                                                | 1777                                                                                | 1546                                                                                |
| Q Serve(g_s), s                                                                                    | 13.8                                                                              | 41.8                                                                              | 21.9                                                                              | 25.0                                                                              | 39.8                                                                              | 9.4                                                                               | 26.7                                                                               | 19.3                                                                                | 40.7                                                                                | 20.6                                                                                | 16.3                                                                                | 10.2                                                                                |
| Cycle Q Clear(g_c), s                                                                              | 13.8                                                                              | 41.8                                                                              | 21.9                                                                              | 25.0                                                                              | 39.8                                                                              | 9.4                                                                               | 26.7                                                                               | 19.3                                                                                | 40.7                                                                                | 20.6                                                                                | 16.3                                                                                | 10.2                                                                                |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 433                                                                               | 983                                                                               | 419                                                                               | 619                                                                               | 1127                                                                              | 487                                                                               | 337                                                                                | 949                                                                                 | 695                                                                                 | 245                                                                                 | 770                                                                                 | 535                                                                                 |
| V/C Ratio(X)                                                                                       | 0.75                                                                              | 1.03                                                                              | 0.60                                                                              | 0.94                                                                              | 0.88                                                                              | 0.37                                                                              | 0.94                                                                               | 0.55                                                                                | 0.79                                                                                | 1.16                                                                                | 0.56                                                                                | 0.68                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 433                                                                               | 983                                                                               | 419                                                                               | 631                                                                               | 1330                                                                              | 575                                                                               | 366                                                                                | 949                                                                                 | 695                                                                                 | 245                                                                                 | 770                                                                                 | 535                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 63.3                                                                              | 54.1                                                                              | 46.9                                                                              | 60.6                                                                              | 48.2                                                                              | 18.9                                                                              | 59.7                                                                               | 46.9                                                                                | 35.1                                                                                | 64.7                                                                                | 52.4                                                                                | 17.6                                                                                |
| Incr Delay (d2), s/veh                                                                             | 6.5                                                                               | 36.3                                                                              | 6.3                                                                               | 20.8                                                                              | 9.7                                                                               | 2.1                                                                               | 29.6                                                                               | 0.6                                                                                 | 5.7                                                                                 | 108.0                                                                               | 0.8                                                                                 | 3.2                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 6.3                                                                               | 23.0                                                                              | 8.9                                                                               | 12.4                                                                              | 18.6                                                                              | 3.6                                                                               | 14.6                                                                               | 8.5                                                                                 | 17.9                                                                                | 16.6                                                                                | 7.3                                                                                 | 6.1                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 69.8                                                                              | 90.4                                                                              | 53.2                                                                              | 81.4                                                                              | 58.0                                                                              | 21.0                                                                              | 89.4                                                                               | 47.4                                                                                | 40.9                                                                                | 172.7                                                                               | 53.2                                                                                | 20.8                                                                                |
| LnGrp LOS                                                                                          | E                                                                                 | F                                                                                 | D                                                                                 | F                                                                                 | E                                                                                 | C                                                                                 | F                                                                                  | D                                                                                   | D                                                                                   | F                                                                                   | D                                                                                   | C                                                                                   |
| Approach Vol, veh/h                                                                                | 1590                                                                              |                                                                                   |                                                                                   | 1747                                                                              |                                                                                   |                                                                                   | 1389                                                                               |                                                                                     |                                                                                     | 1078                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 80.2                                                                              |                                                                                   |                                                                                   | 61.9                                                                              |                                                                                   |                                                                                   | 54.4                                                                               |                                                                                     |                                                                                     | 73.8                                                                                |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | F                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | D                                                                                  |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 31.5                                                                              | 47.5                                                                              | 33.2                                                                              | 37.8                                                                              | 24.6                                                                              | 54.4                                                                              | 25.0                                                                               | 46.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 4.4                                                                               | 5.7                                                                               | 4.4                                                                               | 5.3                                                                               | 5.7                                                                               | * 6.4                                                                             | 4.4                                                                                | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 27.6                                                                              | 41.3                                                                              | 31.3                                                                              | 30.0                                                                              | 11.6                                                                              | * 57                                                                              | 20.6                                                                               | 40.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+l1), s                                                                       | 27.0                                                                              | 43.8                                                                              | 28.7                                                                              | 18.3                                                                              | 15.8                                                                              | 41.8                                                                              | 22.6                                                                               | 42.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.1                                                                               | 0.0                                                                               | 0.1                                                                               | 2.8                                                                               | 0.0                                                                               | 6.2                                                                               | 0.0                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 67.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | E                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



# HCM 7th Signalized Intersection Summary 30: Denver St. & Clairemont Dr.

## Proposed Plan under Blueprint SD Conditions AM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 150                                                                               | 730                                                                               | 230                                                                               | 150                                                                               | 1170                                                                              | 60                                                                                | 250                                                                                 | 70                                                                                  | 110                                                                                 | 110                                                                                 | 70                                                                                  | 310                                                                                 |
| Future Volume (veh/h)        | 150                                                                               | 730                                                                               | 230                                                                               | 150                                                                               | 1170                                                                              | 60                                                                                | 250                                                                                 | 70                                                                                  | 110                                                                                 | 110                                                                                 | 70                                                                                  | 310                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1841                                                                              | 1841                                                                              | 1841                                                                              | 1826                                                                              | 1826                                                                              | 1826                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 158                                                                               | 768                                                                               | 194                                                                               | 156                                                                               | 1219                                                                              | 36                                                                                | 263                                                                                 | 74                                                                                  | 99                                                                                  | 116                                                                                 | 74                                                                                  | 293                                                                                 |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 4                                                                                 | 4                                                                                 | 4                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 136                                                                               | 1718                                                                              | 765                                                                               | 177                                                                               | 1775                                                                              | 52                                                                                | 272                                                                                 | 226                                                                                 | 302                                                                                 | 138                                                                                 | 76                                                                                  | 303                                                                                 |
| Arrive On Green              | 0.08                                                                              | 0.49                                                                              | 0.49                                                                              | 0.10                                                                              | 0.52                                                                              | 0.52                                                                              | 0.15                                                                                | 0.31                                                                                | 0.31                                                                                | 0.08                                                                                | 0.23                                                                                | 0.23                                                                                |
| Sat Flow, veh/h              | 1753                                                                              | 3497                                                                              | 1557                                                                              | 1739                                                                              | 3441                                                                              | 102                                                                               | 1781                                                                                | 723                                                                                 | 968                                                                                 | 1781                                                                                | 328                                                                                 | 1297                                                                                |
| Grp Volume(v), veh/h         | 158                                                                               | 768                                                                               | 194                                                                               | 156                                                                               | 614                                                                               | 641                                                                               | 263                                                                                 | 0                                                                                   | 173                                                                                 | 116                                                                                 | 0                                                                                   | 367                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1753                                                                              | 1749                                                                              | 1557                                                                              | 1739                                                                              | 1735                                                                              | 1808                                                                              | 1781                                                                                | 0                                                                                   | 1691                                                                                | 1781                                                                                | 0                                                                                   | 1625                                                                                |
| Q Serve(g_s), s              | 11.6                                                                              | 21.5                                                                              | 8.5                                                                               | 13.3                                                                              | 39.8                                                                              | 39.9                                                                              | 22.0                                                                                | 0.0                                                                                 | 11.8                                                                                | 9.6                                                                                 | 0.0                                                                                 | 33.6                                                                                |
| Cycle Q Clear(g_c), s        | 11.6                                                                              | 21.5                                                                              | 8.5                                                                               | 13.3                                                                              | 39.8                                                                              | 39.9                                                                              | 22.0                                                                                | 0.0                                                                                 | 11.8                                                                                | 9.6                                                                                 | 0.0                                                                                 | 33.6                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.06                                                                              | 1.00                                                                                |                                                                                     | 0.57                                                                                | 1.00                                                                                |                                                                                     | 0.80                                                                                |
| Lane Grp Cap(c), veh/h       | 136                                                                               | 1718                                                                              | 765                                                                               | 177                                                                               | 895                                                                               | 933                                                                               | 272                                                                                 | 0                                                                                   | 527                                                                                 | 138                                                                                 | 0                                                                                   | 379                                                                                 |
| V/C Ratio(X)                 | 1.17                                                                              | 0.45                                                                              | 0.25                                                                              | 0.88                                                                              | 0.69                                                                              | 0.69                                                                              | 0.97                                                                                | 0.00                                                                                | 0.33                                                                                | 0.84                                                                                | 0.00                                                                                | 0.97                                                                                |
| Avail Cap(c_a), veh/h        | 136                                                                               | 1718                                                                              | 765                                                                               | 204                                                                               | 895                                                                               | 933                                                                               | 272                                                                                 | 0                                                                                   | 527                                                                                 | 213                                                                                 | 0                                                                                   | 379                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 69.2                                                                              | 24.9                                                                              | 13.5                                                                              | 66.4                                                                              | 27.2                                                                              | 27.2                                                                              | 63.2                                                                                | 0.0                                                                                 | 39.6                                                                                | 68.3                                                                                | 0.0                                                                                 | 56.9                                                                                |
| Incr Delay (d2), s/veh       | 128.6                                                                             | 0.8                                                                               | 0.8                                                                               | 27.8                                                                              | 4.3                                                                               | 4.1                                                                               | 45.1                                                                                | 0.0                                                                                 | 0.1                                                                                 | 10.0                                                                                | 0.0                                                                                 | 37.5                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 10.0                                                                              | 9.1                                                                               | 3.2                                                                               | 7.2                                                                               | 17.3                                                                              | 18.0                                                                              | 13.4                                                                                | 0.0                                                                                 | 5.0                                                                                 | 4.8                                                                                 | 0.0                                                                                 | 17.7                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 197.8                                                                             | 25.7                                                                              | 14.3                                                                              | 94.2                                                                              | 31.5                                                                              | 31.3                                                                              | 108.3                                                                               | 0.0                                                                                 | 39.7                                                                                | 78.2                                                                                | 0.0                                                                                 | 94.4                                                                                |
| LnGrp LOS                    | F                                                                                 | C                                                                                 | B                                                                                 | F                                                                                 | C                                                                                 | C                                                                                 | F                                                                                   |                                                                                     | D                                                                                   | E                                                                                   |                                                                                     | F                                                                                   |
| Approach Vol, veh/h          | 1120                                                                              |                                                                                   |                                                                                   | 1411                                                                              |                                                                                   |                                                                                   | 436                                                                                 |                                                                                     |                                                                                     | 483                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 48.0                                                                              |                                                                                   |                                                                                   | 38.3                                                                              |                                                                                   |                                                                                   | 81.1                                                                                |                                                                                     |                                                                                     | 90.5                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                   |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 19.7                                                                              | 80.1                                                                              | 27.8                                                                              | 39.9                                                                              | 16.0                                                                              | 83.8                                                                              | 16.0                                                                                | 51.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.4                                                                               | * 5.9                                                                             | 4.9                                                                               | * 4.9                                                                             | 4.4                                                                               | 5.9                                                                               | 4.4                                                                                 | 4.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 17.6                                                                              | * 56                                                                              | 22.9                                                                              | * 35                                                                              | 11.6                                                                              | 60.9                                                                              | 17.9                                                                                | 40.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 15.3                                                                              | 23.5                                                                              | 24.0                                                                              | 35.6                                                                              | 13.6                                                                              | 41.9                                                                              | 11.6                                                                                | 13.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 10.8                                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 10.7                                                                              | 0.1                                                                                 | 0.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

|                              |      |
|------------------------------|------|
| HCM 7th Control Delay, s/veh | 54.2 |
| HCM 7th LOS                  | D    |

### Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 8: Moraga Ave. & Clairemont Mesa Blvd.

Proposed Plan under Blueprint SD Conditions  
PM Peak Hour

|                                                                                                    |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |  |  |  |  |  |  |                                                                                     |    |                                                                                     |                                                                                     |    |                                                                                     |
| Traffic Volume (veh/h)                                                                             | 60                                                                                | 1200                                                                              | 500                                                                               | 500                                                                               | 650                                                                               | 100                                                                               | 180                                                                                 | 60                                                                                  | 330                                                                                 | 100                                                                                 | 40                                                                                  | 30                                                                                  |
| Future Volume (veh/h)                                                                              | 60                                                                                | 1200                                                                              | 500                                                                               | 500                                                                               | 650                                                                               | 100                                                                               | 180                                                                                 | 60                                                                                  | 330                                                                                 | 100                                                                                 | 40                                                                                  | 30                                                                                  |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                                |                                                                                     | 0.98                                                                                | 1.00                                                                                |                                                                                     | 0.98                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1841                                                                              | 1841                                                                              | 1841                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1841                                                                                | 1841                                                                                | 1841                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h                                                                               | 63                                                                                | 1263                                                                              | 425                                                                               | 526                                                                               | 684                                                                               | 84                                                                                | 189                                                                                 | 63                                                                                  | 314                                                                                 | 105                                                                                 | 42                                                                                  | 29                                                                                  |
| Peak Hour Factor                                                                                   | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 4                                                                                 | 4                                                                                 | 4                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 4                                                                                   | 4                                                                                   | 4                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                                                                                         | 80                                                                                | 1648                                                                              | 717                                                                               | 538                                                                               | 2608                                                                              | 1156                                                                              | 194                                                                                 | 55                                                                                  | 270                                                                                 | 201                                                                                 | 79                                                                                  | 48                                                                                  |
| Arrive On Green                                                                                    | 0.05                                                                              | 0.47                                                                              | 0.47                                                                              | 0.10                                                                              | 0.24                                                                              | 0.24                                                                              | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                |
| Sat Flow, veh/h                                                                                    | 1753                                                                              | 3497                                                                              | 1521                                                                              | 1781                                                                              | 3554                                                                              | 1575                                                                              | 496                                                                                 | 167                                                                                 | 826                                                                                 | 497                                                                                 | 241                                                                                 | 146                                                                                 |
| Grp Volume(v), veh/h                                                                               | 63                                                                                | 1263                                                                              | 425                                                                               | 526                                                                               | 684                                                                               | 84                                                                                | 566                                                                                 | 0                                                                                   | 0                                                                                   | 176                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1753                                                                              | 1749                                                                              | 1521                                                                              | 1781                                                                              | 1777                                                                              | 1575                                                                              | 1488                                                                                | 0                                                                                   | 0                                                                                   | 883                                                                                 | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s                                                                                    | 5.3                                                                               | 44.8                                                                              | 30.7                                                                              | 44.2                                                                              | 23.4                                                                              | 6.2                                                                               | 24.9                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s                                                                              | 5.3                                                                               | 44.8                                                                              | 30.7                                                                              | 44.2                                                                              | 23.4                                                                              | 6.2                                                                               | 49.1                                                                                | 0.0                                                                                 | 0.0                                                                                 | 24.2                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 0.33                                                                                |                                                                                     | 0.55                                                                                | 0.60                                                                                |                                                                                     | 0.16                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 80                                                                                | 1648                                                                              | 717                                                                               | 538                                                                               | 2608                                                                              | 1156                                                                              | 519                                                                                 | 0                                                                                   | 0                                                                                   | 328                                                                                 | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                                                                                       | 0.79                                                                              | 0.77                                                                              | 0.59                                                                              | 0.98                                                                              | 0.26                                                                              | 0.07                                                                              | 1.09                                                                                | 0.00                                                                                | 0.00                                                                                | 0.54                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 141                                                                               | 1648                                                                              | 717                                                                               | 538                                                                               | 2608                                                                              | 1156                                                                              | 519                                                                                 | 0                                                                                   | 0                                                                                   | 328                                                                                 | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.33                                                                              | 0.33                                                                              | 0.33                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.46                                                                              | 0.46                                                                              | 0.46                                                                              | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 70.9                                                                              | 32.8                                                                              | 29.1                                                                              | 67.0                                                                              | 24.0                                                                              | 17.5                                                                              | 51.8                                                                                | 0.0                                                                                 | 0.0                                                                                 | 41.5                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh                                                                             | 6.4                                                                               | 3.5                                                                               | 3.6                                                                               | 21.0                                                                              | 0.1                                                                               | 0.1                                                                               | 66.2                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.9                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 2.5                                                                               | 19.5                                                                              | 11.9                                                                              | 24.4                                                                              | 11.2                                                                              | 2.3                                                                               | 29.6                                                                                | 0.0                                                                                 | 0.0                                                                                 | 5.6                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 77.3                                                                              | 36.3                                                                              | 32.7                                                                              | 88.0                                                                              | 24.1                                                                              | 17.5                                                                              | 118.1                                                                               | 0.0                                                                                 | 0.0                                                                                 | 42.5                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                                                                                          | E                                                                                 | D                                                                                 | C                                                                                 | F                                                                                 | C                                                                                 | B                                                                                 | F                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h                                                                                | 1751                                                                              |                                                                                   | 1294                                                                              |                                                                                   |                                                                                   |                                                                                   | 566                                                                                 |                                                                                     | 176                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 36.9                                                                              |                                                                                   | 49.6                                                                              |                                                                                   |                                                                                   |                                                                                   | 118.1                                                                               |                                                                                     | 42.5                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | D                                                                                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   | F                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 51.5                                                                              | 76.0                                                                              |                                                                                   | 54.0                                                                              | 11.2                                                                              | 116.3                                                                             |                                                                                     | 54.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 5.3                                                                               | * 5.3                                                                             |                                                                                   | 4.9                                                                               | 4.4                                                                               | 5.3                                                                               |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 15.6                                                                              | * 71                                                                              |                                                                                   | 49.1                                                                              | 12.1                                                                              | 74.2                                                                              |                                                                                     | 49.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                       | 46.2                                                                              | 46.8                                                                              |                                                                                   | 26.2                                                                              | 7.3                                                                               | 25.4                                                                              |                                                                                     | 51.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                               | 17.7                                                                              |                                                                                   | 0.8                                                                               | 0.0                                                                               | 10.4                                                                              |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 53.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 9: Clairemont Dr & Clairemont Mesa Blvd.

Proposed Plan under Blueprint SD Conditions  
PM Peak Hour

|                                                                                                    |                                                                                    |                                                                                    |  |                                                                                    |                                                                                    |  |   |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                                                                                                                 | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                                                                                                                 | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |   |   |                                                                                   |   |   |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)                                                                             | 400                                                                                                                                                                 | 750                                                                                                                                                                 | 450                                                                               | 550                                                                                                                                                                 | 600                                                                                                                                                                 | 220                                                                               | 290                                                                                 | 550                                                                                 | 400                                                                                 | 190                                                                                 | 500                                                                                 | 300                                                                                 |
| Future Volume (veh/h)                                                                              | 400                                                                                                                                                                 | 750                                                                                                                                                                 | 450                                                                               | 550                                                                                                                                                                 | 600                                                                                                                                                                 | 220                                                                               | 290                                                                                 | 550                                                                                 | 400                                                                                 | 190                                                                                 | 500                                                                                 | 300                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                                                                                                                |                                                                                                                                                                     | 0.96                                                                              | 1.00                                                                                                                                                                |                                                                                                                                                                     | 0.98                                                                              | 1.00                                                                                |                                                                                     | 0.97                                                                                | 1.00                                                                                |                                                                                     | 0.96                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                                                                                                  |                                                                                                                                                                     |                                                                                   | No                                                                                                                                                                  |                                                                                                                                                                     |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1870                                                                                                                                                                | 1823                                                                                                                                                                | 1823                                                                              | 1870                                                                                                                                                                | 1770                                                                                                                                                                | 1770                                                                              | 1870                                                                                | 1870                                                                                | 1823                                                                                | 1856                                                                                | 1856                                                                                | 1778                                                                                |
| Adj Flow Rate, veh/h                                                                               | 421                                                                                                                                                                 | 789                                                                                                                                                                 | 422                                                                               | 579                                                                                                                                                                 | 632                                                                                                                                                                 | 199                                                                               | 302                                                                                 | 573                                                                                 | 330                                                                                 | 200                                                                                 | 526                                                                                 | 247                                                                                 |
| Peak Hour Factor                                                                                   | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.96                                                                                | 0.96                                                                                | 0.96                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                                                                                         | 475                                                                                                                                                                 | 913                                                                                                                                                                 | 485                                                                               | 1239                                                                                                                                                                | 1630                                                                                                                                                                | 513                                                                               | 257                                                                                 | 570                                                                                 | 1012                                                                                | 160                                                                                 | 477                                                                                 | 580                                                                                 |
| Arrive On Green                                                                                    | 0.14                                                                                                                                                                | 0.43                                                                                                                                                                | 0.43                                                                              | 0.36                                                                                                                                                                | 0.65                                                                                                                                                                | 0.65                                                                              | 0.14                                                                                | 0.30                                                                                | 0.30                                                                                | 0.09                                                                                | 0.26                                                                                | 0.26                                                                                |
| Sat Flow, veh/h                                                                                    | 3456                                                                                                                                                                | 2148                                                                                                                                                                | 1141                                                                              | 3456                                                                                                                                                                | 2501                                                                                                                                                                | 787                                                                               | 1781                                                                                | 1870                                                                                | 1502                                                                                | 1767                                                                                | 1856                                                                                | 1450                                                                                |
| Grp Volume(v), veh/h                                                                               | 421                                                                                                                                                                 | 635                                                                                                                                                                 | 576                                                                               | 579                                                                                                                                                                 | 425                                                                                                                                                                 | 406                                                                               | 302                                                                                 | 573                                                                                 | 330                                                                                 | 200                                                                                 | 526                                                                                 | 247                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1728                                                                                                                                                                | 1732                                                                                                                                                                | 1556                                                                              | 1728                                                                                                                                                                | 1681                                                                                                                                                                | 1606                                                                              | 1781                                                                                | 1870                                                                                | 1502                                                                                | 1767                                                                                | 1856                                                                                | 1450                                                                                |
| Q Serve(g_s), s                                                                                    | 17.9                                                                                                                                                                | 49.9                                                                                                                                                                | 50.6                                                                              | 19.4                                                                                                                                                                | 17.6                                                                                                                                                                | 17.7                                                                              | 21.6                                                                                | 45.7                                                                                | 0.0                                                                                 | 13.6                                                                                | 38.6                                                                                | 18.6                                                                                |
| Cycle Q Clear(g_c), s                                                                              | 17.9                                                                                                                                                                | 49.9                                                                                                                                                                | 50.6                                                                              | 19.4                                                                                                                                                                | 17.6                                                                                                                                                                | 17.7                                                                              | 21.6                                                                                | 45.7                                                                                | 0.0                                                                                 | 13.6                                                                                | 38.6                                                                                | 18.6                                                                                |
| Prop In Lane                                                                                       | 1.00                                                                                                                                                                |                                                                                                                                                                     | 0.73                                                                              | 1.00                                                                                                                                                                |                                                                                                                                                                     | 0.49                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 475                                                                                                                                                                 | 737                                                                                                                                                                 | 662                                                                               | 1239                                                                                                                                                                | 1096                                                                                                                                                                | 1047                                                                              | 257                                                                                 | 570                                                                                 | 1012                                                                                | 160                                                                                 | 477                                                                                 | 580                                                                                 |
| V/C Ratio(X)                                                                                       | 0.89                                                                                                                                                                | 0.86                                                                                                                                                                | 0.87                                                                              | 0.47                                                                                                                                                                | 0.39                                                                                                                                                                | 0.39                                                                              | 1.18                                                                                | 1.01                                                                                | 0.33                                                                                | 1.25                                                                                | 1.10                                                                                | 0.43                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 751                                                                                                                                                                 | 737                                                                                                                                                                 | 662                                                                               | 1239                                                                                                                                                                | 1096                                                                                                                                                                | 1047                                                                              | 257                                                                                 | 570                                                                                 | 1012                                                                                | 160                                                                                 | 477                                                                                 | 580                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 0.54                                                                                                                                                                | 0.54                                                                                                                                                                | 0.54                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 63.5                                                                                                                                                                | 39.1                                                                                                                                                                | 39.3                                                                              | 37.1                                                                                                                                                                | 12.2                                                                                                                                                                | 12.2                                                                              | 64.2                                                                                | 52.2                                                                                | 10.8                                                                                | 68.2                                                                                | 55.7                                                                                | 33.1                                                                                |
| Incr Delay (d2), s/veh                                                                             | 2.9                                                                                                                                                                 | 7.4                                                                                                                                                                 | 8.6                                                                               | 0.1                                                                                                                                                                 | 1.0                                                                                                                                                                 | 1.1                                                                               | 112.8                                                                               | 39.1                                                                                | 0.2                                                                                 | 153.0                                                                               | 71.8                                                                                | 0.6                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 8.1                                                                                                                                                                 | 22.4                                                                                                                                                                | 20.6                                                                              | 8.2                                                                                                                                                                 | 6.8                                                                                                                                                                 | 6.5                                                                               | 17.8                                                                                | 27.4                                                                                | 4.7                                                                                 | 12.9                                                                                | 27.4                                                                                | 6.7                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 66.4                                                                                                                                                                | 46.5                                                                                                                                                                | 47.9                                                                              | 37.2                                                                                                                                                                | 13.2                                                                                                                                                                | 13.3                                                                              | 177.0                                                                               | 91.2                                                                                | 11.0                                                                                | 221.2                                                                               | 127.5                                                                               | 33.7                                                                                |
| LnGrp LOS                                                                                          | E                                                                                                                                                                   | D                                                                                                                                                                   | D                                                                                 | D                                                                                                                                                                   | B                                                                                                                                                                   | B                                                                                 | F                                                                                   | F                                                                                   | B                                                                                   | F                                                                                   | F                                                                                   | C                                                                                   |
| Approach Vol, veh/h                                                                                | 1632                                                                                                                                                                |                                                                                                                                                                     | 1410                                                                              |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   | 1205                                                                                |                                                                                     | 973                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 52.1                                                                                                                                                                |                                                                                                                                                                     | 23.1                                                                              |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   | 90.8                                                                                |                                                                                     | 122.9                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | D                                                                                                                                                                   |                                                                                                                                                                     | C                                                                                 |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   | F                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                                                                                                   | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 60.3                                                                                                                                                                | 69.0                                                                                                                                                                | 26.0                                                                              | 43.7                                                                                                                                                                | 25.0                                                                                                                                                                | 104.3                                                                             | 18.7                                                                                | 51.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 5.1                                                                                                                                                                 | * 5.2                                                                                                                                                               | 4.4                                                                               | 5.1                                                                                                                                                                 | 4.4                                                                                                                                                                 | 5.1                                                                               | 5.1                                                                                 | * 5.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 7.6                                                                                                                                                                 | * 64                                                                                                                                                                | 21.6                                                                              | 37.9                                                                                                                                                                | 32.6                                                                                                                                                                | 38.9                                                                              | 13.6                                                                                | * 46                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                       | 21.4                                                                                                                                                                | 52.6                                                                                                                                                                | 23.6                                                                              | 40.6                                                                                                                                                                | 19.9                                                                                                                                                                | 19.7                                                                              | 15.6                                                                                | 47.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                                                                                                                 | 6.6                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.7                                                                                                                                                                 | 6.1                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 66.4                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | E                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 7th Signalized Intersection Summary  
12: Genesee Ave. & Clairemont Mesa Blvd.

Proposed Plan under Blueprint SD Conditions  
PM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 260                                                                               | 840                                                                               | 470                                                                               | 480                                                                               | 1000                                                                              | 250                                                                               | 420                                                                                | 580                                                                                 | 250                                                                                 | 250                                                                                 | 1000                                                                                | 210                                                                                 |
| Future Volume (veh/h)        | 260                                                                               | 840                                                                               | 470                                                                               | 480                                                                               | 1000                                                                              | 250                                                                               | 420                                                                                | 580                                                                                 | 250                                                                                 | 250                                                                                 | 1000                                                                                | 210                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                               |                                                                                     | 0.99                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1841                                                                              | 1841                                                                              | 1754                                                                              | 1796                                                                              | 1796                                                                              | 1711                                                                              | 1856                                                                               | 1856                                                                                | 1856                                                                                | 1826                                                                                | 1826                                                                                | 1826                                                                                |
| Adj Flow Rate, veh/h         | 268                                                                               | 866                                                                               | 386                                                                               | 500                                                                               | 1042                                                                              | 202                                                                               | 433                                                                                | 598                                                                                 | 196                                                                                 | 263                                                                                 | 1053                                                                                | 177                                                                                 |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.97                                                                               | 0.97                                                                                | 0.97                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 4                                                                                 | 4                                                                                 | 4                                                                                 | 7                                                                                 | 7                                                                                 | 7                                                                                 | 3                                                                                  | 3                                                                                   | 3                                                                                   | 5                                                                                   | 5                                                                                   | 5                                                                                   |
| Cap, veh/h                   | 195                                                                               | 816                                                                               | 461                                                                               | 345                                                                               | 956                                                                               | 633                                                                               | 288                                                                                | 695                                                                                 | 745                                                                                 | 284                                                                                 | 829                                                                                 | 785                                                                                 |
| Arrive On Green              | 0.06                                                                              | 0.23                                                                              | 0.23                                                                              | 0.10                                                                              | 0.28                                                                              | 0.28                                                                              | 0.08                                                                               | 0.37                                                                                | 0.37                                                                                | 0.16                                                                                | 0.45                                                                                | 0.45                                                                                |
| Sat Flow, veh/h              | 3401                                                                              | 3497                                                                              | 1440                                                                              | 3319                                                                              | 3413                                                                              | 1415                                                                              | 3428                                                                               | 1856                                                                                | 1552                                                                                | 1739                                                                                | 1826                                                                                | 1534                                                                                |
| Grp Volume(v), veh/h         | 268                                                                               | 866                                                                               | 386                                                                               | 500                                                                               | 1042                                                                              | 202                                                                               | 433                                                                                | 598                                                                                 | 196                                                                                 | 263                                                                                 | 1053                                                                                | 177                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1700                                                                              | 1749                                                                              | 1440                                                                              | 1659                                                                              | 1706                                                                              | 1415                                                                              | 1714                                                                               | 1856                                                                                | 1552                                                                                | 1739                                                                                | 1826                                                                                | 1534                                                                                |
| Q Serve(g_s), s              | 8.6                                                                               | 35.0                                                                              | 35.0                                                                              | 15.6                                                                              | 42.0                                                                              | 13.9                                                                              | 12.6                                                                               | 44.6                                                                                | 11.3                                                                                | 22.4                                                                                | 68.1                                                                                | 9.6                                                                                 |
| Cycle Q Clear(g_c), s        | 8.6                                                                               | 35.0                                                                              | 35.0                                                                              | 15.6                                                                              | 42.0                                                                              | 13.9                                                                              | 12.6                                                                               | 44.6                                                                                | 11.3                                                                                | 22.4                                                                                | 68.1                                                                                | 9.6                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 195                                                                               | 816                                                                               | 461                                                                               | 345                                                                               | 956                                                                               | 633                                                                               | 288                                                                                | 695                                                                                 | 745                                                                                 | 284                                                                                 | 829                                                                                 | 785                                                                                 |
| V/C Ratio(X)                 | 1.37                                                                              | 1.06                                                                              | 0.84                                                                              | 1.45                                                                              | 1.09                                                                              | 0.32                                                                              | 1.50                                                                               | 0.86                                                                                | 0.26                                                                                | 0.93                                                                                | 1.27                                                                                | 0.23                                                                                |
| Avail Cap(c_a), veh/h        | 195                                                                               | 816                                                                               | 461                                                                               | 345                                                                               | 956                                                                               | 633                                                                               | 288                                                                                | 695                                                                                 | 745                                                                                 | 332                                                                                 | 829                                                                                 | 785                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 70.7                                                                              | 57.5                                                                              | 47.7                                                                              | 67.2                                                                              | 54.0                                                                              | 27.1                                                                              | 68.7                                                                               | 43.3                                                                                | 23.3                                                                                | 61.8                                                                                | 40.9                                                                                | 20.2                                                                                |
| Incr Delay (d2), s/veh       | 197.4                                                                             | 49.0                                                                              | 16.4                                                                              | 217.5                                                                             | 56.9                                                                              | 1.3                                                                               | 243.9                                                                              | 10.2                                                                                | 0.1                                                                                 | 27.0                                                                                | 131.1                                                                               | 0.1                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 9.1                                                                               | 20.9                                                                              | 15.3                                                                              | 17.0                                                                              | 25.4                                                                              | 4.9                                                                               | 15.2                                                                               | 22.0                                                                                | 4.1                                                                                 | 11.8                                                                                | 59.3                                                                                | 3.4                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 268.1                                                                             | 106.5                                                                             | 64.2                                                                              | 284.7                                                                             | 110.9                                                                             | 28.4                                                                              | 312.6                                                                              | 53.5                                                                                | 23.4                                                                                | 88.8                                                                                | 172.0                                                                               | 20.3                                                                                |
| LnGrp LOS                    | F                                                                                 | F                                                                                 | E                                                                                 | F                                                                                 | F                                                                                 | C                                                                                 | F                                                                                  | D                                                                                   | C                                                                                   | F                                                                                   | F                                                                                   | C                                                                                   |
| Approach Vol, veh/h          | 1520                                                                              |                                                                                   |                                                                                   | 1744                                                                              |                                                                                   |                                                                                   | 1227                                                                               |                                                                                     |                                                                                     | 1493                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 124.3                                                                             |                                                                                   |                                                                                   | 151.2                                                                             |                                                                                   |                                                                                   | 140.1                                                                              |                                                                                     |                                                                                     | 139.4                                                                               |                                                                                     |                                                                                     |
| Approach LOS                 | F                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | F                                                                                  |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 20.0                                                                              | 40.0                                                                              | 17.0                                                                              | 73.0                                                                              | 13.0                                                                              | 47.0                                                                              | 28.9                                                                               | 61.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.4                                                                               | 5.0                                                                               | 4.4                                                                               | 4.9                                                                               | 4.4                                                                               | 5.0                                                                               | 4.4                                                                                | 4.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.6                                                                              | 35.0                                                                              | 12.6                                                                              | 68.1                                                                              | 8.6                                                                               | 42.0                                                                              | 28.6                                                                               | 52.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 17.6                                                                              | 37.0                                                                              | 14.6                                                                              | 70.1                                                                              | 10.6                                                                              | 44.0                                                                              | 24.4                                                                               | 46.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.2                                                                                | 1.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 139.1                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | F                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 7th Signalized Intersection Summary  
16: Genesee Ave. & Derrick Dr.

Proposed Plan under Blueprint SD Conditions  
PM Peak Hour

|                              |  |       |      |       |      |      |       |      |      |      |      |      |
|------------------------------|------------------------------------------------------------------------------------|-------|------|-------|------|------|-------|------|------|------|------|------|
| Movement                     | EBL                                                                                | EBT   | EBR  | WBL   | WBT  | WBR  | NBL   | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations          |                                                                                    | ↔     |      |       | ↔    | ↔    | ↔     | ↔    | ↔    | ↔    | ↔    | ↔    |
| Traffic Volume (veh/h)       | 100                                                                                | 80    | 120  | 300   | 60   | 150  | 100   | 1190 | 380  | 210  | 1300 | 80   |
| Future Volume (veh/h)        | 100                                                                                | 80    | 120  | 300   | 60   | 150  | 100   | 1190 | 380  | 210  | 1300 | 80   |
| Initial Q (Qb), veh          | 0                                                                                  | 0     | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00                                                                               | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 0.99                                                                               |       | 0.97 | 0.99  |      | 0.97 | 1.00  |      | 1.00 | 1.00 |      | 0.97 |
| Parking Bus, Adj             | 1.00                                                                               | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No                                                                                 |       |      | No    |      |      | No    |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln       | 1730                                                                               | 1730  | 1730 | 1870  | 1870 | 1716 | 1870  | 1870 | 1800 | 1856 | 1856 | 1814 |
| Adj Flow Rate, veh/h         | 105                                                                                | 84    | 112  | 316   | 63   | 129  | 105   | 1253 | 305  | 221  | 1368 | 63   |
| Peak Hour Factor             | 0.95                                                                               | 0.95  | 0.95 | 0.95  | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2                                                                                  | 2     | 2    | 2     | 2    | 2    | 2     | 2    | 2    | 3    | 3    | 3    |
| Cap, veh/h                   | 51                                                                                 | 39    | 23   | 261   | 38   | 434  | 86    | 2327 | 994  | 234  | 2605 | 1106 |
| Arrive On Green              | 0.31                                                                               | 0.31  | 0.31 | 0.31  | 0.31 | 0.31 | 0.03  | 0.44 | 0.44 | 0.13 | 0.74 | 0.74 |
| Sat Flow, veh/h              | 0                                                                                  | 127   | 75   | 625   | 125  | 1416 | 1781  | 3554 | 1519 | 1767 | 3526 | 1496 |
| Grp Volume(v), veh/h         | 301                                                                                | 0     | 0    | 379   | 0    | 129  | 105   | 1253 | 305  | 221  | 1368 | 63   |
| Grp Sat Flow(s),veh/h/ln     | 203                                                                                | 0     | 0    | 749   | 0    | 1416 | 1781  | 1777 | 1519 | 1767 | 1763 | 1496 |
| Q Serve(g_s), s              | 0.0                                                                                | 0.0   | 0.0  | 0.0   | 0.0  | 6.6  | 4.6   | 24.6 | 12.4 | 11.8 | 15.7 | 1.1  |
| Cycle Q Clear(g_c), s        | 29.1                                                                               | 0.0   | 0.0  | 29.1  | 0.0  | 6.6  | 4.6   | 24.6 | 12.4 | 11.8 | 15.7 | 1.1  |
| Prop In Lane                 | 0.35                                                                               |       | 0.37 | 0.83  |      | 1.00 | 1.00  |      | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 113                                                                                | 0     | 0    | 299   | 0    | 434  | 86    | 2327 | 994  | 234  | 2605 | 1106 |
| V/C Ratio(X)                 | 2.66                                                                               | 0.00  | 0.00 | 1.27  | 0.00 | 0.30 | 1.22  | 0.54 | 0.31 | 0.94 | 0.53 | 0.06 |
| Avail Cap(c_a), veh/h        | 113                                                                                | 0     | 0    | 299   | 0    | 434  | 86    | 2327 | 994  | 234  | 2605 | 1106 |
| HCM Platoon Ratio            | 1.00                                                                               | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 0.67  | 0.67 | 0.67 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00                                                                               | 0.00  | 0.00 | 1.00  | 0.00 | 1.00 | 0.09  | 0.09 | 0.09 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 32.5                                                                               | 0.0   | 0.0  | 36.3  | 0.0  | 25.1 | 46.0  | 16.1 | 12.7 | 40.8 | 5.3  | 3.4  |
| Incr Delay (d2), s/veh       | 771.0                                                                              | 0.0   | 0.0  | 144.1 | 0.0  | 0.1  | 107.4 | 0.1  | 0.1  | 42.7 | 0.8  | 0.1  |
| Initial Q Delay(d3), s/veh   | 0.0                                                                                | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 26.9                                                                               | 0.0   | 0.0  | 19.0  | 0.0  | 2.2  | 4.6   | 10.5 | 4.5  | 7.7  | 4.2  | 0.3  |
| Unsig. Movement Delay, s/veh |                                                                                    |       |      |       |      |      |       |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 803.6                                                                              | 0.0   | 0.0  | 180.5 | 0.0  | 25.3 | 153.4 | 16.2 | 12.8 | 83.5 | 6.1  | 3.5  |
| LnGrp LOS                    | F                                                                                  |       |      | F     |      | C    | F     | B    | B    | F    | A    | A    |
| Approach Vol, veh/h          | 301                                                                                |       |      | 508   |      |      | 1663  |      |      | 1652 |      |      |
| Approach Delay, s/veh        | 803.6                                                                              |       |      | 141.1 |      |      | 24.2  |      |      | 16.3 |      |      |
| Approach LOS                 | F                                                                                  |       |      | F     |      |      | C     |      |      | B    |      |      |
| Timer - Assigned Phs         | 1                                                                                  | 2     |      | 4     | 5    | 6    |       | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 17.0                                                                               | 68.5  |      | 34.0  | 9.0  | 76.5 |       | 34.0 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.4                                                                                | * 5.6 |      | 4.9   | 4.4  | 5.6  |       | 4.9  |      |      |      |      |
| Max Green Setting (Gmax), s  | 12.6                                                                               | * 39  |      | 29.1  | 4.6  | 46.4 |       | 29.1 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 13.8                                                                               | 26.6  |      | 31.1  | 6.6  | 17.7 |       | 31.1 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0                                                                                | 11.9  |      | 0.0   | 0.0  | 22.4 |       | 0.0  |      |      |      |      |

Intersection Summary

|                              |      |
|------------------------------|------|
| HCM 7th Control Delay, s/veh | 92.3 |
| HCM 7th LOS                  | F    |

Notes

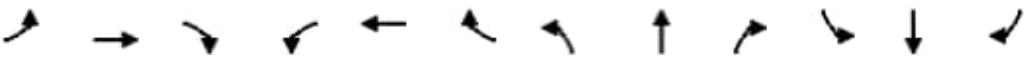
User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



# HCM 7th Signalized Intersection Summary 17: Genesee Ave. & Mt. Etna Dr.

Proposed Plan under Blueprint SD Conditions  
PM Peak Hour

|                              |  |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                                | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR  | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |   |  |      |  |  |      |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 130                                                                                | 120                                                                               | 150  | 230                                                                               | 120                                                                               | 290  | 270                                                                                 | 1290                                                                                | 250                                                                                 | 330                                                                                 | 1250                                                                                | 170                                                                                 |
| Future Volume (veh/h)        | 130                                                                                | 120                                                                               | 150  | 230                                                                               | 120                                                                               | 290  | 270                                                                                 | 1290                                                                                | 250                                                                                 | 330                                                                                 | 1250                                                                                | 170                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                  | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                               | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                               |                                                                                   | 0.99 | 0.99                                                                              |                                                                                   | 0.99 | 1.00                                                                                |                                                                                     | 0.99                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                               | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                 |                                                                                   |      | No                                                                                |                                                                                   |      | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                               | 1870                                                                              | 1870 | 1870                                                                              | 1870                                                                              | 1870 | 1856                                                                                | 1856                                                                                | 1786                                                                                | 1870                                                                                | 1870                                                                                | 1786                                                                                |
| Adj Flow Rate, veh/h         | 137                                                                                | 126                                                                               | 114  | 242                                                                               | 126                                                                               | 273  | 284                                                                                 | 1358                                                                                | 202                                                                                 | 347                                                                                 | 1316                                                                                | 135                                                                                 |
| Peak Hour Factor             | 0.95                                                                               | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95                                                                              | 0.95 | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                  | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2    | 3                                                                                   | 3                                                                                   | 3                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 228                                                                                | 323                                                                               | 292  | 364                                                                               | 187                                                                               | 406  | 197                                                                                 | 1191                                                                                | 506                                                                                 | 536                                                                                 | 1892                                                                                | 802                                                                                 |
| Arrive On Green              | 0.36                                                                               | 0.36                                                                              | 0.36 | 0.36                                                                              | 0.36                                                                              | 0.36 | 0.11                                                                                | 0.34                                                                                | 0.34                                                                                | 0.60                                                                                | 1.00                                                                                | 1.00                                                                                |
| Sat Flow, veh/h              | 981                                                                                | 899                                                                               | 814  | 1132                                                                              | 522                                                                               | 1130 | 1767                                                                                | 3526                                                                                | 1498                                                                                | 1781                                                                                | 3554                                                                                | 1506                                                                                |
| Grp Volume(v), veh/h         | 137                                                                                | 0                                                                                 | 240  | 242                                                                               | 0                                                                                 | 399  | 284                                                                                 | 1358                                                                                | 202                                                                                 | 347                                                                                 | 1316                                                                                | 135                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 981                                                                                | 0                                                                                 | 1713 | 1132                                                                              | 0                                                                                 | 1652 | 1767                                                                                | 1763                                                                                | 1498                                                                                | 1781                                                                                | 1777                                                                                | 1506                                                                                |
| Q Serve(g_s), s              | 13.0                                                                               | 0.0                                                                               | 9.9  | 19.2                                                                              | 0.0                                                                               | 19.4 | 10.6                                                                                | 32.1                                                                                | 9.8                                                                                 | 12.1                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 32.4                                                                               | 0.0                                                                               | 9.9  | 29.2                                                                              | 0.0                                                                               | 19.4 | 10.6                                                                                | 32.1                                                                                | 9.8                                                                                 | 12.1                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                               |                                                                                   | 0.47 | 1.00                                                                              |                                                                                   | 0.68 | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 228                                                                                | 0                                                                                 | 615  | 364                                                                               | 0                                                                                 | 593  | 197                                                                                 | 1191                                                                                | 506                                                                                 | 536                                                                                 | 1892                                                                                | 802                                                                                 |
| V/C Ratio(X)                 | 0.60                                                                               | 0.00                                                                              | 0.39 | 0.66                                                                              | 0.00                                                                              | 0.67 | 1.44                                                                                | 1.14                                                                                | 0.40                                                                                | 0.65                                                                                | 0.70                                                                                | 0.17                                                                                |
| Avail Cap(c_a), veh/h        | 228                                                                                | 0                                                                                 | 615  | 364                                                                               | 0                                                                                 | 593  | 197                                                                                 | 1191                                                                                | 506                                                                                 | 536                                                                                 | 1892                                                                                | 802                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                               | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 2.00                                                                                | 2.00                                                                                | 2.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                               | 0.00                                                                              | 1.00 | 1.00                                                                              | 0.00                                                                              | 1.00 | 0.09                                                                                | 0.09                                                                                | 0.09                                                                                | 0.50                                                                                | 0.50                                                                                | 0.50                                                                                |
| Uniform Delay (d), s/veh     | 39.4                                                                               | 0.0                                                                               | 22.7 | 33.6                                                                              | 0.0                                                                               | 25.7 | 42.2                                                                                | 31.5                                                                                | 24.1                                                                                | 15.6                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 3.9                                                                                | 0.0                                                                               | 0.3  | 4.2                                                                               | 0.0                                                                               | 2.8  | 200.8                                                                               | 64.1                                                                                | 0.2                                                                                 | 1.1                                                                                 | 1.1                                                                                 | 0.2                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                                | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.3                                                                                | 0.0                                                                               | 4.0  | 5.6                                                                               | 0.0                                                                               | 7.8  | 15.5                                                                                | 23.5                                                                                | 3.4                                                                                 | 3.6                                                                                 | 0.3                                                                                 | 0.1                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                    |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 43.3                                                                               | 0.0                                                                               | 23.0 | 37.7                                                                              | 0.0                                                                               | 28.5 | 243.0                                                                               | 95.5                                                                                | 24.3                                                                                | 16.7                                                                                | 1.1                                                                                 | 0.2                                                                                 |
| LnGrp LOS                    | D                                                                                  |                                                                                   | C    | D                                                                                 |                                                                                   | C    | F                                                                                   | F                                                                                   | C                                                                                   | B                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 377                                                                                |                                                                                   |      | 641                                                                               |                                                                                   |      | 1844                                                                                |                                                                                     |                                                                                     | 1798                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 30.4                                                                               |                                                                                   |      | 32.0                                                                              |                                                                                   |      | 110.4                                                                               |                                                                                     |                                                                                     | 4.0                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                  |                                                                                   |      | C                                                                                 |                                                                                   |      | F                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                  | 2                                                                                 |      | 4                                                                                 | 5                                                                                 | 6    |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 33.5                                                                               | 37.0                                                                              |      | 39.0                                                                              | 15.0                                                                              | 55.5 |                                                                                     | 39.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.9                                                                                | * 4.9                                                                             |      | 4.9                                                                               | 4.4                                                                               | 4.9  |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 14.6                                                                               | * 32                                                                              |      | 34.1                                                                              | 10.6                                                                              | 36.1 |                                                                                     | 34.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 14.1                                                                               | 34.1                                                                              |      | 34.4                                                                              | 12.6                                                                              | 2.0  |                                                                                     | 31.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                                | 0.0                                                                               |      | 0.0                                                                               | 0.0                                                                               | 15.7 |                                                                                     | 0.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Intersection Summary

HCM 7th Control Delay, s/veh 52.1  
HCM 7th LOS D

## Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary  
18: Genesee Ave. & Balboa Ave.

Proposed Plan under Blueprint SD Conditions  
PM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |   |    |  |  |  |  |
| Traffic Volume (veh/h)       | 470                                                                               | 1150                                                                              | 300                                                                               | 300                                                                               | 1260                                                                              | 480                                                                               | 350                                                                                | 820                                                                                 | 340                                                                                 | 400                                                                                 | 950                                                                                 | 330                                                                                 |
| Future Volume (veh/h)        | 470                                                                               | 1150                                                                              | 300                                                                               | 300                                                                               | 1260                                                                              | 480                                                                               | 350                                                                                | 820                                                                                 | 340                                                                                 | 400                                                                                 | 950                                                                                 | 330                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.98                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1856                                                                              | 1780                                                                              | 1780                                                                              | 1870                                                                              | 1775                                                                              | 1775                                                                              | 1811                                                                               | 1811                                                                                | 1728                                                                                | 1856                                                                                | 1856                                                                                | 1761                                                                                |
| Adj Flow Rate, veh/h         | 485                                                                               | 1186                                                                              | 278                                                                               | 316                                                                               | 1326                                                                              | 451                                                                               | 368                                                                                | 863                                                                                 | 286                                                                                 | 421                                                                                 | 1000                                                                                | 278                                                                                 |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 3                                                                                 | 3                                                                                 | 3                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 6                                                                                  | 6                                                                                   | 6                                                                                   | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                   | 631                                                                               | 2518                                                                              | 1119                                                                              | 369                                                                               | 2359                                                                              | 731                                                                               | 337                                                                                | 797                                                                                 | 339                                                                                 | 392                                                                                 | 853                                                                                 | 353                                                                                 |
| Arrive On Green              | 0.36                                                                              | 0.74                                                                              | 0.74                                                                              | 0.11                                                                              | 0.49                                                                              | 0.49                                                                              | 0.10                                                                               | 0.23                                                                                | 0.23                                                                                | 0.11                                                                                | 0.24                                                                                | 0.24                                                                                |
| Sat Flow, veh/h              | 1767                                                                              | 3383                                                                              | 1504                                                                              | 3456                                                                              | 4845                                                                              | 1500                                                                              | 3346                                                                               | 3441                                                                                | 1465                                                                                | 3428                                                                                | 3526                                                                                | 1460                                                                                |
| Grp Volume(v), veh/h         | 485                                                                               | 1186                                                                              | 278                                                                               | 316                                                                               | 1326                                                                              | 451                                                                               | 368                                                                                | 863                                                                                 | 286                                                                                 | 421                                                                                 | 1000                                                                                | 278                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1767                                                                              | 1691                                                                              | 1504                                                                              | 1728                                                                              | 1615                                                                              | 1500                                                                              | 1673                                                                               | 1721                                                                                | 1465                                                                                | 1714                                                                                | 1763                                                                                | 1460                                                                                |
| Q Serve(g_s), s              | 35.3                                                                              | 20.0                                                                              | 13.6                                                                              | 13.0                                                                              | 28.0                                                                              | 41.1                                                                              | 14.6                                                                               | 33.6                                                                                | 27.0                                                                                | 16.6                                                                                | 35.1                                                                                | 25.8                                                                                |
| Cycle Q Clear(g_c), s        | 35.3                                                                              | 20.0                                                                              | 13.6                                                                              | 13.0                                                                              | 28.0                                                                              | 41.1                                                                              | 14.6                                                                               | 33.6                                                                                | 27.0                                                                                | 16.6                                                                                | 35.1                                                                                | 25.8                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 631                                                                               | 2518                                                                              | 1119                                                                              | 369                                                                               | 2359                                                                              | 731                                                                               | 337                                                                                | 797                                                                                 | 339                                                                                 | 392                                                                                 | 853                                                                                 | 353                                                                                 |
| V/C Ratio(X)                 | 0.77                                                                              | 0.47                                                                              | 0.25                                                                              | 0.86                                                                              | 0.56                                                                              | 0.62                                                                              | 1.09                                                                               | 1.08                                                                                | 0.84                                                                                | 1.07                                                                                | 1.17                                                                                | 0.79                                                                                |
| Avail Cap(c_a), veh/h        | 631                                                                               | 2518                                                                              | 1119                                                                              | 610                                                                               | 2359                                                                              | 731                                                                               | 337                                                                                | 797                                                                                 | 339                                                                                 | 392                                                                                 | 853                                                                                 | 353                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.17                                                                               | 0.17                                                                                | 0.17                                                                                | 0.35                                                                                | 0.35                                                                                | 0.35                                                                                |
| Uniform Delay (d), s/veh     | 41.3                                                                              | 7.3                                                                               | 15.2                                                                              | 63.7                                                                              | 26.3                                                                              | 45.1                                                                              | 65.2                                                                               | 55.7                                                                                | 53.2                                                                                | 64.2                                                                                | 54.9                                                                                | 51.4                                                                                |
| Incr Delay (d2), s/veh       | 5.2                                                                               | 0.6                                                                               | 0.5                                                                               | 3.2                                                                               | 1.0                                                                               | 3.9                                                                               | 50.4                                                                               | 41.5                                                                                | 3.7                                                                                 | 48.6                                                                                | 82.0                                                                                | 4.6                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 15.8                                                                              | 6.4                                                                               | 4.8                                                                               | 5.8                                                                               | 10.6                                                                              | 15.9                                                                              | 8.6                                                                                | 19.0                                                                                | 10.2                                                                                | 9.9                                                                                 | 25.2                                                                                | 9.9                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 46.4                                                                              | 7.9                                                                               | 15.7                                                                              | 66.8                                                                              | 27.3                                                                              | 48.9                                                                              | 115.6                                                                              | 97.2                                                                                | 56.9                                                                                | 112.8                                                                               | 137.0                                                                               | 56.0                                                                                |
| LnGrp LOS                    | D                                                                                 | A                                                                                 | B                                                                                 | E                                                                                 | C                                                                                 | D                                                                                 | F                                                                                  | F                                                                                   | E                                                                                   | F                                                                                   | F                                                                                   | E                                                                                   |
| Approach Vol, veh/h          | 1949                                                                              |                                                                                   |                                                                                   | 2093                                                                              |                                                                                   |                                                                                   | 1517                                                                               |                                                                                     |                                                                                     | 1699                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 18.6                                                                              |                                                                                   |                                                                                   | 37.9                                                                              |                                                                                   |                                                                                   | 94.1                                                                               |                                                                                     |                                                                                     | 117.8                                                                               |                                                                                     |                                                                                     |
| Approach LOS                 | B                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                  |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 19.9                                                                              | 114.6                                                                             | 19.5                                                                              | 40.0                                                                              | 58.5                                                                              | 76.0                                                                              | 21.0                                                                               | 38.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.4                                                                               | 5.3                                                                               | 4.9                                                                               | * 4.9                                                                             | 5.3                                                                               | * 5.4                                                                             | 4.4                                                                                | 4.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 25.6                                                                              | 50.7                                                                              | 14.6                                                                              | * 35                                                                              | 5.6                                                                               | * 71                                                                              | 16.6                                                                               | 33.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 15.0                                                                              | 22.0                                                                              | 16.6                                                                              | 37.1                                                                              | 37.3                                                                              | 43.1                                                                              | 18.6                                                                               | 35.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.4                                                                               | 12.0                                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 12.1                                                                              | 0.0                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

Intersection Summary

|                              |      |
|------------------------------|------|
| HCM 7th Control Delay, s/veh | 63.2 |
| HCM 7th LOS                  | E    |

Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary  
19: Genesee Ave. & Mt. Alifan Dr.

Proposed Plan under Blueprint SD Conditions  
PM Peak Hour

|                                                                                                    |  |  |  |  |  |  |   |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |  |  |                                                                                   |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)                                                                             | 250                                                                               | 260                                                                               | 150                                                                               | 340                                                                               | 380                                                                               | 150                                                                               | 280                                                                                 | 1280                                                                                | 270                                                                                 | 140                                                                                 | 1050                                                                                | 250                                                                                 |
| Future Volume (veh/h)                                                                              | 250                                                                               | 260                                                                               | 150                                                                               | 340                                                                               | 380                                                                               | 150                                                                               | 280                                                                                 | 1280                                                                                | 270                                                                                 | 140                                                                                 | 1050                                                                                | 250                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                                |                                                                                     | 0.97                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1870                                                                              | 1804                                                                              | 1804                                                                              | 1870                                                                              | 1870                                                                              | 1766                                                                              | 1811                                                                                | 1811                                                                                | 1775                                                                                | 1811                                                                                | 1811                                                                                | 1756                                                                                |
| Adj Flow Rate, veh/h                                                                               | 263                                                                               | 274                                                                               | 140                                                                               | 354                                                                               | 396                                                                               | 125                                                                               | 295                                                                                 | 1347                                                                                | 227                                                                                 | 147                                                                                 | 1105                                                                                | 189                                                                                 |
| Peak Hour Factor                                                                                   | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 6                                                                                   | 6                                                                                   | 6                                                                                   | 6                                                                                   | 6                                                                                   | 6                                                                                   |
| Cap, veh/h                                                                                         | 375                                                                               | 254                                                                               | 130                                                                               | 368                                                                               | 418                                                                               | 329                                                                               | 260                                                                                 | 1253                                                                                | 530                                                                                 | 312                                                                                 | 1381                                                                                | 594                                                                                 |
| Arrive On Green                                                                                    | 0.21                                                                              | 0.23                                                                              | 0.23                                                                              | 0.21                                                                              | 0.22                                                                              | 0.22                                                                              | 0.15                                                                                | 0.36                                                                                | 0.36                                                                                | 0.18                                                                                | 0.40                                                                                | 0.40                                                                                |
| Sat Flow, veh/h                                                                                    | 1781                                                                              | 1116                                                                              | 570                                                                               | 1781                                                                              | 1870                                                                              | 1474                                                                              | 1725                                                                                | 3441                                                                                | 1455                                                                                | 1725                                                                                | 3441                                                                                | 1480                                                                                |
| Grp Volume(v), veh/h                                                                               | 263                                                                               | 0                                                                                 | 414                                                                               | 354                                                                               | 396                                                                               | 125                                                                               | 295                                                                                 | 1347                                                                                | 227                                                                                 | 147                                                                                 | 1105                                                                                | 189                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1781                                                                              | 0                                                                                 | 1686                                                                              | 1781                                                                              | 1870                                                                              | 1474                                                                              | 1725                                                                                | 1721                                                                                | 1455                                                                                | 1725                                                                                | 1721                                                                                | 1480                                                                                |
| Q Serve(g_s), s                                                                                    | 20.5                                                                              | 0.0                                                                               | 34.1                                                                              | 29.5                                                                              | 31.3                                                                              | 10.8                                                                              | 22.6                                                                                | 54.6                                                                                | 13.1                                                                                | 11.5                                                                                | 42.5                                                                                | 9.6                                                                                 |
| Cycle Q Clear(g_c), s                                                                              | 20.5                                                                              | 0.0                                                                               | 34.1                                                                              | 29.5                                                                              | 31.3                                                                              | 10.8                                                                              | 22.6                                                                                | 54.6                                                                                | 13.1                                                                                | 11.5                                                                                | 42.5                                                                                | 9.6                                                                                 |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                   | 0.34                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 375                                                                               | 0                                                                                 | 383                                                                               | 368                                                                               | 418                                                                               | 329                                                                               | 260                                                                                 | 1253                                                                                | 530                                                                                 | 312                                                                                 | 1381                                                                                | 594                                                                                 |
| V/C Ratio(X)                                                                                       | 0.70                                                                              | 0.00                                                                              | 1.08                                                                              | 0.96                                                                              | 0.95                                                                              | 0.38                                                                              | 1.14                                                                                | 1.08                                                                                | 0.43                                                                                | 0.47                                                                                | 0.80                                                                                | 0.32                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 375                                                                               | 0                                                                                 | 383                                                                               | 368                                                                               | 425                                                                               | 335                                                                               | 260                                                                                 | 1253                                                                                | 530                                                                                 | 312                                                                                 | 1381                                                                                | 594                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.19                                                                                | 0.19                                                                                | 0.19                                                                                |
| Uniform Delay (d), s/veh                                                                           | 54.8                                                                              | 0.0                                                                               | 58.0                                                                              | 58.9                                                                              | 57.4                                                                              | 49.4                                                                              | 63.7                                                                                | 47.7                                                                                | 19.9                                                                                | 55.0                                                                                | 39.6                                                                                | 16.3                                                                                |
| Incr Delay (d2), s/veh                                                                             | 4.9                                                                               | 0.0                                                                               | 69.0                                                                              | 36.5                                                                              | 30.1                                                                              | 0.3                                                                               | 97.2                                                                                | 48.3                                                                                | 2.5                                                                                 | 0.1                                                                                 | 1.0                                                                                 | 0.3                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 9.8                                                                               | 0.0                                                                               | 21.9                                                                              | 17.1                                                                              | 18.3                                                                              | 4.0                                                                               | 16.7                                                                                | 31.0                                                                                | 4.9                                                                                 | 5.0                                                                                 | 17.9                                                                                | 3.4                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 59.7                                                                              | 0.0                                                                               | 127.0                                                                             | 95.4                                                                              | 87.6                                                                              | 49.7                                                                              | 160.9                                                                               | 96.0                                                                                | 22.4                                                                                | 55.1                                                                                | 40.6                                                                                | 16.6                                                                                |
| LnGrp LOS                                                                                          | E                                                                                 |                                                                                   | F                                                                                 | F                                                                                 | F                                                                                 | D                                                                                 | F                                                                                   | F                                                                                   | C                                                                                   | E                                                                                   | D                                                                                   | B                                                                                   |
| Approach Vol, veh/h                                                                                | 677                                                                               |                                                                                   |                                                                                   | 875                                                                               |                                                                                   |                                                                                   | 1869                                                                                |                                                                                     |                                                                                     | 1441                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 100.8                                                                             |                                                                                   |                                                                                   | 85.3                                                                              |                                                                                   |                                                                                   | 97.3                                                                                |                                                                                     |                                                                                     | 38.9                                                                                |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | F                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | F                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 32.5                                                                              | 60.1                                                                              | 35.9                                                                              | 39.0                                                                              | 27.0                                                                              | 65.6                                                                              | 36.5                                                                                | 38.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 4.9                                                                               | * 5.5                                                                             | 4.9                                                                               | 4.9                                                                               | 4.4                                                                               | 4.9                                                                               | 4.9                                                                                 | 4.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 10.6                                                                              | * 55                                                                              | 31.0                                                                              | 34.1                                                                              | 22.6                                                                              | 43.2                                                                              | 31.0                                                                                | 34.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                       | 13.5                                                                              | 56.6                                                                              | 31.5                                                                              | 36.1                                                                              | 24.6                                                                              | 44.5                                                                              | 22.5                                                                                | 33.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.3                                                                                 | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 78.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | E                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 27: Clairemont Dr & Balboa Ave.

Proposed Plan under Blueprint SD Conditions  
PM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 520                                                                               | 1260                                                                              | 200                                                                               | 550                                                                               | 1300                                                                              | 280                                                                               | 190                                                                                | 440                                                                                 | 500                                                                                 | 380                                                                                 | 700                                                                                 | 380                                                                                 |
| Future Volume (veh/h)        | 520                                                                               | 1260                                                                              | 200                                                                               | 550                                                                               | 1300                                                                              | 280                                                                               | 190                                                                                | 440                                                                                 | 500                                                                                 | 380                                                                                 | 700                                                                                 | 380                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                               |                                                                                     | 0.97                                                                                | 1.00                                                                                |                                                                                     | 0.97                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1856                                                                              | 1856                                                                              | 1785                                                                              | 1856                                                                              | 1856                                                                              | 1785                                                                              | 1841                                                                               | 1841                                                                                | 1771                                                                                | 1870                                                                                | 1870                                                                                | 1799                                                                                |
| Adj Flow Rate, veh/h         | 542                                                                               | 1312                                                                              | 166                                                                               | 579                                                                               | 1368                                                                              | 234                                                                               | 200                                                                                | 463                                                                                 | 417                                                                                 | 400                                                                                 | 737                                                                                 | 320                                                                                 |
| Peak Hour Factor             | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 4                                                                                  | 4                                                                                   | 4                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 467                                                                               | 1202                                                                              | 508                                                                               | 512                                                                               | 1202                                                                              | 506                                                                               | 234                                                                                | 871                                                                                 | 586                                                                                 | 231                                                                                 | 851                                                                                 | 563                                                                                 |
| Arrive On Green              | 0.14                                                                              | 0.34                                                                              | 0.34                                                                              | 0.15                                                                              | 0.34                                                                              | 0.34                                                                              | 0.13                                                                               | 0.25                                                                                | 0.25                                                                                | 0.13                                                                                | 0.24                                                                                | 0.24                                                                                |
| Sat Flow, veh/h              | 3428                                                                              | 3526                                                                              | 1490                                                                              | 3428                                                                              | 3526                                                                              | 1484                                                                              | 1753                                                                               | 3497                                                                                | 1452                                                                                | 1781                                                                                | 3554                                                                                | 1485                                                                                |
| Grp Volume(v), veh/h         | 542                                                                               | 1312                                                                              | 166                                                                               | 579                                                                               | 1368                                                                              | 234                                                                               | 200                                                                                | 463                                                                                 | 417                                                                                 | 400                                                                                 | 737                                                                                 | 320                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1714                                                                              | 1763                                                                              | 1490                                                                              | 1714                                                                              | 1763                                                                              | 1484                                                                              | 1753                                                                               | 1749                                                                                | 1452                                                                                | 1781                                                                                | 1777                                                                                | 1485                                                                                |
| Q Serve(g_s), s              | 20.6                                                                              | 51.6                                                                              | 8.6                                                                               | 22.6                                                                              | 51.6                                                                              | 13.0                                                                              | 16.9                                                                               | 17.3                                                                                | 36.7                                                                                | 19.6                                                                                | 30.1                                                                                | 4.6                                                                                 |
| Cycle Q Clear(g_c), s        | 20.6                                                                              | 51.6                                                                              | 8.6                                                                               | 22.6                                                                              | 51.6                                                                              | 13.0                                                                              | 16.9                                                                               | 17.3                                                                                | 36.7                                                                                | 19.6                                                                                | 30.1                                                                                | 4.6                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 467                                                                               | 1202                                                                              | 508                                                                               | 512                                                                               | 1202                                                                              | 506                                                                               | 234                                                                                | 871                                                                                 | 586                                                                                 | 231                                                                                 | 851                                                                                 | 563                                                                                 |
| V/C Ratio(X)                 | 1.16                                                                              | 1.09                                                                              | 0.33                                                                              | 1.13                                                                              | 1.14                                                                              | 0.46                                                                              | 0.86                                                                               | 0.53                                                                                | 0.71                                                                                | 1.73                                                                                | 0.87                                                                                | 0.57                                                                                |
| Avail Cap(c_a), veh/h        | 467                                                                               | 1202                                                                              | 508                                                                               | 512                                                                               | 1202                                                                              | 506                                                                               | 234                                                                                | 871                                                                                 | 586                                                                                 | 231                                                                                 | 1026                                                                                | 637                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 65.3                                                                              | 49.9                                                                              | 17.5                                                                              | 64.3                                                                              | 49.9                                                                              | 18.8                                                                              | 64.2                                                                               | 49.2                                                                                | 38.4                                                                                | 65.8                                                                                | 55.2                                                                                | 37.3                                                                                |
| Incr Delay (d2), s/veh       | 94.0                                                                              | 54.5                                                                              | 0.4                                                                               | 80.9                                                                              | 72.6                                                                              | 0.7                                                                               | 24.5                                                                               | 0.5                                                                                 | 3.7                                                                                 | 347.6                                                                               | 6.6                                                                                 | 0.7                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 14.9                                                                              | 31.1                                                                              | 3.0                                                                               | 15.4                                                                              | 34.1                                                                              | 4.6                                                                               | 9.1                                                                                | 7.7                                                                                 | 13.6                                                                                | 31.1                                                                                | 14.2                                                                                | 9.5                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 159.3                                                                             | 104.4                                                                             | 17.9                                                                              | 145.2                                                                             | 122.4                                                                             | 19.5                                                                              | 88.7                                                                               | 49.6                                                                                | 42.1                                                                                | 413.4                                                                               | 61.8                                                                                | 38.1                                                                                |
| LnGrp LOS                    | F                                                                                 | F                                                                                 | B                                                                                 | F                                                                                 | F                                                                                 | B                                                                                 | F                                                                                  | D                                                                                   | D                                                                                   | F                                                                                   | E                                                                                   | D                                                                                   |
| Approach Vol, veh/h          | 2020                                                                              |                                                                                   |                                                                                   | 2181                                                                              |                                                                                   |                                                                                   | 1080                                                                               |                                                                                     |                                                                                     | 1457                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 112.0                                                                             |                                                                                   |                                                                                   | 117.4                                                                             |                                                                                   |                                                                                   | 54.0                                                                               |                                                                                     |                                                                                     | 153.1                                                                               |                                                                                     |                                                                                     |
| Approach LOS                 | F                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | D                                                                                  |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 27.0                                                                              | 57.3                                                                              | 25.5                                                                              | 41.5                                                                              | 26.3                                                                              | 58.0                                                                              | 24.0                                                                               | 43.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.4                                                                               | 5.7                                                                               | 5.3                                                                               | * 5.3                                                                             | 5.7                                                                               | * 6.4                                                                             | 4.4                                                                                | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 22.6                                                                              | 50.3                                                                              | 13.6                                                                              | * 44                                                                              | 20.6                                                                              | * 52                                                                              | 19.6                                                                               | 37.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 24.6                                                                              | 53.6                                                                              | 18.9                                                                              | 32.1                                                                              | 22.6                                                                              | 53.6                                                                              | 21.6                                                                               | 38.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 4.1                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Intersection Summary

HCM 7th Control Delay, s/veh 113.3  
HCM 7th LOS F

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 30: Denver St. & Clairemont Dr

## Proposed Plan under Blueprint SD Conditions PM Peak Hour

|                                                                                                    |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |  |  |  |  |  |                                                                                   |   |    |                                                                                     |    |  |                                                                                     |
| Traffic Volume (veh/h)                                                                             | 190                                                                               | 1120                                                                              | 340                                                                               | 210                                                                               | 710                                                                               | 110                                                                               | 250                                                                                | 100                                                                                 | 210                                                                                 | 110                                                                                 | 60                                                                                  | 190                                                                                 |
| Future Volume (veh/h)                                                                              | 190                                                                               | 1120                                                                              | 340                                                                               | 210                                                                               | 710                                                                               | 110                                                                               | 250                                                                                | 100                                                                                 | 210                                                                                 | 110                                                                                 | 60                                                                                  | 190                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.99                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1841                                                                              | 1841                                                                              | 1804                                                                              | 1826                                                                              | 1789                                                                              | 1789                                                                              | 1870                                                                               | 1836                                                                                | 1836                                                                                | 1723                                                                                | 1686                                                                                | 1686                                                                                |
| Adj Flow Rate, veh/h                                                                               | 198                                                                               | 1167                                                                              | 285                                                                               | 216                                                                               | 732                                                                               | 88                                                                                | 263                                                                                | 105                                                                                 | 173                                                                                 | 116                                                                                 | 63                                                                                  | 179                                                                                 |
| Peak Hour Factor                                                                                   | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 4                                                                                 | 4                                                                                 | 4                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                                                                                         | 224                                                                               | 1270                                                                              | 553                                                                               | 239                                                                               | 1155                                                                              | 139                                                                               | 289                                                                                | 163                                                                                 | 268                                                                                 | 138                                                                                 | 71                                                                                  | 201                                                                                 |
| Arrive On Green                                                                                    | 0.13                                                                              | 0.36                                                                              | 0.36                                                                              | 0.14                                                                              | 0.38                                                                              | 0.38                                                                              | 0.16                                                                               | 0.26                                                                                | 0.26                                                                                | 0.08                                                                                | 0.18                                                                                | 0.18                                                                                |
| Sat Flow, veh/h                                                                                    | 1753                                                                              | 3497                                                                              | 1525                                                                              | 1739                                                                              | 3055                                                                              | 367                                                                               | 1781                                                                               | 620                                                                                 | 1021                                                                                | 1641                                                                                | 384                                                                                 | 1092                                                                                |
| Grp Volume(v), veh/h                                                                               | 198                                                                               | 1167                                                                              | 285                                                                               | 216                                                                               | 407                                                                               | 413                                                                               | 263                                                                                | 0                                                                                   | 278                                                                                 | 116                                                                                 | 0                                                                                   | 242                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1753                                                                              | 1749                                                                              | 1525                                                                              | 1739                                                                              | 1700                                                                              | 1723                                                                              | 1781                                                                               | 0                                                                                   | 1641                                                                                | 1641                                                                                | 0                                                                                   | 1477                                                                                |
| Q Serve(g_s), s                                                                                    | 14.7                                                                              | 42.3                                                                              | 12.3                                                                              | 16.2                                                                              | 26.0                                                                              | 26.0                                                                              | 19.3                                                                               | 0.0                                                                                 | 20.0                                                                                | 9.3                                                                                 | 0.0                                                                                 | 21.2                                                                                |
| Cycle Q Clear(g_c), s                                                                              | 14.7                                                                              | 42.3                                                                              | 12.3                                                                              | 16.2                                                                              | 26.0                                                                              | 26.0                                                                              | 19.3                                                                               | 0.0                                                                                 | 20.0                                                                                | 9.3                                                                                 | 0.0                                                                                 | 21.2                                                                                |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.21                                                                              | 1.00                                                                               |                                                                                     | 0.62                                                                                | 1.00                                                                                |                                                                                     | 0.74                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 224                                                                               | 1270                                                                              | 553                                                                               | 239                                                                               | 643                                                                               | 651                                                                               | 289                                                                                | 0                                                                                   | 430                                                                                 | 138                                                                                 | 0                                                                                   | 272                                                                                 |
| V/C Ratio(X)                                                                                       | 0.88                                                                              | 0.92                                                                              | 0.51                                                                              | 0.90                                                                              | 0.63                                                                              | 0.63                                                                              | 0.91                                                                               | 0.00                                                                                | 0.65                                                                                | 0.84                                                                                | 0.00                                                                                | 0.89                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 536                                                                               | 1291                                                                              | 563                                                                               | 257                                                                               | 643                                                                               | 651                                                                               | 437                                                                                | 0                                                                                   | 536                                                                                 | 237                                                                                 | 0                                                                                   | 334                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 56.9                                                                              | 40.4                                                                              | 13.3                                                                              | 56.4                                                                              | 33.8                                                                              | 33.8                                                                              | 54.6                                                                               | 0.0                                                                                 | 43.5                                                                                | 59.9                                                                                | 0.0                                                                                 | 52.9                                                                                |
| Incr Delay (d2), s/veh                                                                             | 4.5                                                                               | 10.8                                                                              | 1.2                                                                               | 29.4                                                                              | 2.3                                                                               | 2.3                                                                               | 12.7                                                                               | 0.0                                                                                 | 0.9                                                                                 | 5.1                                                                                 | 0.0                                                                                 | 19.2                                                                                |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 6.8                                                                               | 19.8                                                                              | 4.4                                                                               | 9.0                                                                               | 11.0                                                                              | 11.2                                                                              | 9.7                                                                                | 0.0                                                                                 | 8.2                                                                                 | 4.1                                                                                 | 0.0                                                                                 | 9.3                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 61.4                                                                              | 51.3                                                                              | 14.5                                                                              | 85.8                                                                              | 36.1                                                                              | 36.1                                                                              | 67.3                                                                               | 0.0                                                                                 | 44.4                                                                                | 65.0                                                                                | 0.0                                                                                 | 72.0                                                                                |
| LnGrp LOS                                                                                          | E                                                                                 | D                                                                                 | B                                                                                 | F                                                                                 | D                                                                                 | D                                                                                 | E                                                                                  |                                                                                     | D                                                                                   | E                                                                                   |                                                                                     | E                                                                                   |
| Approach Vol, veh/h                                                                                | 1650                                                                              |                                                                                   | 1036                                                                              |                                                                                   |                                                                                   |                                                                                   | 541                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 46.1                                                                              |                                                                                   | 46.4                                                                              |                                                                                   |                                                                                   |                                                                                   | 55.5                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | D                                                                                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   | E                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 24.2                                                                              | 53.3                                                                              | 26.0                                                                              | 29.3                                                                              | 21.4                                                                              | 56.1                                                                              | 15.6                                                                               | 39.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 5.9                                                                               | * 5.1                                                                             | 4.4                                                                               | 4.9                                                                               | 4.4                                                                               | 5.9                                                                               | 4.4                                                                                | 4.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 19.6                                                                              | * 49                                                                              | 32.6                                                                              | 30.0                                                                              | 40.6                                                                              | 27.2                                                                              | 19.2                                                                               | 43.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                       | 18.2                                                                              | 44.3                                                                              | 21.3                                                                              | 23.2                                                                              | 16.7                                                                              | 28.0                                                                              | 11.3                                                                               | 22.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                               | 3.8                                                                               | 0.3                                                                               | 0.5                                                                               | 0.3                                                                               | 0.0                                                                               | 0.1                                                                                | 1.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 50.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| User approved pedestrian interval to be less than phase max green.                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |





## Attachment B - Pedestrian Improvements – Proposed Plan Conditions

| FUTURE Pedestrian Improvements |                                                                |                   |               |               |           |                      |     |                |             |                   |                 |               |               |                      |                |     |                |                   |      |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
|--------------------------------|----------------------------------------------------------------|-------------------|---------------|---------------|-----------|----------------------|-----|----------------|-------------|-------------------|-----------------|---------------|---------------|----------------------|----------------|-----|----------------|-------------------|------|-----------------|---------------|----------------------|-----------|----------------|-----|-------------------|-------------|-----|-----------------|----------------------|---------------|-----------|----------------|-----|----------------|-------------|-----|--|--|
| #                              | Intersection                                                   | North Leg         |               |               |           |                      |     |                |             | South Leg         |                 |               |               |                      |                |     |                | East Leg          |      |                 |               |                      |           |                |     | West Leg          |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
|                                |                                                                | Physical Features |               |               |           | Operational Features |     |                |             | Physical Features |                 |               |               | Operational Features |                |     |                | Physical Features |      |                 |               | Operational Features |           |                |     | Physical Features |             |     |                 | Operational Features |               |           |                |     |                |             |     |  |  |
|                                |                                                                | High Vis X-Walk   | Advanced Stop | Raised X-Walk | Bulb Outs | Count Down Sig       | LPI | No Turn on Red | Ped Signage | ADA               | High Vis X-Walk | Advanced Stop | Raised X-Walk | Bulb Outs            | Count Down Sig | LPI | No Turn on Red | Ped Signage       | ADA  | High Vis X-Walk | Advanced Stop | Raised X-Walk        | Bulb Outs | Count Down Sig | LPI | No Turn on Red    | Ped Signage | ADA | High Vis X-Walk | Advanced Stop        | Raised X-Walk | Bulb Outs | Count Down Sig | LPI | No Turn on Red | Ped Signage | ADA |  |  |
| 5                              | Clairmont Mesa Boulevard and Luna Avenue                       | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 6                              | Jutland Drive and Luna Avenue                                  | x                 | x             |               |           |                      |     |                |             | ADA               | x               |               | x             |                      |                |     |                |                   | ADA  | x               |               | x                    |           |                |     |                   |             |     |                 |                      |               |           |                |     |                | x           | ADA |  |  |
| 8                              | Clairmont Mesa Boulevard and Mesita Avenue                     | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 9                              | Clairmont Mesa Boulevard and Clairmont Drive                   | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 10                             | Rutle Road and Clairmont Mesa Boulevard                        | x                 | x             |               |           |                      | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 11                             | Clairmont Drive - Kiefield Avenue and Clairmont Mesa Boulevard | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 12                             | Genesee Avenue and Clairmont Mesa Boulevard                    | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 13                             | Limerick Avenue and Clairmont Mesa Boulevard                   | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 14                             | I-805 SB Ramps and Clairmont Mesa Boulevard                    | x                 | x             |               |           |                      |     |                | x           | ADA               |                 |               |               |                      |                |     |                |                   |      |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 16                             | Genesee Avenue and Derrick Drive                               | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 17                             | Genesee Avenue & Mt. Elm Drive                                 |                   |               |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 18                             | Genesee Avenue and Balboa Avenue                               | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 19                             | Genesee Avenue and Mt. Allison Drive                           | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 20                             | Mt. Allison Drive and Mt. Abraham Avenue                       |                   |               |               |           |                      |     |                |             |                   |                 |               |               |                      |                |     |                |                   |      |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 21                             | Mt. Abernathy Avenue and Balboa Avenue                         | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 22                             | Mt. Abernathy Avenue and Balboa Arms Drive                     |                   |               |               |           |                      |     |                |             | None              | x               |               | x             |                      |                |     |                |                   | ADA  |                 |               |                      | x         |                | x   |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 23                             | Cannington Drive and Balboa Avenue                             | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA |                 |                      |               |           | x              | x   |                |             | ADA |  |  |
| 24                             | Charger Boulevard and Balboa Avenue                            | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 25                             | -405 SB Ramps and Balboa Avenue                                | x                 | x             |               |           |                      |     |                |             | ADA               | x               |               | x             |                      |                |     |                |                   |      |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 27                             | Clairmont Drive and Balboa Avenue                              | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 28                             | I-5 SB Ramps and Mission Bay Drive                             | x                 | x             |               |           | x                    | x   |                |             | None              | x               |               | x             |                      | x              |     |                |                   | None |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                | None        |     |  |  |
| 29                             | I-5 NB Ramps and Clairmont Drive                               | x                 | x             |               |           | x                    | x   |                | x           | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 30                             | Denver Street and Clairmont Drive                              | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 31                             | Burgener Boulevard and Clairmont Drive                         | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 32                             | Burgener Boulevard and Field Street                            | x                 | x             |               |           |                      |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 33                             | Clairmont Drive and Itasca Drive                               | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 34                             | Morena Boulevard and Nagler Street                             |                   |               |               |           |                      |     |                |             |                   |                 |               |               |                      |                |     |                |                   |      |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 35                             | Morena Boulevard and Ashlan Street                             | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA |                 |                      |               |           |                |     |                |             | ADA |  |  |
| 36                             | Morena Boulevard and West/Morena Boulevard                     | x                 | x             |               |           | x                    | x   |                |             | ADA               |                 |               |               |                      |                |     |                |                   | ADA  |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 37                             | Knowville Street and Morena Boulevard                          | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 38                             | Tecolote Road and Morena Boulevard                             | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             | ADA | x               |                      | x             |           | x              |     |                |             | ADA |  |  |
| 39                             | Genesee Avenue and Martesta Drive                              | x                 | x             |               |           | x                    |     |                |             | ADA               |                 |               |               |                      |                |     |                |                   | ADA  |                 |               |                      | x         |                | x   |                   |             | ADA |                 |                      |               |           |                |     |                |             |     |  |  |
| 43                             | Linda Vista Road and Mesa College Drive                        | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 49                             | Morena Boulevard and Balboa Avenue EB Ramps                    | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              | x   |                |                   | ADA  | x               |               | x                    |           | x              | x   |                   |             | ADA | x               |                      | x             |           | x              | x   |                |             | ADA |  |  |
| 101                            | Genesee Avenue & SR-52 EB Ramps                                | x                 | x             |               |           | x                    |     |                |             | ADA               |                 |               |               |                      |                |     |                |                   | ADA  |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 102                            | Genesee Avenue & Appleton Street                               | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 103                            | Genesee Avenue & Chateau Drive                                 | x                 | x             |               |           | x                    |     |                |             | ADA               |                 |               |               |                      |                |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 104                            | Genesee Avenue & Herbert Avenue                                | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 105                            | Genesee Avenue & Genesee Court                                 | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 106                            | Genesee Avenue & Boyd Avenue                                   | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 107                            | Clairmont Drive & Lakeland Avenue                              | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 108                            | Merrimac Avenue & Clairmont Drive                              | x                 | x             |               |           | x                    |     |                |             | ADA               |                 |               |               |                      |                |     |                |                   | ADA  |                 |               |                      | x         |                | x   |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 109                            | Clairmont Mesa Boulevard & Frink Avenue                        | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 110                            | Clairmont Mesa Boulevard & Darne Avenue                        | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 111                            | Clairmont Mesa Boulevard & Longford Street                     | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 112                            | Clairmont Mesa Boulevard & Doliva Drive                        | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 113                            | Morena Boulevard & Jutland Drive                               | x                 | x             |               |           |                      |     |                |             | None              | x               |               | x             |                      |                |     |                |                   | None | x               |               | x                    |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 114                            | Morena Boulevard & Costico Drive                               | x                 | x             |               |           | x                    |     |                |             | None              | x               |               | x             |                      | x              |     |                |                   | None | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 115                            | Morena Boulevard & Averi Drive                                 | x                 | x             |               |           | x                    |     |                |             | ADA               |                 |               |               |                      |                |     |                |                   | ADA  |                 |               |                      | x         |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 116                            | Morena Boulevard & Balboa WB Off-Ramp                          |                   |               |               |           |                      |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 117                            | Morena Boulevard & Gesner Street                               | x                 | x             |               |           | x                    |     |                |             | None              |                 |               |               |                      |                |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 118                            | Morena Boulevard & Ingulf Street                               | x                 | x             |               |           | x                    |     |                |             | None              |                 |               |               |                      |                |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 119                            | Morena Boulevard & Milton Street                               |                   |               |               |           | x                    |     |                |             | ADA               |                 |               |               |                      |                |     |                |                   | ADA  |                 |               |                      | x         |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 120                            | Morena Avenue & Balboa Avenue                                  | x                 | x             |               |           | x                    |     |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 121                            | Mc Everest Boulevard & Balboa Avenue                           | x                 | x             |               |           | x                    | x   |                |             | ADA               | x               |               | x             |                      | x              |     |                |                   | ADA  | x               |               | x                    |           | x              |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |
| 122                            | Shopping Center Driveway &                                     |                   |               |               |           |                      |     |                |             |                   |                 |               |               |                      |                |     |                |                   |      |                 |               |                      |           |                |     |                   |             |     |                 |                      |               |           |                |     |                |             |     |  |  |



# Attachment C - Mobility Element Existing Conditions Report for the Clairemont Community Plan Update

## Mobility Existing Conditions Report<sup>1,2</sup>

Report: [Clairemont CPU Mobility Element - Existing Conditions Report](#)

Appendices: [Clairemont CPU Mobility Element - Existing Conditions Report Appendices](#)

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### Note:

<sup>1</sup> The Clairemont CPU Mobility Element - Existing Conditions Report was finalized in June 2017 using the best available mobility data, information, and methodologies at the time. Since then, some existing mobility conditions and assumptions have changed, such as implementation of upgraded bikeways and the Mid-Coast Trolley extension of the UC San Diego Blue Line.

<sup>2</sup> It is also important to note that some of the methodologies used for the traffic operations analysis have evolved since the 2017 report. As a result, the analysis methods applied in this Mobility Technical Report (MTR) for the Proposed Plan conditions may differ from those used in the earlier report. The MTR's traffic operations analyses reflect the latest methodologies and software tools.

## Attachment D - LTS Criteria and Scoring



## Bicycle Level of Traffic Stress (LTS) Scoring Criteria

LTS classifies the street network according to the estimated level of stress it causes cyclists, taking into consideration a cyclist's physical separation from vehicular traffic, vehicular traffic speeds along a roadway segment, number of travel lanes, and factors related to intersection approaches with right-turn lanes and unsignalized crossings. LTS scores range from 1 (lowest stress) to 4 (highest stress) and correspond to roadway conditions that different cycling demographics would find suitable for riding on the basis of stress tolerance.

LTS is determined for roadway segments and intersection approaches using a series of look-up tables. Look-up tables for bicycle LTS along roadway segments are categorized as follows:

- Mixed traffic, no bike lanes (Table 1)
- Roadway with bike lane and on-street parking (Table 2)
- Roadway with bike lane and no on-street parking (Table 3)

## LTS Scoring Criteria for Roadway Segments

As shown in **Tables 1** through **3**, speed and roadway width (or number of travel lanes) are major factors considered in the LTS score. Bike lane width and the frequency of bike lane obstructions are also considered for developing LTS scores along roadways with bike lanes. Separate scoring methods are used for roadway segments with and without bike lanes. Table 1 shows the LTS segment criteria for cyclists traveling along roadways without a bike lane in mixed traffic. Table 2 shows the LTS segment criteria for cyclists traveling along roadways with bike lanes and an adjacent parking lane. Table 3 shows the LTS segment criteria for cyclists traveling along roadways with bike lanes and without adjacent parking lanes.

**Table 1: LTS Criteria for Segment – Mixed Traffic, No Bike Lane**

| Speed Limit | Street Width                         |           |          |
|-------------|--------------------------------------|-----------|----------|
|             | 2-3 Lanes                            | 4-5 Lanes | 6+ Lanes |
| ≤25 mph     | LTS 1 <sup>a</sup> or 2 <sup>a</sup> | LTS 3     | LTS 4    |
| 30 mph      | LTS 2 <sup>a</sup> or 3 <sup>a</sup> | LTS 4     | LTS 4    |
| ≥35 mph     | LTS 4                                | LTS 4     | LTS 4    |

Source: Mekuria et al. (2012)

Note:

<sup>a</sup> Use lower value for streets without marked centerlines or classified as residential and with fewer than 3 lanes; use higher value otherwise.

<sup>b</sup> Bicycle routes or Class III facilities are treated as “no bicycle facility”.

**Table 2: LTS Criteria for Segment – Bike Lane with Adjacent Parking Lane**

| Level of Stress (LTS)                                                             | LTS ≥ 1        | LTS ≥ 2                    | LTS ≥ 3          | LTS ≥ 4          |
|-----------------------------------------------------------------------------------|----------------|----------------------------|------------------|------------------|
| Street width (through lanes per direction)                                        | 1              | 1                          | 2 or more        | 2 or more        |
| Sum of bike lane and parking lane width (includes marked buffer and paved gutter) | 15 ft. or more | 14 or 14.5 ft <sup>a</sup> | 13.5 ft. or less | 13.5 ft. or less |
| Speed limit or prevailing speed                                                   | 25 mph or less | 30 mph                     | 35 mph           | 40 mph or more   |
| Bike lane blockage (typically applies in commercial areas)                        | Rare           | Rare                       | Frequent         | Frequent         |

Source: Mekuria et al. (2012)

Note:

<sup>a</sup> If speed limit < 25 mph or Class = residential, then any width is acceptable for LTS 2.

**Table 3: LTS Criteria for Segment – Bike Lane without Adjacent Parking Lane**

| Criteria                                                   | LTS ≥ 1        | LTS ≥ 2                                           | LTS ≥ 3                                       | LTS ≥ 4                                       |
|------------------------------------------------------------|----------------|---------------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| Street width (through lanes per direction)                 | 1              | 2, if directions are separated by a raised median | More than 2, or 2 without a separating median | More than 2, or 2 without a separating median |
| Bike lane width (includes marked buffer and paved gutter)  | 6 ft. or more  | 5.5 ft. or less                                   | 5.5 ft. or less                               | 5.5 ft. or less                               |
| Speed limit or prevailing speed                            | 30 mph or less | 30 mph or less                                    | 35 mph                                        | 40 mph or more                                |
| Bike lane blockage (typically applies in commercial areas) | Rare           | Rare                                              | Frequent                                      | Frequent                                      |

Source: Mekuria et al. (2012)

Table 3 for example would be interpreted as follows, using the weakest link principle: if a roadway segment has one travel lane in each direction and a 6-foot bike lane (LTS 1), but also has a speed limit of 40 mph or more (LTS 4), then the prevailing level of traffic stress score for the segment is LTS 4, the weakest link.

## Attachment E - HCM 7 Analysis Methodology and Assumptions

## Level of Service (LOS) Definition

Level of Service (LOS) is a quantitative measure describing operational conditions within a traffic stream, and the motorist's and/or passengers' perception of operations. A LOS definition generally describes these conditions in terms of such factors as delay, speed, travel time, freedom to maneuver, interruptions in traffic flow, queuing, comfort, and convenience. **Table 1** describes generalized definitions of the various LOS categories (A through F) as applied to roadway operations.

**Table 1 - LOS Definitions**

| LOS | Definition of Operation                                                                                                                                                                                                                                               |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A   | This LOS represents a completely free-flow condition, where the operation of vehicles is virtually unaffected by the presence of other vehicles and only constrained by the geometric features of the highway and by driver preferences.                              |
| B   | This LOS represents a relatively free-flow condition, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.                                                 |
| C   | At this LOS, the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles.                                                                                                  |
| D   | At this LOS, the ability to maneuver is notably restricted due to traffic congestion, and only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.                                                                      |
| E   | This LOS represents operations at or near capacity. LOS E is an unstable level, with vehicles operating with minimum spacing for maintaining uniform flow. At LOS E, disruptions cannot be dissipated readily thus causing deterioration down to LOS F.               |
| F   | At this LOS, forced or breakdown of traffic flow occurs, although operations appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages. |

## Roadway Segment LOS Standards and Thresholds

Roadway segment LOS standards and thresholds provide the basis for analysis of arterial roadway segment performance. The analysis of roadway segment LOS is based on the functional classification of the roadway, the maximum capacity, roadway geometrics, and existing or forecast average daily traffic (ADT) volumes. **Table 2** displays the City of San Diego Roadway Capacity and LOS standards.

**Table 2 - City of San Diego Roadway Segment Daily Capacity and Level of Service Standards**

| Roadway Functional Classification                             | Lanes | Level of Service |        |         |         |         |
|---------------------------------------------------------------|-------|------------------|--------|---------|---------|---------|
|                                                               |       | A                | B      | C       | D       | E       |
| Freeway                                                       | 8     | 60,000           | 84,000 | 120,000 | 140,000 | 150,000 |
| Freeway                                                       | 6     | 45,000           | 63,000 | 90,000  | 110,000 | 120,000 |
| Freeway                                                       | 4     | 30,000           | 42,000 | 60,000  | 70,000  | 80,000  |
| Expressway                                                    | 6     | 30,000           | 42,000 | 60,000  | 70,000  | 80,000  |
| Prime Arterial                                                | 8     | 35,000           | 50,000 | 70,000  | 75,000  | 80,000  |
| Prime Arterial                                                | 6     | 25,000           | 35,000 | 50,000  | 55,000  | 60,000  |
| Prime Arterial                                                | 4     | 17,500           | 24,500 | 35,000  | 40,000  | 45,000  |
| Major Arterial                                                | 7     | 22,500           | 31,500 | 45,000  | 50,000  | 55,000  |
| Major Arterial                                                | 6     | 20,000           | 28,000 | 40,000  | 45,000  | 50,000  |
| Major Arterial                                                | 5     | 17,500           | 24,500 | 35,000  | 40,000  | 45,000  |
| Major Arterial                                                | 4     | 15,000           | 21,000 | 30,000  | 35,000  | 40,000  |
| Major Arterial                                                | 3     | 11,250           | 15,750 | 22,500  | 26,250  | 30,000  |
| Major Arterial                                                | 2     | 7,500            | 10,500 | 15,000  | 17,500  | 20,000  |
| Major Arterial (one-way)                                      | 3     | 12,500           | 16,500 | 22,500  | 25,000  | 27,500  |
| Major Arterial (one-way)                                      | 2     | 10,000           | 13,000 | 17,500  | 20,000  | 22,500  |
| Collector (w/ two-way left-turn lane)                         | 4     | 10,000           | 14,000 | 20,000  | 25,000  | 30,000  |
| Collector (w/ two-way left-turn lane)                         | 3     | 7,500            | 10,500 | 15,000  | 18,750  | 22,500  |
| Collector (w/ two-way left-turn lane)                         | 2     | 5,000            | 7,000  | 10,000  | 13,000  | 15,000  |
| Collector (w/o two-way left-turn lane)                        | 4     | 5,000            | 7,000  | 10,000  | 13,000  | 15,000  |
| Collector (w/o two-way left-turn lane)                        | 3     | 4,000            | 5,000  | 7,500   | 10,000  | 11,000  |
| Collector (w/o two-way left-turn lane)                        | 2     | 2,500            | 3,500  | 5,000   | 6,500   | 8,000   |
| Collector (w/o two-way left-turn lane) – no fronting property | 2     | 4,000            | 5,500  | 7,500   | 9,000   | 10,000  |
| Collector (one-way)                                           | 3     | 11,000           | 14,000 | 19,000  | 22,500  | 26,000  |
| Collector (one-way)                                           | 2     | 7,500            | 9,500  | 12,500  | 15,500  | 17,500  |
| Collector (one-way)                                           | 1     | 2,500            | 3,500  | 5,000   | 6,500   | 7,500   |
| Sub-Collector (single-family)                                 | 2     | -                | -      | 2,200   | -       | -       |

Source: City of San Diego TSM



The signalized intersection analysis utilized in this study conforms to the operational analysis methodology outlined in the 2022 *Highway Capacity Manual* (HCM 7). This method defines LOS in terms of delay, or more specifically, average control delay per vehicle (seconds/vehicle).

The HCM 7 methodology sets 1,900 passenger-cars per hour per lane (pcphpl) as the ideal saturation flow rate at signalized intersections based upon the minimum headway that can be sustained between departing vehicles at a signalized intersection. The service saturation flow rate, which reflects the saturation flow rate specific to the study facility, is determined by adjusting the ideal saturation flow rate for lane width, on-street parking, bus stops, pedestrian volume, traffic composition (or percentage of heavy vehicles), and shared lane movements (e.g., through and right-turn movements sharing the same lane). The computerized analysis of intersection operations was performed utilizing Synchro 12 traffic analysis software by Trafficware.

The following assumptions were utilized in conducting all intersection LOS analyses:

- Each signalized intersection assumed 10 pedestrian crossing signal activations per leg/signal phase per hour.
- A Peak Hour Factor (PHF) of 0.95 was utilized for all study area intersections.
- Signal timings were optimized by adjusting cycle lengths and splits.

**Table 3** presents the signalized intersection average control delay per vehicle thresholds and describes the operational characteristics of each LOS category.

**Table 3 - Signalized Intersection Level of Service HCM Operational Analysis Method**

| Average Control Delay Per Vehicle (seconds) | Level of Service (LOS) Characteristics                                                                                                                                                                                                                                                   |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ≤10.0                                       | LOS A occurs when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping. |
| 10.1 – 20.0                                 | LOS B occurs when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.                                                                                                                       |
| 20.1 – 35.0                                 | LOS C occurs when progression is favorable or the cycle length is moderate. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.                                                                                 |
| 35.1 – 55.0                                 | LOS D occurs when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.                                                                                               |
| 55.1 – 80.0                                 | LOS E occurs when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.                                                                                                                                |
| >80.0                                       | LOS F occurs when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.                                                                                                                                |

Source: *Highway Capacity Manual*, Transportation Research Board (2010)

### Unsignalized Intersection Analysis

Unsignalized intersections, including two-way and all-way stop-controlled intersections, were analyzed using the HCM 7 unsignalized intersection analysis methodology, and utilizing the Synchro 12 traffic analysis software. The LOS for an all-way stop-controlled (AWSC) intersection is determined by the computed or measured average control delay of all movements. For side-street stop-controlled (SSSC) intersections, LOS is determined by the computed or measured control delay and is defined for each minor movement. Control delay and LOS for the “worst” movement are reported, as opposed to average intersection LOS and delay. **Table 4** presents the level of service operations thresholds for unsignalized intersections.

**Table 4 - Level of Service Criteria for Stop Controlled Unsignalized Intersections**

| Average Control Delay (sec/veh) | Level of Service (LOS) |
|---------------------------------|------------------------|
| ≤10.0                           | A                      |
| 10.1 – 15.0                     | B                      |
| 15.1 – 25.0                     | C                      |
| 25.1 – 35.0                     | D                      |
| 35.1 – 50.0                     | E                      |
| >50.0                           | F                      |

*Source: Highway Capacity Manual, Transportation Research Board (2010)*



Attachment F - Peak Hour Intersection LOS  
Calculation Worksheets – Clairemont CPU  
Proposed Plan Conditions

# HCM 7th Signalized Intersection Summary

# Proposed Plan Conditions

## 1: Regents Rd. & SR-52 WB On Ramp/SR-52 WB Off Ramp

## AM Peak Hour

|                                                                                                               |  |      |     |      |      |       |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------|-----|------|------|-------|------|------|------|------|------|------|
| Movement                                                                                                      | EBL                                                                                | EBT  | EBR | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations                                                                                           |                                                                                    |      |     |      | ↰    | ↱     | ↰↱   | ↰↱   |      |      | ↰↱   | ↱    |
| Traffic Volume (veh/h)                                                                                        | 0                                                                                  | 0    | 0   | 380  | 10   | 250   | 610  | 690  | 0    | 0    | 540  | 380  |
| Future Volume (veh/h)                                                                                         | 0                                                                                  | 0    | 0   | 380  | 10   | 250   | 610  | 690  | 0    | 0    | 540  | 380  |
| Initial Q (Qb), veh                                                                                           |                                                                                    |      |     | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.                                                                                               |                                                                                    |      |     | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)                                                                                           |                                                                                    |      |     | 1.00 |      | 1.00  | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj                                                                                              |                                                                                    |      |     | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach                                                                                         |                                                                                    |      |     | No   |      |       | No   |      |      |      | No   |      |
| Adj Sat Flow, veh/h/ln                                                                                        |                                                                                    |      |     | 1870 | 1870 | 1870  | 1796 | 1796 | 0    | 0    | 1841 | 1841 |
| Adj Flow Rate, veh/h                                                                                          |                                                                                    |      |     | 400  | 11   | 0     | 642  | 726  | 0    | 0    | 568  | 0    |
| Peak Hour Factor                                                                                              |                                                                                    |      |     | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %                                                                                          |                                                                                    |      |     | 2    | 2    | 2     | 7    | 7    | 0    | 0    | 4    | 4    |
| Cap, veh/h                                                                                                    |                                                                                    |      |     | 445  | 12   |       | 704  | 2110 | 0    | 0    | 1238 |      |
| Arrive On Green                                                                                               |                                                                                    |      |     | 0.26 | 0.26 | 0.00  | 0.42 | 1.00 | 0.00 | 0.00 | 0.35 | 0.00 |
| Sat Flow, veh/h                                                                                               |                                                                                    |      |     | 1736 | 48   | 1585  | 3319 | 3503 | 0    | 0    | 3589 | 1560 |
| Grp Volume(v), veh/h                                                                                          |                                                                                    |      |     | 411  | 0    | 0     | 642  | 726  | 0    | 0    | 568  | 0    |
| Grp Sat Flow(s),veh/h/ln                                                                                      |                                                                                    |      |     | 1784 | 0    | 1585  | 1659 | 1706 | 0    | 0    | 1749 | 1560 |
| Q Serve(g_s), s                                                                                               |                                                                                    |      |     | 20.0 | 0.0  | 0.0   | 16.3 | 0.0  | 0.0  | 0.0  | 11.3 | 0.0  |
| Cycle Q Clear(g_c), s                                                                                         |                                                                                    |      |     | 20.0 | 0.0  | 0.0   | 16.3 | 0.0  | 0.0  | 0.0  | 11.3 | 0.0  |
| Prop In Lane                                                                                                  |                                                                                    |      |     | 0.97 |      | 1.00  | 1.00 |      | 0.00 | 0.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h                                                                                        |                                                                                    |      |     | 457  | 0    |       | 704  | 2110 | 0    | 0    | 1238 |      |
| V/C Ratio(X)                                                                                                  |                                                                                    |      |     | 0.90 | 0.00 |       | 0.91 | 0.34 | 0.00 | 0.00 | 0.46 |      |
| Avail Cap(c_a), veh/h                                                                                         |                                                                                    |      |     | 573  | 0    |       | 859  | 2110 | 0    | 0    | 1238 |      |
| HCM Platoon Ratio                                                                                             |                                                                                    |      |     | 1.00 | 1.00 | 1.00  | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)                                                                                            |                                                                                    |      |     | 1.00 | 0.00 | 0.00  | 0.66 | 0.66 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh                                                                                      |                                                                                    |      |     | 32.4 | 0.0  | 0.0   | 25.1 | 0.0  | 0.0  | 0.0  | 22.4 | 0.0  |
| Incr Delay (d2), s/veh                                                                                        |                                                                                    |      |     | 13.2 | 0.0  | 0.0   | 7.8  | 0.3  | 0.0  | 0.0  | 1.2  | 0.0  |
| Initial Q Delay(d3), s/veh                                                                                    |                                                                                    |      |     | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln                                                                                      |                                                                                    |      |     | 10.1 | 0.0  | 0.0   | 5.4  | 0.1  | 0.0  | 0.0  | 4.7  | 0.0  |
| Unsig. Movement Delay, s/veh                                                                                  |                                                                                    |      |     |      |      |       |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh                                                                                         |                                                                                    |      |     | 45.5 | 0.0  | 0.0   | 32.9 | 0.3  | 0.0  | 0.0  | 23.7 | 0.0  |
| LnGrp LOS                                                                                                     |                                                                                    |      |     | D    |      |       | C    | A    |      |      | C    |      |
| Approach Vol, veh/h                                                                                           |                                                                                    |      |     |      | 411  |       |      | 1368 |      |      | 568  |      |
| Approach Delay, s/veh                                                                                         |                                                                                    |      |     |      | 45.5 |       |      | 15.6 |      |      | 23.7 |      |
| Approach LOS                                                                                                  |                                                                                    |      |     |      | D    |       |      | B    |      |      | C    |      |
| Timer - Assigned Phs                                                                                          | 1                                                                                  | 2    |     |      |      | 6     |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s                                                                                      | 23.8                                                                               | 38.0 |     |      |      | 61.8  |      | 28.2 |      |      |      |      |
| Change Period (Y+Rc), s                                                                                       | 4.7                                                                                | 6.2  |     |      |      | * 6.2 |      | 5.1  |      |      |      |      |
| Max Green Setting (Gmax), s                                                                                   | 23.3                                                                               | 21.8 |     |      |      | * 52  |      | 28.9 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s                                                                                  | 18.3                                                                               | 13.3 |     |      |      | 2.0   |      | 22.0 |      |      |      |      |
| Green Ext Time (p_c), s                                                                                       | 0.8                                                                                | 2.4  |     |      |      | 6.1   |      | 1.0  |      |      |      |      |
| <b>Intersection Summary</b>                                                                                   |                                                                                    |      |     |      |      |       |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh                                                                                  |                                                                                    |      |     |      |      |       |      |      |      |      | 22.8 |      |
| HCM 7th LOS                                                                                                   |                                                                                    |      |     |      |      |       |      |      |      |      | C    |      |
| <b>Notes</b>                                                                                                  |                                                                                    |      |     |      |      |       |      |      |      |      |      |      |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.            |                                                                                    |      |     |      |      |       |      |      |      |      |      |      |
| Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay. |                                                                                    |      |     |      |      |       |      |      |      |      |      |      |

# HCM 7th Signalized Intersection Summary 2: SR-52 EB Off Ramp/SR-52 EB On Ramp & Regents Rd.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL  | WBT | WBR  | NBL   | NBT                                                                               | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----|------|-------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations          |  |  |  |      |     |      |       |  |  |  |  |  |
| Traffic Volume (veh/h)       | 310                                                                               | 10                                                                                | 360                                                                               | 0    | 0   | 0    | 0     | 990                                                                               | 920                                                                                 | 400                                                                                 | 520                                                                                 | 0                                                                                   |
| Future Volume (veh/h)        | 310                                                                               | 10                                                                                | 360                                                                               | 0    | 0   | 0    | 0     | 990                                                                               | 920                                                                                 | 400                                                                                 | 520                                                                                 | 0                                                                                   |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 |      |     |      | 0     | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |      |     |      | 1.00  | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              |      |     |      | 1.00  |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |      |     |      | 1.00  | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   |      |     |      | No    |                                                                                   |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              |      |     |      | 0     | 1796                                                                              | 1796                                                                                | 1796                                                                                | 1796                                                                                | 0                                                                                   |
| Adj Flow Rate, veh/h         | 334                                                                               | 0                                                                                 | 0                                                                                 |      |     |      | 0     | 1042                                                                              | 0                                                                                   | 421                                                                                 | 547                                                                                 | 0                                                                                   |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |      |     |      | 0.95  | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 |      |     |      | 0     | 7                                                                                 | 7                                                                                   | 7                                                                                   | 7                                                                                   | 0                                                                                   |
| Cap, veh/h                   | 376                                                                               | 0                                                                                 |                                                                                   |      |     |      | 0     | 1623                                                                              |                                                                                     | 504                                                                                 | 2864                                                                                | 0                                                                                   |
| Arrive On Green              | 0.11                                                                              | 0.00                                                                              | 0.00                                                                              |      |     |      | 0.00  | 0.48                                                                              | 0.00                                                                                | 0.59                                                                                | 1.00                                                                                | 0.00                                                                                |
| Sat Flow, veh/h              | 3563                                                                              | 0                                                                                 | 1585                                                                              |      |     |      | 0     | 3503                                                                              | 1522                                                                                | 1711                                                                                | 3503                                                                                | 0                                                                                   |
| Grp Volume(v), veh/h         | 334                                                                               | 0                                                                                 | 0                                                                                 |      |     |      | 0     | 1042                                                                              | 0                                                                                   | 421                                                                                 | 547                                                                                 | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 0                                                                                 | 1585                                                                              |      |     |      | 0     | 1706                                                                              | 1522                                                                                | 1711                                                                                | 1706                                                                                | 0                                                                                   |
| Q Serve(g_s), s              | 8.3                                                                               | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0   | 20.7                                                                              | 0.0                                                                                 | 17.9                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 8.3                                                                               | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0   | 20.7                                                                              | 0.0                                                                                 | 17.9                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              |      |     |      | 0.00  |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.00                                                                                |
| Lane Grp Cap(c), veh/h       | 376                                                                               | 0                                                                                 |                                                                                   |      |     |      | 0     | 1623                                                                              |                                                                                     | 504                                                                                 | 2864                                                                                | 0                                                                                   |
| V/C Ratio(X)                 | 0.89                                                                              | 0.00                                                                              |                                                                                   |      |     |      | 0.00  | 0.64                                                                              |                                                                                     | 0.84                                                                                | 0.19                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h        | 376                                                                               | 0                                                                                 |                                                                                   |      |     |      | 0     | 1623                                                                              |                                                                                     | 504                                                                                 | 2864                                                                                | 0                                                                                   |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |      |     |      | 1.00  | 1.00                                                                              | 1.00                                                                                | 2.00                                                                                | 2.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              |      |     |      | 0.00  | 1.00                                                                              | 0.00                                                                                | 0.85                                                                                | 0.85                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 39.7                                                                              | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0   | 17.8                                                                              | 0.0                                                                                 | 16.7                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 21.9                                                                              | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0   | 2.0                                                                               | 0.0                                                                                 | 10.0                                                                                | 0.1                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 4.7                                                                               | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0   | 8.1                                                                               | 0.0                                                                                 | 5.6                                                                                 | 0.1                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |      |     |      |       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 61.6                                                                              | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0   | 19.8                                                                              | 0.0                                                                                 | 26.8                                                                                | 0.1                                                                                 | 0.0                                                                                 |
| LnGrp LOS                    | E                                                                                 |                                                                                   |                                                                                   |      |     |      | B     |                                                                                   |                                                                                     | C                                                                                   |                                                                                     | A                                                                                   |
| Approach Vol, veh/h          | 334                                                                               |                                                                                   |                                                                                   |      |     |      | 1042  |                                                                                   |                                                                                     | 968                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 61.6                                                                              |                                                                                   |                                                                                   |      |     |      | 19.8  |                                                                                   |                                                                                     | 11.7                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   |                                                                                   |      |     |      | B     |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4    |     | 5    | 6     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 81.7                                                                              |                                                                                   |                                                                                   | 14.6 |     | 32.7 | 49.0  |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 6.2                                                                               |                                                                                   |                                                                                   | 5.1  |     | 6.2  | * 6.2 |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 69.2                                                                              |                                                                                   |                                                                                   | 9.5  |     | 21.7 | * 43  |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+l1), s | 2.0                                                                               |                                                                                   |                                                                                   | 10.3 |     | 19.9 | 22.7  |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 4.3                                                                               |                                                                                   |                                                                                   | 0.0  |     | 0.3  | 7.7   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |      |     |      |       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 22.4                                                                              |                                                                                   |                                                                                   |      |     |      |       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | C                                                                                 |                                                                                   |                                                                                   |      |     |      |       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Notes

User approved volume balancing among the lanes for turning movement.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



# HCM 7th Signalized Intersection Summary 4: Genesee Ave. & SR-52 EB Ramps

Proposed Plan Conditions  
AM Peak Hour



| Movement                                                                                                 | WBL  | WBR  | NBT   | NBR  | SBL   | SBT   |
|----------------------------------------------------------------------------------------------------------|------|------|-------|------|-------|-------|
| Lane Configurations                                                                                      |      |      |       |      |       |       |
| Traffic Volume (veh/h)                                                                                   | 100  | 200  | 1460  | 830  | 380   | 650   |
| Future Volume (veh/h)                                                                                    | 100  | 200  | 1460  | 830  | 380   | 650   |
| Initial Q (Qb), veh                                                                                      | 0    | 0    | 0     | 0    | 0     | 0     |
| Lane Width Adj.                                                                                          | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| Ped-Bike Adj(A_pbT)                                                                                      | 1.00 | 1.00 |       | 1.00 | 1.00  |       |
| Parking Bus, Adj                                                                                         | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| Work Zone On Approach                                                                                    | No   |      | No    |      | No    |       |
| Adj Sat Flow, veh/h/ln                                                                                   | 1870 | 1870 | 1826  | 1826 | 1826  | 1826  |
| Adj Flow Rate, veh/h                                                                                     | 105  | 169  | 1537  | 0    | 400   | 684   |
| Peak Hour Factor                                                                                         | 0.95 | 0.95 | 0.95  | 0.95 | 0.95  | 0.95  |
| Percent Heavy Veh, %                                                                                     | 2    | 2    | 5     | 5    | 5     | 5     |
| Cap, veh/h                                                                                               | 218  | 194  | 1092  |      | 263   | 1431  |
| Arrive On Green                                                                                          | 0.12 | 0.12 | 0.60  | 0.00 | 0.15  | 0.78  |
| Sat Flow, veh/h                                                                                          | 1781 | 1585 | 1826  | 1547 | 1739  | 1826  |
| Grp Volume(v), veh/h                                                                                     | 105  | 169  | 1537  | 0    | 400   | 684   |
| Grp Sat Flow(s), veh/h/ln                                                                                | 1781 | 1585 | 1826  | 1547 | 1739  | 1826  |
| Q Serve(g_s), s                                                                                          | 7.4  | 14.1 | 80.4  | 0.0  | 20.3  | 17.4  |
| Cycle Q Clear(g_c), s                                                                                    | 7.4  | 14.1 | 80.4  | 0.0  | 20.3  | 17.4  |
| Prop In Lane                                                                                             | 1.00 | 1.00 |       | 1.00 | 1.00  |       |
| Lane Grp Cap(c), veh/h                                                                                   | 218  | 194  | 1092  |      | 263   | 1431  |
| V/C Ratio(X)                                                                                             | 0.48 | 0.87 | 1.41  |      | 1.52  | 0.48  |
| Avail Cap(c_a), veh/h                                                                                    | 424  | 377  | 1092  |      | 263   | 1431  |
| HCM Platoon Ratio                                                                                        | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| Upstream Filter(I)                                                                                       | 1.00 | 1.00 | 1.00  | 0.00 | 1.00  | 1.00  |
| Uniform Delay (d), s/veh                                                                                 | 55.0 | 58.0 | 27.0  | 0.0  | 57.1  | 5.0   |
| Incr Delay (d2), s/veh                                                                                   | 0.6  | 4.6  | 189.1 | 0.0  | 254.2 | 0.1   |
| Initial Q Delay(d3), s/veh                                                                               | 0.0  | 0.0  | 0.0   | 0.0  | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln                                                                                 | 8.4  | 5.9  | 88.5  | 0.0  | 27.2  | 5.0   |
| Unsig. Movement Delay, s/veh                                                                             |      |      |       |      |       |       |
| LnGrp Delay(d), s/veh                                                                                    | 55.6 | 62.6 | 216.1 | 0.0  | 311.3 | 5.1   |
| LnGrp LOS                                                                                                | E    | E    | F     |      | F     | A     |
| Approach Vol, veh/h                                                                                      | 274  |      | 1537  |      |       | 1084  |
| Approach Delay, s/veh                                                                                    | 59.9 |      | 216.1 |      |       | 118.1 |
| Approach LOS                                                                                             | E    |      | F     |      |       | F     |
| Timer - Assigned Phs                                                                                     | 1    | 2    |       | 4    |       | 6     |
| Phs Duration (G+Y+Rc), s                                                                                 | 35.0 | 87.9 |       | 21.6 |       | 112.9 |
| Change Period (Y+Rc), s                                                                                  | 4.7  | 7.5  |       | 5.1  |       | 7.5   |
| Max Green Setting (Gmax), s                                                                              | 20.3 | 80.4 |       | 32.0 |       | 105.4 |
| Max Q Clear Time (g_c+Q), s                                                                              | 22.3 | 82.4 |       | 16.1 |       | 19.4  |
| Green Ext Time (p_c), s                                                                                  | 0.0  | 0.0  |       | 0.4  |       | 2.8   |
| <b>Intersection Summary</b>                                                                              |      |      |       |      |       |       |
| HCM 7th Control Delay, s/veh                                                                             |      |      | 164.6 |      |       |       |
| HCM 7th LOS                                                                                              |      |      | F     |      |       |       |
| <b>Notes</b>                                                                                             |      |      |       |      |       |       |
| Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay. |      |      |       |      |       |       |

# HCM 7th Signalized Intersection Summary 5: Clairemont Mesa Blvd & Luna Ave.

Proposed Plan Conditions  
AM Peak Hour

|                                                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                                    |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |  |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |   |  |  |  |
| Traffic Volume (veh/h)                                                                             | 570                                                                               | 20                                                                                | 180                                                                               | 20                                                                                | 20                                                                                | 90                                                                                | 180                                                                               | 1090                                                                              | 50                                                                                 | 70                                                                                  | 450                                                                                 | 350                                                                                 |
| Future Volume (veh/h)                                                                              | 570                                                                               | 20                                                                                | 180                                                                               | 20                                                                                | 20                                                                                | 90                                                                                | 180                                                                               | 1090                                                                              | 50                                                                                 | 70                                                                                  | 450                                                                                 | 350                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 0.99                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                               | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1841                                                                              | 1841                                                                              | 1841                                                                               | 1796                                                                                | 1796                                                                                | 1796                                                                                |
| Adj Flow Rate, veh/h                                                                               | 588                                                                               | 21                                                                                | 163                                                                               | 21                                                                                | 21                                                                                | 86                                                                                | 189                                                                               | 1147                                                                              | 42                                                                                 | 74                                                                                  | 474                                                                                 | 368                                                                                 |
| Peak Hour Factor                                                                                   | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 4                                                                                 | 4                                                                                 | 4                                                                                  | 7                                                                                   | 7                                                                                   | 7                                                                                   |
| Cap, veh/h                                                                                         | 601                                                                               | 78                                                                                | 605                                                                               | 121                                                                               | 131                                                                               | 451                                                                               | 279                                                                               | 1406                                                                              | 612                                                                                | 93                                                                                  | 966                                                                                 | 425                                                                                 |
| Arrive On Green                                                                                    | 0.43                                                                              | 0.43                                                                              | 0.43                                                                              | 0.43                                                                              | 0.43                                                                              | 0.43                                                                              | 0.32                                                                              | 0.80                                                                              | 0.80                                                                               | 0.05                                                                                | 0.28                                                                                | 0.28                                                                                |
| Sat Flow, veh/h                                                                                    | 1279                                                                              | 180                                                                               | 1401                                                                              | 206                                                                               | 304                                                                               | 1045                                                                              | 1753                                                                              | 3497                                                                              | 1522                                                                               | 1711                                                                                | 3413                                                                                | 1503                                                                                |
| Grp Volume(v), veh/h                                                                               | 588                                                                               | 0                                                                                 | 184                                                                               | 128                                                                               | 0                                                                                 | 0                                                                                 | 189                                                                               | 1147                                                                              | 42                                                                                 | 74                                                                                  | 474                                                                                 | 368                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1279                                                                              | 0                                                                                 | 1582                                                                              | 1555                                                                              | 0                                                                                 | 0                                                                                 | 1753                                                                              | 1749                                                                              | 1522                                                                               | 1711                                                                                | 1706                                                                                | 1503                                                                                |
| Q Serve(g_s), s                                                                                    | 49.9                                                                              | 0.0                                                                               | 9.7                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 12.2                                                                              | 24.3                                                                              | 0.7                                                                                | 5.6                                                                                 | 15.0                                                                                | 30.2                                                                                |
| Cycle Q Clear(g_c), s                                                                              | 56.1                                                                              | 0.0                                                                               | 9.7                                                                               | 6.2                                                                               | 0.0                                                                               | 0.0                                                                               | 12.2                                                                              | 24.3                                                                              | 0.7                                                                                | 5.6                                                                                 | 15.0                                                                                | 30.2                                                                                |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                   | 0.89                                                                              | 0.16                                                                              |                                                                                   | 0.67                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                               | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 601                                                                               | 0                                                                                 | 682                                                                               | 703                                                                               | 0                                                                                 | 0                                                                                 | 279                                                                               | 1406                                                                              | 612                                                                                | 93                                                                                  | 966                                                                                 | 425                                                                                 |
| V/C Ratio(X)                                                                                       | 0.98                                                                              | 0.00                                                                              | 0.27                                                                              | 0.18                                                                              | 0.00                                                                              | 0.00                                                                              | 0.68                                                                              | 0.82                                                                              | 0.07                                                                               | 0.80                                                                                | 0.49                                                                                | 0.87                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 601                                                                               | 0                                                                                 | 682                                                                               | 703                                                                               | 0                                                                                 | 0                                                                                 | 291                                                                               | 1406                                                                              | 612                                                                                | 139                                                                                 | 966                                                                                 | 425                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 0.78                                                                              | 0.00                                                                              | 0.78                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 0.54                                                                              | 0.54                                                                              | 0.54                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 39.2                                                                              | 0.0                                                                               | 23.8                                                                              | 22.8                                                                              | 0.0                                                                               | 0.0                                                                               | 41.4                                                                              | 10.0                                                                              | 7.7                                                                                | 60.8                                                                                | 38.8                                                                                | 44.2                                                                                |
| Incr Delay (d2), s/veh                                                                             | 26.9                                                                              | 0.0                                                                               | 0.2                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 2.5                                                                               | 3.0                                                                               | 0.1                                                                                | 9.4                                                                                 | 1.8                                                                                 | 20.3                                                                                |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 28.9                                                                              | 0.0                                                                               | 3.7                                                                               | 2.5                                                                               | 0.0                                                                               | 0.0                                                                               | 4.8                                                                               | 4.5                                                                               | 0.3                                                                                | 2.6                                                                                 | 6.5                                                                                 | 13.5                                                                                |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 66.1                                                                              | 0.0                                                                               | 24.0                                                                              | 22.8                                                                              | 0.0                                                                               | 0.0                                                                               | 43.9                                                                              | 13.0                                                                              | 7.8                                                                                | 70.2                                                                                | 40.6                                                                                | 64.6                                                                                |
| LnGrp LOS                                                                                          | E                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 | B                                                                                 | A                                                                                  | E                                                                                   | D                                                                                   | E                                                                                   |
| Approach Vol, veh/h                                                                                | 772                                                                               |                                                                                   |                                                                                   | 128                                                                               |                                                                                   |                                                                                   | 1378                                                                              |                                                                                   |                                                                                    | 916                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 56.1                                                                              |                                                                                   |                                                                                   | 22.8                                                                              |                                                                                   |                                                                                   | 17.1                                                                              |                                                                                   |                                                                                    | 52.6                                                                                |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | E                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 15.5                                                                              | 57.5                                                                              |                                                                                   | 61.0                                                                              | 26.0                                                                              | 43.0                                                                              |                                                                                   | 61.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 4.4                                                                               | 5.3                                                                               |                                                                                   | 4.9                                                                               | 5.3                                                                               | * 6.2                                                                             |                                                                                   | 4.9                                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 10.6                                                                              | 48.7                                                                              |                                                                                   | 56.1                                                                              | 21.6                                                                              | * 37                                                                              |                                                                                   | 56.1                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                       | 17.6                                                                              | 26.3                                                                              |                                                                                   | 58.1                                                                              | 14.2                                                                              | 32.2                                                                              |                                                                                   | 8.2                                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                               | 12.9                                                                              |                                                                                   | 0.0                                                                               | 0.1                                                                               | 2.0                                                                               |                                                                                   | 0.6                                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 36.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 6: Jutland Dr. & Luna Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 10   | 300  | 20   | 360  | 160  | 30   | 10   | 10   | 430  | 40   | 10   | 10   |
| Future Volume (veh/h)        | 10   | 300  | 20   | 360  | 160  | 30   | 10   | 10   | 430  | 40   | 10   | 10   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.96 | 1.00 |      | 0.97 | 1.00 |      | 0.99 | 1.00 |      | 0.98 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   |      |      | No   |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1841 | 1841 | 1841 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 11   | 316  | 19   | 379  | 168  | 29   | 11   | 11   | 408  | 42   | 11   | 10   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    | 4    | 4    | 4    | 2    | 2    | 2    |
| Cap, veh/h                   | 24   | 375  | 23   | 429  | 684  | 118  | 23   | 13   | 465  | 64   | 296  | 269  |
| Arrive On Green              | 0.01 | 0.22 | 0.22 | 0.24 | 0.44 | 0.44 | 0.01 | 0.31 | 0.31 | 0.04 | 0.33 | 0.33 |
| Sat Flow, veh/h              | 1781 | 1742 | 105  | 1781 | 1546 | 267  | 1753 | 41   | 1505 | 1781 | 892  | 811  |
| Grp Volume(v), veh/h         | 11   | 0    | 335  | 379  | 0    | 197  | 11   | 0    | 419  | 42   | 0    | 21   |
| Grp Sat Flow(s),veh/h/ln     | 1781 | 0    | 1846 | 1781 | 0    | 1813 | 1753 | 0    | 1545 | 1781 | 0    | 1702 |
| Q Serve(g_s), s              | 0.6  | 0.0  | 15.7 | 18.6 | 0.0  | 6.1  | 0.6  | 0.0  | 23.3 | 2.1  | 0.0  | 0.8  |
| Cycle Q Clear(g_c), s        | 0.6  | 0.0  | 15.7 | 18.6 | 0.0  | 6.1  | 0.6  | 0.0  | 23.3 | 2.1  | 0.0  | 0.8  |
| Prop In Lane                 | 1.00 |      | 0.06 | 1.00 |      | 0.15 | 1.00 |      | 0.97 | 1.00 |      | 0.48 |
| Lane Grp Cap(c), veh/h       | 24   | 0    | 398  | 429  | 0    | 803  | 23   | 0    | 477  | 64   | 0    | 564  |
| V/C Ratio(X)                 | 0.46 | 0.00 | 0.84 | 0.88 | 0.00 | 0.25 | 0.47 | 0.00 | 0.88 | 0.65 | 0.00 | 0.04 |
| Avail Cap(c_a), veh/h        | 100  | 0    | 684  | 975  | 0    | 1562 | 145  | 0    | 709  | 148  | 0    | 781  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 44.3 | 0.0  | 34.0 | 33.1 | 0.0  | 15.7 | 44.3 | 0.0  | 29.6 | 43.0 | 0.0  | 20.5 |
| Incr Delay (d2), s/veh       | 13.3 | 0.0  | 4.9  | 6.2  | 0.0  | 0.2  | 13.9 | 0.0  | 8.4  | 10.7 | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.3  | 0.0  | 7.4  | 8.5  | 0.0  | 2.5  | 0.3  | 0.0  | 9.4  | 1.1  | 0.0  | 0.3  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 57.6 | 0.0  | 38.9 | 39.3 | 0.0  | 15.9 | 58.2 | 0.0  | 38.1 | 53.7 | 0.0  | 20.5 |
| LnGrp LOS                    | E    |      | D    | D    |      | B    | E    |      | D    | D    |      | C    |
| Approach Vol, veh/h          | 346  |      | 576  |      |      | 430  |      |      | 63   |      |      |      |
| Approach Delay, s/veh        | 39.5 |      | 31.3 |      |      | 38.6 |      |      | 42.7 |      |      |      |
| Approach LOS                 | D    |      | C    |      |      | D    |      |      | D    |      |      |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 7.8  | 32.4 | 26.3 | 24.0 | 5.7  | 34.5 | 5.7  | 44.5 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Setting (Gmax), s  | 7.5  | 41.5 | 49.5 | 33.5 | 7.5  | 41.5 | 5.1  | 77.9 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 14.5 | 25.3 | 20.6 | 17.7 | 2.6  | 2.8  | 2.6  | 8.1  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 2.7  | 1.2  | 1.8  | 0.0  | 0.1  | 0.0  | 1.3  |      |      |      |      |
| Intersection Summary         |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh |      |      | 36.0 |      |      |      |      |      |      |      |      |      |
| HCM 7th LOS                  |      |      | D    |      |      |      |      |      |      |      |      |      |

HCM 7th Signalized Intersection Summary  
7: Morena Blvd. & Jutland Dr.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 240  | 80   | 360  | 490  | 20   | 180  |
| Future Volume (veh/h)        | 240  | 80   | 360  | 490  | 20   | 180  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 |      | 1.00 | 1.00 |      |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      | No   |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1841 | 1841 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 253  | 67   | 379  | 413  | 21   | 189  |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 4    | 4    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 373  | 332  | 797  | 675  | 0    | 1514 |
| Arrive On Green              | 0.21 | 0.21 | 0.43 | 0.43 | 0.00 | 0.43 |
| Sat Flow, veh/h              | 1753 | 1560 | 1870 | 1585 | 0    | 3647 |
| Grp Volume(v), veh/h         | 253  | 67   | 379  | 413  | 0    | 189  |
| Grp Sat Flow(s), veh/h/ln    | 1753 | 1560 | 1870 | 1585 | 0    | 1777 |
| Q Serve(g_s), s              | 3.3  | 0.9  | 3.6  | 5.0  | 0.0  | 0.8  |
| Cycle Q Clear(g_c), s        | 3.3  | 0.9  | 3.6  | 5.0  | 0.0  | 0.8  |
| Prop In Lane                 | 1.00 | 1.00 |      | 1.00 | 0.00 |      |
| Lane Grp Cap(c), veh/h       | 373  | 332  | 797  | 675  | 0    | 1514 |
| V/C Ratio(X)                 | 0.68 | 0.20 | 0.48 | 0.61 | 0.00 | 0.12 |
| Avail Cap(c_a), veh/h        | 950  | 845  | 1727 | 1464 | 0    | 4636 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 9.0  | 8.1  | 5.1  | 5.5  | 0.0  | 4.3  |
| Incr Delay (d2), s/veh       | 2.2  | 0.3  | 0.4  | 0.9  | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.0  | 0.2  | 0.6  | 0.8  | 0.0  | 0.1  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 11.2 | 8.4  | 5.6  | 6.4  | 0.0  | 4.4  |
| LnGrp LOS                    | B    | A    | A    | A    |      | A    |
| Approach Vol, veh/h          | 320  |      | 792  |      |      | 189  |
| Approach Delay, s/veh        | 10.6 |      | 6.0  |      |      | 4.4  |
| Approach LOS                 | B    |      | A    |      |      | A    |
| Timer - Assigned Phs         | 1    | 2    |      |      | 6    | 8    |
| Phs Duration (G+Y+Rc), s     | 0.0  | 15.1 |      |      | 15.1 | 9.8  |
| Change Period (Y+Rc), s      | 4.5  | 4.5  |      |      | 4.5  | 4.5  |
| Max Green Setting (Gmax), s  | 5.0  | 23.0 |      |      | 32.5 | 13.5 |
| Max Q Clear Time (g_c+I1), s | 10.0 | 7.0  |      |      | 2.8  | 5.3  |
| Green Ext Time (p_c), s      | 0.0  | 3.6  |      |      | 1.2  | 0.6  |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh |      |      | 6.9  |      |      |      |
| HCM 7th LOS                  |      |      | A    |      |      |      |

# HCM 7th Signalized Intersection Summary 8: Moraga Ave. & Clairemont Mesa Blvd

Proposed Plan Conditions  
AM Peak Hour

| Movement                       | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations            |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)         | 50   | 510  | 140  | 310  | 870  | 120  | 380  | 30   | 200  | 80   | 80   | 90   |
| Future Volume (veh/h)          | 50   | 510  | 140  | 310  | 870  | 120  | 380  | 30   | 200  | 80   | 80   | 90   |
| Initial Q (Qb), veh            | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)            | 1.00 |      | 0.99 | 1.00 |      | 1.00 | 1.00 |      | 0.98 | 1.00 |      | 0.98 |
| Parking Bus, Adj               | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach          | No   |      |      | No   |      |      | No   |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln         | 1841 | 1841 | 1841 | 1870 | 1870 | 1870 | 1841 | 1841 | 1841 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h           | 53   | 537  | 118  | 326  | 916  | 101  | 400  | 32   | 190  | 84   | 84   | 86   |
| Peak Hour Factor               | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %           | 4    | 4    | 4    | 2    | 2    | 2    | 4    | 4    | 4    | 2    | 2    | 2    |
| Cap, veh/h                     | 117  | 664  | 293  | 342  | 1121 | 498  | 454  | 33   | 194  | 284  | 283  | 272  |
| Arrive On Green                | 0.13 | 0.38 | 0.38 | 0.06 | 0.10 | 0.10 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 |
| Sat Flow, veh/h                | 1753 | 3497 | 1544 | 1781 | 3554 | 1578 | 809  | 65   | 384  | 489  | 560  | 537  |
| Grp Volume(v), veh/h           | 53   | 537  | 118  | 326  | 916  | 101  | 622  | 0    | 0    | 254  | 0    | 0    |
| Grp Sat Flow(s), veh/h/ln      | 1753 | 1749 | 1544 | 1781 | 1777 | 1578 | 1257 | 0    | 0    | 1587 | 0    | 0    |
| Q Serve(g_s), s                | 3.6  | 17.9 | 7.3  | 23.7 | 32.8 | 7.6  | 51.3 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s          | 3.6  | 17.9 | 7.3  | 23.7 | 32.8 | 7.6  | 63.1 | 0.0  | 0.0  | 11.8 | 0.0  | 0.0  |
| Prop In Lane                   | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 0.64 |      | 0.31 | 0.33 |      | 0.34 |
| Lane Grp Cap(c), veh/h         | 117  | 664  | 293  | 342  | 1121 | 498  | 681  | 0    | 0    | 839  | 0    | 0    |
| V/C Ratio(X)                   | 0.45 | 0.81 | 0.40 | 0.95 | 0.82 | 0.20 | 0.91 | 0.00 | 0.00 | 0.30 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h          | 117  | 664  | 293  | 342  | 1121 | 498  | 692  | 0    | 0    | 851  | 0    | 0    |
| HCM Platoon Ratio              | 2.00 | 2.00 | 2.00 | 0.33 | 0.33 | 0.33 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)             | 0.86 | 0.86 | 0.86 | 0.66 | 0.66 | 0.66 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh       | 54.1 | 38.2 | 34.9 | 60.3 | 54.6 | 43.3 | 32.5 | 0.0  | 0.0  | 18.7 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh         | 0.9  | 8.9  | 3.5  | 27.7 | 4.5  | 0.6  | 16.0 | 0.0  | 0.0  | 0.1  | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh     | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln       | 1.6  | 7.1  | 2.8  | 14.0 | 16.4 | 3.2  | 21.6 | 0.0  | 0.0  | 4.5  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh   |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh          | 55.0 | 47.1 | 38.4 | 88.0 | 59.1 | 43.9 | 48.5 | 0.0  | 0.0  | 18.8 | 0.0  | 0.0  |
| LnGrp LOS                      | E    | D    | D    | F    | E    | D    | D    |      |      | B    |      |      |
| Approach Vol, veh/h            | 708  |      |      | 1343 |      |      | 622  |      |      | 254  |      |      |
| Approach Delay, s/veh          | 46.2 |      |      | 64.9 |      |      | 48.5 |      |      | 18.8 |      |      |
| Approach LOS                   | D    |      |      | E    |      |      | D    |      |      | B    |      |      |
| Timer - Assigned Phs           | 1    | 2    |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s       | 29.4 | 30.0 |      | 70.6 | 13.1 | 46.3 |      | 70.6 |      |      |      |      |
| Change Period (Y+Rc), s        | 4.4  | 5.3  |      | 4.9  | 4.4  | 5.3  |      | 4.9  |      |      |      |      |
| Max Green Setting (Gmax), s    | 23.9 | 24.7 |      | 66.8 | 7.6  | 41.0 |      | 66.8 |      |      |      |      |
| Max Q Clear Time (g_c+25.7), s | 23.9 | 19.9 |      | 13.8 | 5.6  | 34.8 |      | 65.1 |      |      |      |      |
| Green Ext Time (p_c), s        | 0.0  | 2.4  |      | 1.2  | 0.0  | 4.2  |      | 0.6  |      |      |      |      |
| <b>Intersection Summary</b>    |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh   | 52.9 |      |      |      |      |      |      |      |      |      |      |      |
| HCM 7th LOS                    | D    |      |      |      |      |      |      |      |      |      |      |      |



# HCM 7th Signalized Intersection Summary 9: Clairemont Dr. & Clairemont Mesa Blvd

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR  | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               | SBR                                                                               |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations          |  |  |      |  |  |      |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 200                                                                               | 320                                                                               | 210  | 320                                                                               | 610                                                                               | 180  | 300                                                                               | 400                                                                               | 300                                                                               | 160                                                                               | 290                                                                               | 250                                                                               |
| Future Volume (veh/h)        | 200                                                                               | 320                                                                               | 210  | 320                                                                               | 610                                                                               | 180  | 300                                                                               | 400                                                                               | 300                                                                               | 160                                                                               | 290                                                                               | 250                                                                               |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.99 | 1.00                                                                              |                                                                                   | 0.96 | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |      | No                                                                                |                                                                                   |      | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870 | 1870                                                                              | 1870                                                                              | 1870 | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1856                                                                              | 1856                                                                              | 1856                                                                              |
| Adj Flow Rate, veh/h         | 211                                                                               | 337                                                                               | 199  | 337                                                                               | 642                                                                               | 170  | 316                                                                               | 421                                                                               | 253                                                                               | 168                                                                               | 305                                                                               | 210                                                                               |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 |
| Cap, veh/h                   | 260                                                                               | 595                                                                               | 344  | 660                                                                               | 1094                                                                              | 289  | 341                                                                               | 506                                                                               | 722                                                                               | 193                                                                               | 350                                                                               | 412                                                                               |
| Arrive On Green              | 0.13                                                                              | 0.46                                                                              | 0.46 | 0.38                                                                              | 0.79                                                                              | 0.79 | 0.19                                                                              | 0.27                                                                              | 0.27                                                                              | 0.11                                                                              | 0.19                                                                              | 0.19                                                                              |
| Sat Flow, veh/h              | 3456                                                                              | 2162                                                                              | 1250 | 3456                                                                              | 2753                                                                              | 728  | 1781                                                                              | 1870                                                                              | 1549                                                                              | 1767                                                                              | 1856                                                                              | 1557                                                                              |
| Grp Volume(v), veh/h         | 211                                                                               | 276                                                                               | 260  | 337                                                                               | 414                                                                               | 398  | 316                                                                               | 421                                                                               | 253                                                                               | 168                                                                               | 305                                                                               | 210                                                                               |
| Grp Sat Flow(s),veh/h/ln     | 1728                                                                              | 1777                                                                              | 1635 | 1728                                                                              | 1777                                                                              | 1704 | 1781                                                                              | 1870                                                                              | 1549                                                                              | 1767                                                                              | 1856                                                                              | 1557                                                                              |
| Q Serve(g_s), s              | 7.7                                                                               | 14.7                                                                              | 15.2 | 9.7                                                                               | 11.6                                                                              | 11.7 | 22.7                                                                              | 27.5                                                                              | 3.6                                                                               | 12.2                                                                              | 20.8                                                                              | 14.9                                                                              |
| Cycle Q Clear(g_c), s        | 7.7                                                                               | 14.7                                                                              | 15.2 | 9.7                                                                               | 11.6                                                                              | 11.7 | 22.7                                                                              | 27.5                                                                              | 3.6                                                                               | 12.2                                                                              | 20.8                                                                              | 14.9                                                                              |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.76 | 1.00                                                                              |                                                                                   | 0.43 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 260                                                                               | 489                                                                               | 450  | 660                                                                               | 706                                                                               | 677  | 341                                                                               | 506                                                                               | 722                                                                               | 193                                                                               | 350                                                                               | 412                                                                               |
| V/C Ratio(X)                 | 0.81                                                                              | 0.56                                                                              | 0.58 | 0.51                                                                              | 0.59                                                                              | 0.59 | 0.93                                                                              | 0.83                                                                              | 0.35                                                                              | 0.87                                                                              | 0.87                                                                              | 0.51                                                                              |
| Avail Cap(c_a), veh/h        | 287                                                                               | 489                                                                               | 450  | 660                                                                               | 706                                                                               | 677  | 392                                                                               | 600                                                                               | 800                                                                               | 226                                                                               | 427                                                                               | 476                                                                               |
| HCM Platoon Ratio            | 1.67                                                                              | 1.67                                                                              | 1.67 | 2.00                                                                              | 2.00                                                                              | 2.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 0.47                                                                              | 0.47                                                                              | 0.47 | 0.45                                                                              | 0.45                                                                              | 0.45 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 56.0                                                                              | 29.4                                                                              | 29.6 | 35.5                                                                              | 9.2                                                                               | 9.2  | 51.7                                                                              | 44.6                                                                              | 9.3                                                                               | 57.0                                                                              | 51.2                                                                              | 40.7                                                                              |
| Incr Delay (d2), s/veh       | 6.7                                                                               | 2.2                                                                               | 2.5  | 0.1                                                                               | 1.6                                                                               | 1.7  | 24.7                                                                              | 8.7                                                                               | 0.3                                                                               | 23.7                                                                              | 15.8                                                                              | 1.1                                                                               |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 8.4                                                                               | 5.7                                                                               | 5.4  | 3.6                                                                               | 3.2                                                                               | 3.1  | 12.4                                                                              | 13.8                                                                              | 2.6                                                                               | 6.7                                                                               | 11.1                                                                              | 5.8                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d), s/veh        | 62.7                                                                              | 31.6                                                                              | 32.1 | 35.6                                                                              | 10.8                                                                              | 10.9 | 76.4                                                                              | 53.3                                                                              | 9.6                                                                               | 80.7                                                                              | 67.0                                                                              | 41.9                                                                              |
| LnGrp LOS                    | E                                                                                 | C                                                                                 | C    | D                                                                                 | B                                                                                 | B    | E                                                                                 | D                                                                                 | A                                                                                 | F                                                                                 | E                                                                                 | D                                                                                 |
| Approach Vol, veh/h          | 747                                                                               |                                                                                   | 1149 |                                                                                   |                                                                                   |      | 990                                                                               |                                                                                   |                                                                                   | 683                                                                               |                                                                                   |                                                                                   |
| Approach Delay, s/veh        | 40.5                                                                              |                                                                                   | 18.1 |                                                                                   |                                                                                   |      | 49.5                                                                              |                                                                                   |                                                                                   | 62.7                                                                              |                                                                                   |                                                                                   |
| Approach LOS                 | D                                                                                 |                                                                                   | B    |                                                                                   |                                                                                   |      | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3    | 4                                                                                 | 5                                                                                 | 6    | 7                                                                                 | 8                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 29.9                                                                              | 41.0                                                                              | 29.3 | 29.8                                                                              | 14.2                                                                              | 56.8 | 18.6                                                                              | 40.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Change Period (Y+Rc), s      | 5.1                                                                               | * 5.2                                                                             | 4.4  | * 5.3                                                                             | 4.4                                                                               | 5.1  | 4.4                                                                               | 5.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Max Green Setting (Gmax), s  | 10.6                                                                              | * 36                                                                              | 28.6 | * 30                                                                              | 10.8                                                                              | 41.7 | 16.6                                                                              | 41.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Max Q Clear Time (g_c+I1), s | 17.2                                                                              | 17.2                                                                              | 24.7 | 22.8                                                                              | 9.7                                                                               | 13.7 | 14.2                                                                              | 29.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Green Ext Time (p_c), s      | 0.3                                                                               | 3.5                                                                               | 0.2  | 1.7                                                                               | 0.0                                                                               | 6.8  | 0.1                                                                               | 3.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Intersection Summary

|                              |      |
|------------------------------|------|
| HCM 7th Control Delay, s/veh | 40.0 |
| HCM 7th LOS                  | D    |

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 10: Rolfe Rd. & Clairemont Mesa Blvd

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 140  | 540  | 100  | 70   | 700  | 230  | 150  | 30   | 140  | 150  | 20   | 260  |
| Future Volume (veh/h)        | 140  | 540  | 100  | 70   | 700  | 230  | 150  | 30   | 140  | 150  | 20   | 260  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 0.98 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   |      |      | No   |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 147  | 568  | 94   | 74   | 737  | 218  | 158  | 32   | 132  | 158  | 21   | 247  |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 408  | 1423 | 235  | 93   | 766  | 227  | 200  | 45   | 142  | 403  | 46   | 546  |
| Arrive On Green              | 0.46 | 0.93 | 0.93 | 0.10 | 0.57 | 0.57 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 |
| Sat Flow, veh/h              | 1781 | 3051 | 503  | 1781 | 2692 | 796  | 428  | 123  | 383  | 1222 | 125  | 1474 |
| Grp Volume(v), veh/h         | 147  | 330  | 332  | 74   | 486  | 469  | 322  | 0    | 0    | 158  | 0    | 268  |
| Grp Sat Flow(s),veh/h/ln     | 1781 | 1777 | 1778 | 1781 | 1777 | 1712 | 933  | 0    | 0    | 1222 | 0    | 1599 |
| Q Serve(g_s), s              | 7.0  | 2.6  | 2.6  | 5.3  | 33.9 | 33.9 | 28.6 | 0.0  | 0.0  | 0.0  | 0.0  | 16.5 |
| Cycle Q Clear(g_c), s        | 7.0  | 2.6  | 2.6  | 5.3  | 33.9 | 33.9 | 45.1 | 0.0  | 0.0  | 17.0 | 0.0  | 16.5 |
| Prop In Lane                 | 1.00 |      | 0.28 | 1.00 |      | 0.47 | 0.49 |      | 0.41 | 1.00 |      | 0.92 |
| Lane Grp Cap(c), veh/h       | 408  | 828  | 829  | 93   | 506  | 487  | 387  | 0    | 0    | 403  | 0    | 593  |
| V/C Ratio(X)                 | 0.36 | 0.40 | 0.40 | 0.79 | 0.96 | 0.96 | 0.83 | 0.00 | 0.00 | 0.39 | 0.00 | 0.45 |
| Avail Cap(c_a), veh/h        | 408  | 828  | 829  | 163  | 506  | 487  | 447  | 0    | 0    | 458  | 0    | 666  |
| HCM Platoon Ratio            | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.83 | 0.83 | 0.83 | 0.76 | 0.76 | 0.76 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 29.0 | 2.4  | 2.4  | 57.5 | 27.3 | 27.3 | 45.9 | 0.0  | 0.0  | 31.1 | 0.0  | 30.9 |
| Incr Delay (d2), s/veh       | 0.2  | 1.2  | 1.2  | 4.4  | 26.7 | 27.3 | 10.9 | 0.0  | 0.0  | 0.2  | 0.0  | 0.2  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 2.7  | 1.0  | 1.0  | 2.4  | 13.8 | 13.4 | 11.3 | 0.0  | 0.0  | 3.8  | 0.0  | 6.4  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 29.2 | 3.6  | 3.6  | 61.9 | 54.0 | 54.6 | 56.8 | 0.0  | 0.0  | 31.3 | 0.0  | 31.1 |
| LnGrp LOS                    | C    | A    | A    | E    | D    | D    | E    |      |      | C    |      | C    |
| Approach Vol, veh/h          | 809  |      |      | 1029 |      |      | 322  |      |      | 426  |      |      |
| Approach Delay, s/veh        | 8.3  |      |      | 54.9 |      |      | 56.8 |      |      | 31.2 |      |      |
| Approach LOS                 | A    |      |      | D    |      |      | E    |      |      | C    |      |      |
| Timer - Assigned Phs         | 1    | 2    |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 1.2  | 65.7 |      | 53.1 | 34.9 | 42.0 |      | 53.1 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.4  | 5.1  |      | 4.9  | 5.1  | * 5  |      | 4.9  |      |      |      |      |
| Max Green Setting (Gmax), s  | 1.9  | 49.6 |      | 54.1 | 24.6 | * 37 |      | 54.1 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 4.6  | 4.6  |      | 19.0 | 9.0  | 35.9 |      | 47.1 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 7.8  |      | 1.5  | 0.2  | 0.8  |      | 1.1  |      |      |      |      |

## Intersection Summary

|                              |      |
|------------------------------|------|
| HCM 7th Control Delay, s/veh | 36.6 |
| HCM 7th LOS                  | D    |

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 11: Kleefeld Ave./Clairemont Dr. & Clairemont Mesa Blvd

Proposed Plan Conditions  
AM Peak Hour



| Movement                                                             | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL  | NBT                                                                               | NBR  | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations                                                  |  |  |      |  |  |  |      |  |      |  |  |  |
| Traffic Volume (veh/h)                                               | 240                                                                               | 550                                                                               | 80   | 80                                                                                | 770                                                                               | 390                                                                               | 70   | 40                                                                                | 60   | 400                                                                                 | 50                                                                                  | 260                                                                                 |
| Future Volume (veh/h)                                                | 240                                                                               | 550                                                                               | 80   | 80                                                                                | 770                                                                               | 390                                                                               | 70   | 40                                                                                | 60   | 400                                                                                 | 50                                                                                  | 260                                                                                 |
| Initial Q (Qb), veh                                                  | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                      | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                  | 1.00                                                                              |                                                                                   | 1.00 | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00 |                                                                                   | 1.00 | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj                                                     | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                | No                                                                                |                                                                                   |      | No                                                                                |                                                                                   |                                                                                   | No   |                                                                                   |      | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                               | 1870                                                                              | 1870                                                                              | 1870 | 1841                                                                              | 1841                                                                              | 1841                                                                              | 1870 | 1870                                                                              | 1870 | 1856                                                                                | 1856                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h                                                 | 253                                                                               | 579                                                                               | 76   | 84                                                                                | 811                                                                               | 329                                                                               | 74   | 42                                                                                | 57   | 459                                                                                 | 0                                                                                   | 219                                                                                 |
| Peak Hour Factor                                                     | 0.95                                                                              | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95 | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                 | 2                                                                                 | 2                                                                                 | 2    | 4                                                                                 | 4                                                                                 | 4                                                                                 | 2    | 2                                                                                 | 2    | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                                                           | 561                                                                               | 1071                                                                              | 140  | 404                                                                               | 882                                                                               | 387                                                                               | 88   | 50                                                                                | 68   | 581                                                                                 | 0                                                                                   | 257                                                                                 |
| Arrive On Green                                                      | 0.63                                                                              | 0.68                                                                              | 0.68 | 0.08                                                                              | 0.08                                                                              | 0.08                                                                              | 0.12 | 0.12                                                                              | 0.12 | 0.16                                                                                | 0.00                                                                                | 0.16                                                                                |
| Sat Flow, veh/h                                                      | 1781                                                                              | 3158                                                                              | 414  | 1753                                                                              | 3497                                                                              | 1532                                                                              | 740  | 420                                                                               | 570  | 3534                                                                                | 0                                                                                   | 1561                                                                                |
| Grp Volume(v), veh/h                                                 | 253                                                                               | 325                                                                               | 330  | 84                                                                                | 811                                                                               | 329                                                                               | 173  | 0                                                                                 | 0    | 459                                                                                 | 0                                                                                   | 219                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                             | 1781                                                                              | 1777                                                                              | 1795 | 1753                                                                              | 1749                                                                              | 1532                                                                              | 1729 | 0                                                                                 | 0    | 1767                                                                                | 0                                                                                   | 1561                                                                                |
| Q Serve(g_s), s                                                      | 9.5                                                                               | 12.1                                                                              | 12.1 | 5.8                                                                               | 29.9                                                                              | 27.5                                                                              | 12.7 | 0.0                                                                               | 0.0  | 16.2                                                                                | 0.0                                                                                 | 17.7                                                                                |
| Cycle Q Clear(g_c), s                                                | 9.5                                                                               | 12.1                                                                              | 12.1 | 5.8                                                                               | 29.9                                                                              | 27.5                                                                              | 12.7 | 0.0                                                                               | 0.0  | 16.2                                                                                | 0.0                                                                                 | 17.7                                                                                |
| Prop In Lane                                                         | 1.00                                                                              |                                                                                   | 0.23 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 0.43 |                                                                                   | 0.33 | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                               | 561                                                                               | 603                                                                               | 609  | 404                                                                               | 882                                                                               | 387                                                                               | 206  | 0                                                                                 | 0    | 581                                                                                 | 0                                                                                   | 257                                                                                 |
| V/C Ratio(X)                                                         | 0.45                                                                              | 0.54                                                                              | 0.54 | 0.21                                                                              | 0.92                                                                              | 0.85                                                                              | 0.84 | 0.00                                                                              | 0.00 | 0.79                                                                                | 0.00                                                                                | 0.85                                                                                |
| Avail Cap(c_a), veh/h                                                | 561                                                                               | 603                                                                               | 609  | 404                                                                               | 882                                                                               | 387                                                                               | 386  | 0                                                                                 | 0    | 788                                                                                 | 0                                                                                   | 348                                                                                 |
| HCM Platoon Ratio                                                    | 2.00                                                                              | 2.00                                                                              | 2.00 | 0.33                                                                              | 0.33                                                                              | 0.33                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                   | 0.91                                                                              | 0.91                                                                              | 0.91 | 0.23                                                                              | 0.23                                                                              | 0.23                                                                              | 1.00 | 0.00                                                                              | 0.00 | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                             | 18.2                                                                              | 15.7                                                                              | 15.8 | 48.9                                                                              | 58.3                                                                              | 57.2                                                                              | 56.1 | 0.0                                                                               | 0.0  | 52.2                                                                                | 0.0                                                                                 | 52.8                                                                                |
| Incr Delay (d2), s/veh                                               | 0.2                                                                               | 3.1                                                                               | 3.1  | 0.0                                                                               | 4.7                                                                               | 5.6                                                                               | 3.5  | 0.0                                                                               | 0.0  | 2.6                                                                                 | 0.0                                                                                 | 11.1                                                                                |
| Initial Q Delay(d3), s/veh                                           | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0  | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                             | 8.2                                                                               | 4.1                                                                               | 4.2  | 2.6                                                                               | 14.7                                                                              | 12.0                                                                              | 5.8  | 0.0                                                                               | 0.0  | 7.4                                                                                 | 0.0                                                                                 | 7.7                                                                                 |
| Unsig. Movement Delay, s/veh                                         |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                | 18.4                                                                              | 18.9                                                                              | 18.9 | 48.9                                                                              | 63.0                                                                              | 62.8                                                                              | 59.6 | 0.0                                                                               | 0.0  | 54.8                                                                                | 0.0                                                                                 | 63.9                                                                                |
| LnGrp LOS                                                            | B                                                                                 | B                                                                                 | B    | D                                                                                 | E                                                                                 | E                                                                                 | E    |                                                                                   |      | D                                                                                   |                                                                                     | E                                                                                   |
| Approach Vol, veh/h                                                  | 908                                                                               |                                                                                   | 1224 |                                                                                   |                                                                                   | 173                                                                               |      |                                                                                   | 678  |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                | 18.8                                                                              |                                                                                   | 62.0 |                                                                                   |                                                                                   | 59.6                                                                              |      |                                                                                   | 57.7 |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                                                         | B                                                                                 |                                                                                   | E    |                                                                                   |                                                                                   | E                                                                                 |      |                                                                                   | E    |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                 | 1                                                                                 | 2                                                                                 |      | 4                                                                                 | 5                                                                                 | 6                                                                                 |      | 8                                                                                 |      |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                             | 34.4                                                                              | 49.0                                                                              |      | 20.4                                                                              | 45.4                                                                              | 38.0                                                                              |      | 26.3                                                                              |      |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                              | 4.4                                                                               | 4.9                                                                               |      | 4.9                                                                               | 4.4                                                                               | 5.2                                                                               |      | 4.9                                                                               |      |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                          | 34.8                                                                              | 44.1                                                                              |      | 29.0                                                                              | 19.8                                                                              | 32.8                                                                              |      | 29.0                                                                              |      |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                         | 17.8                                                                              | 14.1                                                                              |      | 14.7                                                                              | 11.5                                                                              | 31.9                                                                              |      | 19.7                                                                              |      |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                              | 0.0                                                                               | 7.0                                                                               |      | 0.5                                                                               | 0.2                                                                               | 0.7                                                                               |      | 1.1                                                                               |      |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                 |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                         | 47.7                                                                              |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                          | D                                                                                 |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
| User approved volume balancing among the lanes for turning movement. |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 12: Genesee Ave. & Clairemont Mesa Blvd

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL   | EBT  | EBR  | WBL  | WBT  | WBR  | NBL   | NBT   | NBR  | SBL   | SBT  | SBR  |
|------------------------------|-------|------|------|------|------|------|-------|-------|------|-------|------|------|
| Lane Configurations          | ↔↔    | ↑↑   | ↗    | ↔↔   | ↑↑   | ↗    | ↔↔    | ↑     | ↗    | ↗     | ↑    | ↗    |
| Traffic Volume (veh/h)       | 240   | 510  | 300  | 190  | 780  | 370  | 240   | 1120  | 230  | 160   | 410  | 110  |
| Future Volume (veh/h)        | 240   | 510  | 300  | 190  | 780  | 370  | 240   | 1120  | 230  | 160   | 410  | 110  |
| Initial Q (Qb), veh          | 0     | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0    | 0     | 0    | 0    |
| Lane Width Adj.              | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00  |      | 0.96 | 1.00 |      | 0.99 | 1.00  |       | 1.00 | 1.00  |      | 1.00 |
| Parking Bus, Adj             | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Work Zone On Approach        | No    |      |      | No   |      |      | No    |       |      | No    |      |      |
| Adj Sat Flow, veh/h/ln       | 1841  | 1841 | 1841 | 1796 | 1796 | 1796 | 1856  | 1856  | 1856 | 1826  | 1826 | 1826 |
| Adj Flow Rate, veh/h         | 247   | 526  | 247  | 200  | 821  | 311  | 253   | 1179  | 194  | 168   | 432  | 93   |
| Peak Hour Factor             | 0.97  | 0.97 | 0.97 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95  | 0.95 | 0.95  | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 4     | 4    | 4    | 7    | 7    | 7    | 3     | 3     | 3    | 5     | 5    | 5    |
| Cap, veh/h                   | 251   | 861  | 511  | 1070 | 1704 | 885  | 310   | 886   | 1256 | 155   | 877  | 854  |
| Arrive On Green              | 0.12  | 0.41 | 0.41 | 0.32 | 0.50 | 0.50 | 0.09  | 0.48  | 0.48 | 0.09  | 0.48 | 0.48 |
| Sat Flow, veh/h              | 3401  | 3497 | 1505 | 3319 | 3413 | 1501 | 3428  | 1856  | 1568 | 1739  | 1826 | 1541 |
| Grp Volume(v), veh/h         | 247   | 526  | 247  | 200  | 821  | 311  | 253   | 1179  | 194  | 168   | 432  | 93   |
| Grp Sat Flow(s),veh/h/ln     | 1700  | 1749 | 1505 | 1659 | 1706 | 1501 | 1714  | 1856  | 1568 | 1739  | 1826 | 1541 |
| Q Serve(g_s), s              | 9.4   | 15.4 | 11.9 | 5.6  | 20.6 | 9.4  | 9.4   | 62.1  | 0.0  | 11.6  | 20.9 | 3.7  |
| Cycle Q Clear(g_c), s        | 9.4   | 15.4 | 11.9 | 5.6  | 20.6 | 9.4  | 9.4   | 62.1  | 0.0  | 11.6  | 20.9 | 3.7  |
| Prop In Lane                 | 1.00  |      | 1.00 | 1.00 |      | 1.00 | 1.00  |       | 1.00 | 1.00  |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 251   | 861  | 511  | 1070 | 1704 | 885  | 310   | 886   | 1256 | 155   | 877  | 854  |
| V/C Ratio(X)                 | 0.98  | 0.61 | 0.48 | 0.19 | 0.48 | 0.35 | 0.82  | 1.33  | 0.15 | 1.08  | 0.49 | 0.11 |
| Avail Cap(c_a), veh/h        | 251   | 861  | 511  | 1070 | 1704 | 885  | 570   | 886   | 1256 | 155   | 877  | 854  |
| HCM Platoon Ratio            | 1.67  | 1.67 | 1.67 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.84  | 0.84 | 0.84 | 0.56 | 0.56 | 0.56 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 56.9  | 33.4 | 23.6 | 31.8 | 21.5 | 25.6 | 58.1  | 33.9  | 3.0  | 59.2  | 23.0 | 13.7 |
| Incr Delay (d2), s/veh       | 47.2  | 2.7  | 2.7  | 0.0  | 0.5  | 0.6  | 2.0   | 156.3 | 0.0  | 96.1  | 0.2  | 0.0  |
| Initial Q Delay(d3), s/veh   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 5.5   | 6.0  | 3.8  | 2.3  | 8.2  | 2.7  | 4.1   | 64.8  | 0.9  | 9.1   | 8.6  | 1.3  |
| Unsig. Movement Delay, s/veh |       |      |      |      |      |      |       |       |      |       |      |      |
| LnGrp Delay(d), s/veh        | 104.2 | 36.1 | 26.3 | 31.8 | 22.0 | 26.2 | 60.1  | 190.3 | 3.0  | 155.3 | 23.1 | 13.8 |
| LnGrp LOS                    | F     | D    | C    | C    | C    | C    | E     | F     | A    | F     | C    | B    |
| Approach Vol, veh/h          | 1020  |      |      | 1332 |      |      | 1626  |       |      | 693   |      |      |
| Approach Delay, s/veh        | 50.2  |      |      | 24.5 |      |      | 147.7 |       |      | 53.9  |      |      |
| Approach LOS                 | D     |      |      | C    |      |      | F     |       |      | D     |      |      |
| Timer - Assigned Phs         | 1     | 2    | 3    | 4    | 5    | 6    | 7     | 8     |      |       |      |      |
| Phs Duration (G+Y+Rc), s     | 48.0  | 37.0 | 16.1 | 67.4 | 14.0 | 71.0 | 16.5  | 67.0  |      |       |      |      |
| Change Period (Y+Rc), s      | 5.0   | * 5  | 4.4  | 4.9  | 4.4  | 5.0  | 4.9   | * 4.9 |      |       |      |      |
| Max Green Setting (Gmax), s  | 5.6   | * 32 | 21.6 | 52.1 | 9.6  | 28.0 | 11.6  | * 62  |      |       |      |      |
| Max Q Clear Time (g_c+I1), s | 17.6  | 17.4 | 11.4 | 22.9 | 11.4 | 22.6 | 13.6  | 64.1  |      |       |      |      |
| Green Ext Time (p_c), s      | 0.0   | 4.1  | 0.3  | 1.6  | 0.0  | 3.1  | 0.0   | 0.0   |      |       |      |      |

## Intersection Summary

HCM 7th Control Delay, s/veh 77.3  
HCM 7th LOS E

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 13: Limerick Ave. & Clairemont Mesa Blvd

Proposed Plan Conditions  
AM Peak Hour

|                                                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                                    |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |  |  |  |  |  |  |  |  |   |  |  |  |
| Traffic Volume (veh/h)                                                                             | 150                                                                               | 870                                                                               | 180                                                                               | 160                                                                               | 720                                                                               | 320                                                                               | 160                                                                               | 210                                                                               | 170                                                                                | 370                                                                                 | 210                                                                                 | 120                                                                                 |
| Future Volume (veh/h)                                                                              | 150                                                                               | 870                                                                               | 180                                                                               | 160                                                                               | 720                                                                               | 320                                                                               | 160                                                                               | 210                                                                               | 170                                                                                | 370                                                                                 | 210                                                                                 | 120                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 0.94                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                               | 1.00                                                                                |                                                                                     | 0.97                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1796                                                                              | 1796                                                                              | 1796                                                                              | 1826                                                                              | 1826                                                                              | 1826                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h                                                                               | 158                                                                               | 916                                                                               | 151                                                                               | 168                                                                               | 758                                                                               | 270                                                                               | 168                                                                               | 221                                                                               | 161                                                                                | 389                                                                                 | 221                                                                                 | 113                                                                                 |
| Peak Hour Factor                                                                                   | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 7                                                                                 | 7                                                                                 | 7                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                                                                                         | 181                                                                               | 969                                                                               | 408                                                                               | 330                                                                               | 1292                                                                              | 560                                                                               | 194                                                                               | 234                                                                               | 170                                                                                | 406                                                                                 | 413                                                                                 | 211                                                                                 |
| Arrive On Green                                                                                    | 0.11                                                                              | 0.28                                                                              | 0.28                                                                              | 0.19                                                                              | 0.37                                                                              | 0.37                                                                              | 0.11                                                                              | 0.24                                                                              | 0.24                                                                               | 0.23                                                                                | 0.36                                                                                | 0.36                                                                                |
| Sat Flow, veh/h                                                                                    | 1711                                                                              | 3413                                                                              | 1438                                                                              | 1739                                                                              | 3469                                                                              | 1503                                                                              | 1781                                                                              | 992                                                                               | 722                                                                                | 1781                                                                                | 1152                                                                                | 589                                                                                 |
| Grp Volume(v), veh/h                                                                               | 158                                                                               | 916                                                                               | 151                                                                               | 168                                                                               | 758                                                                               | 270                                                                               | 168                                                                               | 0                                                                                 | 382                                                                                | 389                                                                                 | 0                                                                                   | 334                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1711                                                                              | 1706                                                                              | 1438                                                                              | 1739                                                                              | 1735                                                                              | 1503                                                                              | 1781                                                                              | 0                                                                                 | 1714                                                                               | 1781                                                                                | 0                                                                                   | 1741                                                                                |
| Q Serve(g_s), s                                                                                    | 11.8                                                                              | 34.2                                                                              | 9.5                                                                               | 11.3                                                                              | 22.8                                                                              | 11.8                                                                              | 12.1                                                                              | 0.0                                                                               | 28.5                                                                               | 28.1                                                                                | 0.0                                                                                 | 19.8                                                                                |
| Cycle Q Clear(g_c), s                                                                              | 11.8                                                                              | 34.2                                                                              | 9.5                                                                               | 11.3                                                                              | 22.8                                                                              | 11.8                                                                              | 12.1                                                                              | 0.0                                                                               | 28.5                                                                               | 28.1                                                                                | 0.0                                                                                 | 19.8                                                                                |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.42                                                                               | 1.00                                                                                |                                                                                     | 0.34                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 181                                                                               | 969                                                                               | 408                                                                               | 330                                                                               | 1292                                                                              | 560                                                                               | 194                                                                               | 0                                                                                 | 404                                                                                | 406                                                                                 | 0                                                                                   | 624                                                                                 |
| V/C Ratio(X)                                                                                       | 0.87                                                                              | 0.95                                                                              | 0.37                                                                              | 0.51                                                                              | 0.59                                                                              | 0.48                                                                              | 0.87                                                                              | 0.00                                                                              | 0.95                                                                               | 0.96                                                                                | 0.00                                                                                | 0.54                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 184                                                                               | 969                                                                               | 408                                                                               | 330                                                                               | 1292                                                                              | 560                                                                               | 277                                                                               | 0                                                                                 | 410                                                                                | 406                                                                                 | 0                                                                                   | 624                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                               | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 57.2                                                                              | 45.6                                                                              | 28.2                                                                              | 47.2                                                                              | 32.8                                                                              | 13.5                                                                              | 57.0                                                                              | 0.0                                                                               | 48.9                                                                               | 49.6                                                                                | 0.0                                                                                 | 33.1                                                                                |
| Incr Delay (d2), s/veh                                                                             | 25.7                                                                              | 15.0                                                                              | 1.9                                                                               | 0.5                                                                               | 2.0                                                                               | 3.0                                                                               | 13.6                                                                              | 0.0                                                                               | 30.4                                                                               | 33.9                                                                                | 0.0                                                                                 | 0.5                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 6.4                                                                               | 16.3                                                                              | 3.5                                                                               | 4.9                                                                               | 9.8                                                                               | 4.4                                                                               | 6.2                                                                               | 0.0                                                                               | 15.6                                                                               | 16.3                                                                                | 0.0                                                                                 | 8.5                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 82.9                                                                              | 60.6                                                                              | 30.2                                                                              | 47.7                                                                              | 34.7                                                                              | 16.5                                                                              | 70.6                                                                              | 0.0                                                                               | 79.3                                                                               | 83.5                                                                                | 0.0                                                                                 | 33.6                                                                                |
| LnGrp LOS                                                                                          | F                                                                                 | E                                                                                 | C                                                                                 | D                                                                                 | C                                                                                 | B                                                                                 | E                                                                                 |                                                                                   | E                                                                                  | F                                                                                   |                                                                                     | C                                                                                   |
| Approach Vol, veh/h                                                                                | 1225                                                                              |                                                                                   |                                                                                   |                                                                                   | 1196                                                                              |                                                                                   |                                                                                   |                                                                                   | 550                                                                                |                                                                                     | 723                                                                                 |                                                                                     |
| Approach Delay, s/veh                                                                              | 59.7                                                                              |                                                                                   |                                                                                   |                                                                                   | 32.4                                                                              |                                                                                   |                                                                                   |                                                                                   | 76.7                                                                               |                                                                                     | 60.4                                                                                |                                                                                     |
| Approach LOS                                                                                       | E                                                                                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   | E                                                                                  |                                                                                     | E                                                                                   |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 29.7                                                                              | 41.9                                                                              | 18.5                                                                              | 51.5                                                                              | 18.2                                                                              | 53.4                                                                              | 34.5                                                                              | 35.5                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 4.9                                                                               | * 5                                                                               | 4.4                                                                               | 4.9                                                                               | 4.4                                                                               | 4.9                                                                               | 4.9                                                                               | * 4.9                                                                             |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 13.5                                                                              | * 37                                                                              | 20.2                                                                              | 40.5                                                                              | 14.0                                                                              | 36.7                                                                              | 29.6                                                                              | * 31                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+113, s)                                                                      | 113.3                                                                             | 36.2                                                                              | 14.1                                                                              | 21.8                                                                              | 13.8                                                                              | 24.8                                                                              | 30.1                                                                              | 30.5                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                               | 0.7                                                                               | 0.1                                                                               | 1.3                                                                               | 0.0                                                                               | 9.3                                                                               | 0.0                                                                               | 0.1                                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 53.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 15: I-805 NB Off-Ramp/I-805 NB On-Ramp & Clairemont Mesa Blvd

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL | WBT | WBR | NBL  | NBT  | NBR  | SBL | SBT | SBR |
|------------------------------|------|------|------|-----|-----|-----|------|------|------|-----|-----|-----|
| Lane Configurations          |      | ↑↑↑  | ↑    |     |     |     |      | ↑    | ↑↑   |     |     |     |
| Traffic Volume (veh/h)       | 0    | 980  | 680  | 0   | 0   | 0   | 0    | 1    | 530  | 0   | 0   | 400 |
| Future Volume (veh/h)        | 0    | 980  | 680  | 0   | 0   | 0   | 0    | 1    | 530  | 0   | 0   | 400 |
| Initial Q (Qb), veh          | 0    | 0    | 0    |     |     |     | 0    | 0    | 0    |     |     |     |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 |     |     |     | 1.00 |      | 1.00 |     |     |     |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Work Zone On Approach        |      | No   |      |     |     |     |      | No   |      |     |     |     |
| Adj Sat Flow, veh/h/ln       | 0    | 1826 | 1826 |     |     |     | 0    | 1870 | 1870 |     |     |     |
| Adj Flow Rate, veh/h         | 0    | 1032 | 0    |     |     |     | 0    | 1    | 469  |     |     |     |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 |     |     |     | 0.95 | 0.95 | 0.95 |     |     |     |
| Percent Heavy Veh, %         | 0    | 5    | 5    |     |     |     | 0    | 2    | 2    |     |     |     |
| Cap, veh/h                   | 0    | 1868 |      |     |     |     | 0    | 444  | 662  |     |     |     |
| Arrive On Green              | 0.00 | 0.37 | 0.00 |     |     |     | 0.00 | 0.24 | 0.24 |     |     |     |
| Sat Flow, veh/h              | 0    | 5149 | 1547 |     |     |     | 0    | 1870 | 2790 |     |     |     |
| Grp Volume(v), veh/h         | 0    | 1032 | 0    |     |     |     | 0    | 1    | 469  |     |     |     |
| Grp Sat Flow(s),veh/h/ln     | 0    | 1662 | 1547 |     |     |     | 0    | 1870 | 1395 |     |     |     |
| Q Serve(g_s), s              | 0.0  | 4.7  | 0.0  |     |     |     | 0.0  | 0.0  | 4.4  |     |     |     |
| Cycle Q Clear(g_c), s        | 0.0  | 4.7  | 0.0  |     |     |     | 0.0  | 0.0  | 4.4  |     |     |     |
| Prop In Lane                 | 0.00 |      | 1.00 |     |     |     | 0.00 |      | 1.00 |     |     |     |
| Lane Grp Cap(c), veh/h       | 0    | 1868 |      |     |     |     | 0    | 444  | 662  |     |     |     |
| V/C Ratio(X)                 | 0.00 | 0.55 |      |     |     |     | 0.00 | 0.00 | 0.71 |     |     |     |
| Avail Cap(c_a), veh/h        | 0    | 3136 |      |     |     |     | 0    | 712  | 1063 |     |     |     |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Upstream Filter(I)           | 0.00 | 1.00 | 0.00 |     |     |     | 0.00 | 1.00 | 1.00 |     |     |     |
| Uniform Delay (d), s/veh     | 0.0  | 7.1  | 0.0  |     |     |     | 0.0  | 8.3  | 10.0 |     |     |     |
| Incr Delay (d2), s/veh       | 0.0  | 0.1  | 0.0  |     |     |     | 0.0  | 0.0  | 0.5  |     |     |     |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  |     |     |     | 0.0  | 0.0  | 0.0  |     |     |     |
| %ile BackOfQ(50%),veh/ln     | 0.0  | 0.8  | 0.0  |     |     |     | 0.0  | 0.0  | 0.9  |     |     |     |
| Unsig. Movement Delay, s/veh |      |      |      |     |     |     |      |      |      |     |     |     |
| LnGrp Delay(d), s/veh        | 0.0  | 7.1  | 0.0  |     |     |     | 0.0  | 8.3  | 10.5 |     |     |     |
| LnGrp LOS                    |      | A    |      |     |     |     |      | A    | B    |     |     |     |
| Approach Vol, veh/h          | 1032 |      |      |     |     |     | 470  |      |      |     |     |     |
| Approach Delay, s/veh        | 7.1  |      |      |     |     |     | 10.5 |      |      |     |     |     |
| Approach LOS                 | A    |      |      |     |     |     | B    |      |      |     |     |     |
| Timer - Assigned Phs         | 2    |      |      |     |     |     | 8    |      |      |     |     |     |
| Phs Duration (G+Y+Rc), s     | 16.7 |      |      |     |     |     | 11.9 |      |      |     |     |     |
| Change Period (Y+Rc), s      | 6.0  |      |      |     |     |     | 5.1  |      |      |     |     |     |
| Max Green Setting (Gmax), s  | 18.0 |      |      |     |     |     | 10.9 |      |      |     |     |     |
| Max Q Clear Time (g_c+I1), s | 6.7  |      |      |     |     |     | 6.4  |      |      |     |     |     |
| Green Ext Time (p_c), s      | 3.9  |      |      |     |     |     | 0.5  |      |      |     |     |     |
| Intersection Summary         |      |      |      |     |     |     |      |      |      |     |     |     |
| HCM 7th Control Delay, s/veh |      |      | 8.2  |     |     |     |      |      |      |     |     |     |
| HCM 7th LOS                  |      |      | A    |     |     |     |      |      |      |     |     |     |



# HCM 7th Signalized Intersection Summary 16: Genesee Ave. & Derrick Dr.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBT   | EBR  | WBL  | WBT  | WBR  | NBL   | NBT  | NBR  | SBL   | SBT  | SBR  |
|------------------------------|------|-------|------|------|------|------|-------|------|------|-------|------|------|
| Lane Configurations          |      | ↔     |      |      | ↔    | ↔    | ↔     | ↕    | ↕    | ↔     | ↕    | ↔    |
| Traffic Volume (veh/h)       | 80   | 60    | 140  | 190  | 40   | 120  | 160   | 1070 | 270  | 150   | 790  | 80   |
| Future Volume (veh/h)        | 80   | 60    | 140  | 190  | 40   | 120  | 160   | 1070 | 270  | 150   | 790  | 80   |
| Initial Q (Qb), veh          | 0    | 0     | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |       | 1.00 | 1.00 |      | 1.00 | 1.00  |      | 1.00 | 1.00  |      | 0.98 |
| Parking Bus, Adj             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Work Zone On Approach        | No   |       |      |      | No   |      | No    |      |      | No    |      |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870  | 1870 | 1870 | 1870 | 1870 | 1870  | 1870 | 1870 | 1856  | 1856 | 1856 |
| Adj Flow Rate, veh/h         | 84   | 63    | 132  | 200  | 42   | 101  | 168   | 1126 | 227  | 156   | 823  | 66   |
| Peak Hour Factor             | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.96  | 0.96 | 0.96 |
| Percent Heavy Veh, %         | 2    | 2     | 2    | 2    | 2    | 2    | 2     | 2    | 2    | 3     | 3    | 3    |
| Cap, veh/h                   | 96   | 80    | 111  | 300  | 54   | 669  | 150   | 1787 | 797  | 149   | 1773 | 772  |
| Arrive On Green              | 0.42 | 0.42  | 0.42 | 0.42 | 0.42 | 0.42 | 0.17  | 1.00 | 1.00 | 0.08  | 0.50 | 0.50 |
| Sat Flow, veh/h              | 103  | 188   | 262  | 537  | 129  | 1581 | 1781  | 3554 | 1585 | 1767  | 3526 | 1535 |
| Grp Volume(v), veh/h         | 279  | 0     | 0    | 242  | 0    | 101  | 168   | 1126 | 227  | 156   | 823  | 66   |
| Grp Sat Flow(s),veh/h/ln     | 553  | 0     | 0    | 666  | 0    | 1581 | 1781  | 1777 | 1585 | 1767  | 1763 | 1535 |
| Q Serve(g_s), s              | 8.7  | 0.0   | 0.0  | 0.0  | 0.0  | 3.5  | 7.6   | 0.0  | 0.0  | 7.6   | 13.6 | 2.0  |
| Cycle Q Clear(g_c), s        | 38.1 | 0.0   | 0.0  | 29.4 | 0.0  | 3.5  | 7.6   | 0.0  | 0.0  | 7.6   | 13.6 | 2.0  |
| Prop In Lane                 | 0.30 |       | 0.47 | 0.83 |      | 1.00 | 1.00  |      | 1.00 | 1.00  |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 286  | 0     | 0    | 355  | 0    | 669  | 150   | 1787 | 797  | 149   | 1773 | 772  |
| V/C Ratio(X)                 | 0.98 | 0.00  | 0.00 | 0.68 | 0.00 | 0.15 | 1.12  | 0.63 | 0.28 | 1.05  | 0.46 | 0.09 |
| Avail Cap(c_a), veh/h        | 286  | 0     | 0    | 355  | 0    | 669  | 150   | 1787 | 797  | 149   | 1773 | 772  |
| HCM Platoon Ratio            | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 2.00  | 2.00 | 2.00 | 1.00  | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00  | 0.00 | 1.00 | 0.00 | 1.00 | 0.34  | 0.34 | 0.34 | 1.00  | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 31.4 | 0.0   | 0.0  | 23.2 | 0.0  | 16.0 | 37.4  | 0.0  | 0.0  | 41.2  | 14.5 | 11.6 |
| Incr Delay (d2), s/veh       | 46.1 | 0.0   | 0.0  | 4.4  | 0.0  | 0.0  | 78.6  | 0.6  | 0.3  | 86.2  | 0.9  | 0.2  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.8  | 0.0   | 0.0  | 4.8  | 0.0  | 1.2  | 6.2   | 0.1  | 0.1  | 6.8   | 5.1  | 0.7  |
| Unsig. Movement Delay, s/veh |      |       |      |      |      |      |       |      |      |       |      |      |
| LnGrp Delay(d), s/veh        | 77.4 | 0.0   | 0.0  | 27.6 | 0.0  | 16.0 | 116.0 | 0.6  | 0.3  | 127.4 | 15.4 | 11.8 |
| LnGrp LOS                    | E    |       |      | C    |      | B    | F     | A    | A    | F     | B    | B    |
| Approach Vol, veh/h          | 279  |       | 343  |      |      | 1521 |       |      | 1045 |       |      |      |
| Approach Delay, s/veh        | 77.4 |       | 24.2 |      |      | 13.3 |       |      | 31.9 |       |      |      |
| Approach LOS                 | E    |       | C    |      |      | B    |       |      | C    |       |      |      |
| Timer - Assigned Phs         | 1    | 2     | 4    |      | 5    | 6    | 8     |      |      |       |      |      |
| Phs Duration (G+Y+Rc), s     | 2.0  | 51.5  | 43.0 |      | 12.0 | 51.5 | 43.0  |      |      |       |      |      |
| Change Period (Y+Rc), s      | 4.4  | * 5.6 | 4.9  |      | 4.4  | 5.6  | 4.9   |      |      |       |      |      |
| Max Green Setting (Gmax), s  | 7.6  | * 30  | 38.1 |      | 7.6  | 29.4 | 38.1  |      |      |       |      |      |
| Max Q Clear Time (g_c+I), s  | 19.6 | 2.0   | 40.1 |      | 9.6  | 15.6 | 31.4  |      |      |       |      |      |
| Green Ext Time (p_c), s      | 0.0  | 24.6  | 0.0  |      | 0.0  | 8.6  | 0.7   |      |      |       |      |      |
| Intersection Summary         |      |       |      |      |      |      |       |      |      |       |      |      |
| HCM 7th Control Delay, s/veh |      | 26.2  |      |      |      |      |       |      |      |       |      |      |
| HCM 7th LOS                  |      | C     |      |      |      |      |       |      |      |       |      |      |

HCM 7th Signalized Intersection Summary  
17: Genesee Ave. & Mt. Etna Dr.

Proposed Plan Conditions  
AM Peak Hour



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL   | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|-------|------|------|
| Lane Configurations           |      |      |      |      |      |      |      |      |      |       |      |      |
| Traffic Volume (veh/h)        | 100  | 90   | 190  | 230  | 70   | 180  | 260  | 1200 | 280  | 260   | 660  | 190  |
| Future Volume (veh/h)         | 100  | 90   | 190  | 230  | 70   | 180  | 260  | 1200 | 280  | 260   | 660  | 190  |
| Initial Q (Qb), veh           | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    |
| Lane Width Adj.               | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)           | 1.00 |      | 0.99 | 1.00 |      | 0.98 | 1.00 |      | 1.00 | 1.00  |      | 1.00 |
| Parking Bus, Adj              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Work Zone On Approach         | No   |      |      | No   |      |      | No   |      |      | No    |      |      |
| Adj Sat Flow, veh/h/ln        | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1856 | 1856 | 1856 | 1870  | 1870 | 1870 |
| Adj Flow Rate, veh/h          | 105  | 95   | 180  | 242  | 74   | 170  | 274  | 1263 | 236  | 274   | 695  | 160  |
| Peak Hour Factor              | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 |
| Percent Heavy Veh, %          | 2    | 2    | 2    | 2    | 2    | 2    | 3    | 3    | 3    | 2     | 2    | 2    |
| Cap, veh/h                    | 372  | 212  | 402  | 348  | 183  | 421  | 287  | 1176 | 522  | 249   | 1107 | 492  |
| Arrive On Green               | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.16 | 0.33 | 0.33 | 0.28  | 0.62 | 0.62 |
| Sat Flow, veh/h               | 1132 | 576  | 1091 | 1101 | 497  | 1142 | 1767 | 3526 | 1565 | 1781  | 3554 | 1580 |
| Grp Volume(v), veh/h          | 105  | 0    | 275  | 242  | 0    | 244  | 274  | 1263 | 236  | 274   | 695  | 160  |
| Grp Sat Flow(s), veh/h/ln     | 1132 | 0    | 1667 | 1101 | 0    | 1640 | 1767 | 1763 | 1565 | 1781  | 1777 | 1580 |
| Q Serve(g_s), s               | 6.8  | 0.0  | 11.2 | 19.2 | 0.0  | 9.9  | 13.8 | 30.0 | 10.6 | 12.6  | 10.9 | 4.3  |
| Cycle Q Clear(g_c), s         | 16.8 | 0.0  | 11.2 | 30.4 | 0.0  | 9.9  | 13.8 | 30.0 | 10.6 | 12.6  | 10.9 | 4.3  |
| Prop In Lane                  | 1.00 |      | 0.65 | 1.00 |      | 0.70 | 1.00 |      | 1.00 | 1.00  |      | 1.00 |
| Lane Grp Cap(c), veh/h        | 372  | 0    | 614  | 348  | 0    | 604  | 287  | 1176 | 522  | 249   | 1107 | 492  |
| V/C Ratio(X)                  | 0.28 | 0.00 | 0.45 | 0.69 | 0.00 | 0.40 | 0.96 | 1.07 | 0.45 | 1.10  | 0.63 | 0.33 |
| Avail Cap(c_a), veh/h         | 395  | 0    | 648  | 371  | 0    | 638  | 287  | 1176 | 522  | 249   | 1107 | 492  |
| HCM Platoon Ratio             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00  | 2.00 | 2.00 |
| Upstream Filter(I)            | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.37 | 0.37 | 0.37 | 0.85  | 0.85 | 0.85 |
| Uniform Delay (d), s/veh      | 27.3 | 0.0  | 21.5 | 33.0 | 0.0  | 21.1 | 37.4 | 30.0 | 23.5 | 32.4  | 13.7 | 12.5 |
| Incr Delay (d2), s/veh        | 0.3  | 0.0  | 0.4  | 4.7  | 0.0  | 0.3  | 21.9 | 40.0 | 1.0  | 81.6  | 2.3  | 1.5  |
| Initial Q Delay(d3), s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 1.8  | 0.0  | 4.3  | 5.4  | 0.0  | 3.8  | 7.5  | 18.5 | 3.9  | 10.0  | 3.4  | 1.5  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |       |      |      |
| LnGrp Delay(d), s/veh         | 27.6 | 0.0  | 21.9 | 37.7 | 0.0  | 21.4 | 59.3 | 70.0 | 24.6 | 114.0 | 16.0 | 14.0 |
| LnGrp LOS                     | C    |      | C    | D    |      | C    | E    | F    | C    | F     | B    | B    |
| Approach Vol, veh/h           | 380  |      |      | 486  |      |      | 1773 |      |      | 1129  |      |      |
| Approach Delay, s/veh         | 23.5 |      |      | 29.5 |      |      | 62.3 |      |      | 39.5  |      |      |
| Approach LOS                  | C    |      |      | C    |      |      | E    |      |      | D     |      |      |
| Timer - Assigned Phs          | 1    | 2    |      | 4    | 5    | 6    |      | 8    |      |       |      |      |
| Phs Duration (G+Y+Rc), s      | 7.0  | 34.9 |      | 38.1 | 19.0 | 32.9 |      | 38.1 |      |       |      |      |
| Change Period (Y+Rc), s       | 4.4  | 4.9  |      | 4.9  | 4.4  | 4.9  |      | 4.9  |      |       |      |      |
| Max Green Setting (Gmax), s   | 12.6 | 28.2 |      | 35.0 | 14.6 | 26.2 |      | 35.0 |      |       |      |      |
| Max Q Clear Time (g_c+1/4), s | 14.6 | 32.0 |      | 18.8 | 15.8 | 12.9 |      | 32.4 |      |       |      |      |
| Green Ext Time (p_c), s       | 0.0  | 0.0  |      | 1.6  | 0.0  | 5.0  |      | 0.6  |      |       |      |      |
| <b>Intersection Summary</b>   |      |      |      |      |      |      |      |      |      |       |      |      |
| HCM 7th Control Delay, s/veh  | 47.3 |      |      |      |      |      |      |      |      |       |      |      |
| HCM 7th LOS                   | D    |      |      |      |      |      |      |      |      |       |      |      |

HCM 7th Signalized Intersection Summary  
18: Genesee Ave. & Balboa Ave.

Proposed Plan Conditions  
AM Peak Hour

|                                                                                                    |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |  |  |  |  |  |  |  |  |   |    |    |    |
| Traffic Volume (veh/h)                                                                             | 350                                                                               | 1100                                                                              | 230                                                                               | 110                                                                               | 980                                                                               | 400                                                                               | 230                                                                               | 740                                                                               | 200                                                                                | 250                                                                                 | 480                                                                                 | 280                                                                                 |
| Future Volume (veh/h)                                                                              | 350                                                                               | 1100                                                                              | 230                                                                               | 110                                                                               | 980                                                                               | 400                                                                               | 230                                                                               | 740                                                                               | 200                                                                                | 250                                                                                 | 480                                                                                 | 280                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                               | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1856                                                                              | 1856                                                                              | 1856                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1811                                                                              | 1811                                                                              | 1811                                                                               | 1856                                                                                | 1856                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h                                                                               | 368                                                                               | 1158                                                                              | 194                                                                               | 115                                                                               | 1021                                                                              | 334                                                                               | 242                                                                               | 779                                                                               | 169                                                                                | 263                                                                                 | 505                                                                                 | 236                                                                                 |
| Peak Hour Factor                                                                                   | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 3                                                                                 | 3                                                                                 | 3                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 | 6                                                                                  | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                                                                                         | 392                                                                               | 1730                                                                              | 767                                                                               | 1032                                                                              | 2932                                                                              | 910                                                                               | 272                                                                               | 814                                                                               | 363                                                                                | 304                                                                                 | 871                                                                                 | 385                                                                                 |
| Arrive On Green                                                                                    | 0.22                                                                              | 0.49                                                                              | 0.49                                                                              | 0.10                                                                              | 0.19                                                                              | 0.19                                                                              | 0.08                                                                              | 0.24                                                                              | 0.24                                                                               | 0.09                                                                                | 0.25                                                                                | 0.25                                                                                |
| Sat Flow, veh/h                                                                                    | 1767                                                                              | 3526                                                                              | 1563                                                                              | 3456                                                                              | 5106                                                                              | 1585                                                                              | 3346                                                                              | 3441                                                                              | 1535                                                                               | 3428                                                                                | 3526                                                                                | 1559                                                                                |
| Grp Volume(v), veh/h                                                                               | 368                                                                               | 1158                                                                              | 194                                                                               | 115                                                                               | 1021                                                                              | 334                                                                               | 242                                                                               | 779                                                                               | 169                                                                                | 263                                                                                 | 505                                                                                 | 236                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1767                                                                              | 3526                                                                              | 1563                                                                              | 3456                                                                              | 5106                                                                              | 1585                                                                              | 3346                                                                              | 3441                                                                              | 1535                                                                               | 3428                                                                                | 3526                                                                                | 1559                                                                                |
| Q Serve(g_s), s                                                                                    | 28.7                                                                              | 34.9                                                                              | 12.3                                                                              | 4.2                                                                               | 24.3                                                                              | 31.7                                                                              | 10.0                                                                              | 31.3                                                                              | 13.2                                                                               | 10.6                                                                                | 17.6                                                                                | 18.8                                                                                |
| Cycle Q Clear(g_c), s                                                                              | 28.7                                                                              | 34.9                                                                              | 12.3                                                                              | 4.2                                                                               | 24.3                                                                              | 31.7                                                                              | 10.0                                                                              | 31.3                                                                              | 13.2                                                                               | 10.6                                                                                | 17.6                                                                                | 18.8                                                                                |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                               | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 392                                                                               | 1730                                                                              | 767                                                                               | 1032                                                                              | 2932                                                                              | 910                                                                               | 272                                                                               | 814                                                                               | 363                                                                                | 304                                                                                 | 871                                                                                 | 385                                                                                 |
| V/C Ratio(X)                                                                                       | 0.94                                                                              | 0.67                                                                              | 0.25                                                                              | 0.11                                                                              | 0.35                                                                              | 0.37                                                                              | 0.89                                                                              | 0.96                                                                              | 0.47                                                                               | 0.87                                                                                | 0.58                                                                                | 0.61                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 500                                                                               | 1730                                                                              | 767                                                                               | 1032                                                                              | 2932                                                                              | 910                                                                               | 272                                                                               | 814                                                                               | 363                                                                                | 304                                                                                 | 871                                                                                 | 385                                                                                 |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.33                                                                              | 0.33                                                                              | 0.33                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.87                                                                              | 0.87                                                                              | 0.87                                                                              | 0.72                                                                              | 0.72                                                                              | 0.72                                                                               | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                |
| Uniform Delay (d), s/veh                                                                           | 53.6                                                                              | 27.0                                                                              | 30.7                                                                              | 46.2                                                                              | 34.0                                                                              | 52.5                                                                              | 63.7                                                                              | 52.8                                                                              | 45.9                                                                               | 63.0                                                                                | 46.3                                                                                | 46.8                                                                                |
| Incr Delay (d2), s/veh                                                                             | 20.8                                                                              | 2.1                                                                               | 0.8                                                                               | 0.0                                                                               | 0.3                                                                               | 1.0                                                                               | 21.1                                                                              | 17.7                                                                              | 1.2                                                                                | 16.4                                                                                | 1.0                                                                                 | 2.7                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 14.7                                                                              | 14.5                                                                              | 4.8                                                                               | 1.8                                                                               | 11.2                                                                              | 13.8                                                                              | 5.1                                                                               | 15.4                                                                              | 5.2                                                                                | 5.3                                                                                 | 7.8                                                                                 | 7.6                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 74.3                                                                              | 29.1                                                                              | 31.5                                                                              | 46.2                                                                              | 34.3                                                                              | 53.5                                                                              | 84.8                                                                              | 70.4                                                                              | 47.1                                                                               | 79.3                                                                                | 47.3                                                                                | 49.4                                                                                |
| LnGrp LOS                                                                                          | E                                                                                 | C                                                                                 | C                                                                                 | D                                                                                 | C                                                                                 | D                                                                                 | F                                                                                 | E                                                                                 | D                                                                                  | E                                                                                   | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h                                                                                | 1720                                                                              |                                                                                   |                                                                                   | 1470                                                                              |                                                                                   |                                                                                   | 1190                                                                              |                                                                                   |                                                                                    | 1004                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 39.1                                                                              |                                                                                   |                                                                                   | 39.6                                                                              |                                                                                   |                                                                                   | 70.0                                                                              |                                                                                   |                                                                                    | 56.2                                                                                |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                    | E                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 48.1                                                                              | 74.0                                                                              | 15.8                                                                              | 39.5                                                                              | 35.4                                                                              | 86.7                                                                              | 17.3                                                                              | 38.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 5.4                                                                               | * 5.3                                                                             | 4.4                                                                               | 4.9                                                                               | 4.4                                                                               | 5.4                                                                               | 4.9                                                                               | * 4.9                                                                             |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 69.8                                                                              | * 69                                                                              | 11.4                                                                              | 34.1                                                                              | 39.6                                                                              | 35.8                                                                              | 12.4                                                                              | * 33                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I), s                                                                        | 16.2                                                                              | 36.9                                                                              | 12.0                                                                              | 20.8                                                                              | 30.7                                                                              | 33.7                                                                              | 12.6                                                                              | 33.3                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                               | 11.5                                                                              | 0.0                                                                               | 5.3                                                                               | 0.4                                                                               | 1.5                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 49.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

HCM 7th Signalized Intersection Summary  
19: Genesee Ave. & Mt. Alifan Dr.

Proposed Plan Conditions  
AM Peak Hour



| Movement                      | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                                | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
|-------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations           |  |  |      |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)        | 120                                                                               | 160                                                                               | 110  | 210                                                                               | 250                                                                               | 140                                                                               | 90                                                                                | 950                                                                                | 190                                                                                 | 130                                                                                 | 630                                                                                 | 100                                                                                 |
| Future Volume (veh/h)         | 120                                                                               | 160                                                                               | 110  | 210                                                                               | 250                                                                               | 140                                                                               | 90                                                                                | 950                                                                                | 190                                                                                 | 130                                                                                 | 630                                                                                 | 100                                                                                 |
| Initial Q (Qb), veh           | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.               | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)           | 1.00                                                                              |                                                                                   | 0.96 | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                    | 0.98                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach         | No                                                                                |                                                                                   |      | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                    |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln        | 1870                                                                              | 1870                                                                              | 1870 | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1811                                                                              | 1811                                                                               | 1811                                                                                | 1811                                                                                | 1811                                                                                | 1811                                                                                |
| Adj Flow Rate, veh/h          | 126                                                                               | 168                                                                               | 116  | 221                                                                               | 263                                                                               | 147                                                                               | 95                                                                                | 1000                                                                               | 160                                                                                 | 137                                                                                 | 663                                                                                 | 84                                                                                  |
| Peak Hour Factor              | 0.95                                                                              | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %          | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                  | 6                                                                                   | 6                                                                                   | 6                                                                                   | 6                                                                                   |
| Cap, veh/h                    | 152                                                                               | 191                                                                               | 132  | 248                                                                               | 455                                                                               | 375                                                                               | 117                                                                               | 1072                                                                               | 467                                                                                 | 353                                                                                 | 1572                                                                                | 691                                                                                 |
| Arrive On Green               | 0.09                                                                              | 0.19                                                                              | 0.19 | 0.14                                                                              | 0.24                                                                              | 0.24                                                                              | 0.07                                                                              | 0.31                                                                               | 0.31                                                                                | 0.20                                                                                | 0.46                                                                                | 0.46                                                                                |
| Sat Flow, veh/h               | 1781                                                                              | 1011                                                                              | 698  | 1781                                                                              | 1870                                                                              | 1541                                                                              | 1725                                                                              | 3441                                                                               | 1497                                                                                | 1725                                                                                | 3441                                                                                | 1513                                                                                |
| Grp Volume(v), veh/h          | 126                                                                               | 0                                                                                 | 284  | 221                                                                               | 263                                                                               | 147                                                                               | 95                                                                                | 1000                                                                               | 160                                                                                 | 137                                                                                 | 663                                                                                 | 84                                                                                  |
| Grp Sat Flow(s),veh/h/ln      | 1781                                                                              | 0                                                                                 | 1709 | 1781                                                                              | 1870                                                                              | 1541                                                                              | 1725                                                                              | 1721                                                                               | 1497                                                                                | 1725                                                                                | 1721                                                                                | 1513                                                                                |
| Q Serve(g_s), s               | 9.1                                                                               | 0.0                                                                               | 21.0 | 15.8                                                                              | 16.1                                                                              | 6.5                                                                               | 7.1                                                                               | 36.7                                                                               | 10.7                                                                                | 8.9                                                                                 | 16.9                                                                                | 4.2                                                                                 |
| Cycle Q Clear(g_c), s         | 9.1                                                                               | 0.0                                                                               | 21.0 | 15.8                                                                              | 16.1                                                                              | 6.5                                                                               | 7.1                                                                               | 36.7                                                                               | 10.7                                                                                | 8.9                                                                                 | 16.9                                                                                | 4.2                                                                                 |
| Prop In Lane                  | 1.00                                                                              |                                                                                   | 0.41 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h        | 152                                                                               | 0                                                                                 | 323  | 248                                                                               | 455                                                                               | 375                                                                               | 117                                                                               | 1072                                                                               | 467                                                                                 | 353                                                                                 | 1572                                                                                | 691                                                                                 |
| V/C Ratio(X)                  | 0.83                                                                              | 0.00                                                                              | 0.88 | 0.89                                                                              | 0.58                                                                              | 0.39                                                                              | 0.81                                                                              | 0.93                                                                               | 0.34                                                                                | 0.39                                                                                | 0.42                                                                                | 0.12                                                                                |
| Avail Cap(c_a), veh/h         | 425                                                                               | 0                                                                                 | 407  | 425                                                                               | 455                                                                               | 375                                                                               | 194                                                                               | 1072                                                                               | 467                                                                                 | 353                                                                                 | 1572                                                                                | 691                                                                                 |
| HCM Platoon Ratio             | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)            | 1.00                                                                              | 0.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                |
| Uniform Delay (d), s/veh      | 58.5                                                                              | 0.0                                                                               | 51.2 | 55.0                                                                              | 43.3                                                                              | 16.3                                                                              | 59.8                                                                              | 43.4                                                                               | 34.5                                                                                | 44.7                                                                                | 23.8                                                                                | 20.3                                                                                |
| Incr Delay (d2), s/veh        | 4.4                                                                               | 0.0                                                                               | 14.1 | 6.2                                                                               | 1.2                                                                               | 0.2                                                                               | 5.1                                                                               | 15.4                                                                               | 2.0                                                                                 | 0.2                                                                                 | 0.7                                                                                 | 0.3                                                                                 |
| Initial Q Delay(d3), s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln      | 4.3                                                                               | 0.0                                                                               | 10.3 | 7.5                                                                               | 7.6                                                                               | 2.4                                                                               | 3.2                                                                               | 17.3                                                                               | 4.2                                                                                 | 3.8                                                                                 | 6.9                                                                                 | 1.5                                                                                 |
| Unsig. Movement Delay, s/veh  |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh         | 62.9                                                                              | 0.0                                                                               | 65.4 | 61.2                                                                              | 44.5                                                                              | 16.6                                                                              | 64.8                                                                              | 58.9                                                                               | 36.5                                                                                | 44.9                                                                                | 24.5                                                                                | 20.6                                                                                |
| LnGrp LOS                     | E                                                                                 |                                                                                   | E    | E                                                                                 | D                                                                                 | B                                                                                 | E                                                                                 | E                                                                                  | D                                                                                   | D                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h           | 410                                                                               |                                                                                   | 631  |                                                                                   |                                                                                   | 1255                                                                              |                                                                                   |                                                                                    | 884                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh         | 64.6                                                                              |                                                                                   | 43.9 |                                                                                   |                                                                                   | 56.5                                                                              |                                                                                   |                                                                                    | 27.3                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                  | E                                                                                 |                                                                                   | D    |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs          | 1                                                                                 | 2                                                                                 | 3    | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s      | 31.5                                                                              | 46.0                                                                              | 23.0 | 29.5                                                                              | 13.2                                                                              | 64.3                                                                              | 16.0                                                                              | 36.5                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s       | 4.9                                                                               | * 5.5                                                                             | 4.9  | 4.9                                                                               | 4.4                                                                               | 4.9                                                                               | 4.9                                                                               | 4.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s   | 7.8                                                                               | * 41                                                                              | 31.0 | 31.0                                                                              | 14.6                                                                              | 34.3                                                                              | 31.0                                                                              | 31.0                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+T10), s | 110.9                                                                             | 38.7                                                                              | 17.8 | 23.0                                                                              | 9.1                                                                               | 18.9                                                                              | 11.1                                                                              | 18.1                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s       | 0.0                                                                               | 1.4                                                                               | 0.3  | 0.7                                                                               | 0.0                                                                               | 10.4                                                                              | 0.1                                                                               | 1.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

Intersection Summary

HCM 7th Control Delay, s/veh 46.9  
HCM 7th LOS D

Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 4.4  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↔    |      |      | ↔    |      | ↔    | ↔    |      | ↔    | ↔    |      |
| Traffic Vol, veh/h       | 10   | 10   | 10   | 60   | 10   | 130  | 10   | 540  | 10   | 60   | 430  | 50   |
| Future Vol, veh/h        | 10   | 10   | 10   | 60   | 10   | 130  | 10   | 540  | 10   | 60   | 430  | 50   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 2    | 2    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 80   | -    | -    | 45   | -    | -    |
| Veh in Median Storage, # | -    | 1    | -    | -    | 1    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 11   | 11   | 11   | 63   | 11   | 137  | 11   | 568  | 11   | 63   | 453  | 53   |

| Major/Minor          | Minor2 |       | Minor1 |       | Major1 |       | Major2 |   |   |       |   |   |
|----------------------|--------|-------|--------|-------|--------|-------|--------|---|---|-------|---|---|
| Conflicting Flow All | 1200   | 1207  | 479    | 1181  | 1228   | 576   | 505    | 0 | 0 | 581   | 0 | 0 |
| Stage 1              | 605    | 605   | -      | 597   | 597    | -     | -      | - | - | -     | - | - |
| Stage 2              | 595    | 602   | -      | 584   | 632    | -     | -      | - | - | -     | - | - |
| Critical Hdwy        | 7.12   | 6.52  | 6.22   | 7.12  | 6.52   | 6.22  | 4.12   | - | - | 4.12  | - | - |
| Critical Hdwy Stg 1  | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | - | - | -     | - | - |
| Critical Hdwy Stg 2  | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | - | - | -     | - | - |
| Follow-up Hdwy       | 3.518  | 4.018 | 3.318  | 3.518 | 4.018  | 3.318 | 2.218  | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver   | 162    | 183   | 669    | 167   | 178    | 517   | 1049   | - | - | 993   | - | - |
| Stage 1              | 521    | 493   | -      | 490   | 492    | -     | -      | - | - | -     | - | - |
| Stage 2              | 491    | 489   | -      | 538   | 476    | -     | -      | - | - | -     | - | - |
| Platoon blocked, %   |        |       | 0      |       |        | 0     |        | - | - |       | - | - |
| Mov Cap-1 Maneuver   | 107    | 169   | 669    | 147   | 165    | 516   | 1049   | - | - | 991   | - | - |
| Mov Cap-2 Maneuver   | 209    | 278   | -      | 286   | 284    | -     | -      | - | - | -     | - | - |
| Stage 1              | 487    | 462   | -      | 484   | 486    | -     | -      | - | - | -     | - | - |
| Stage 2              | 349    | 483   | -      | 485   | 446    | -     | -      | - | - | -     | - | - |

| Approach          | EB    |  | WB    |  | NB   |  | SB   |  |
|-------------------|-------|--|-------|--|------|--|------|--|
| HCM Ctrl Dly, s/v | 18.24 |  | 23.36 |  | 0.15 |  | 0.99 |  |
| HCM LOS           | C     |  | C     |  |      |  |      |  |

| Minor Lane/Major Mvmt | NBL  | NBT | NBR | EBLn1WBLn1  | SBL   | SBT | SBR |
|-----------------------|------|-----|-----|-------------|-------|-----|-----|
| Capacity (veh/h)      | 1049 | -   | -   | 303 402     | 991   | -   | -   |
| HCM Lane V/C Ratio    | 0.01 | -   | -   | 0.104 0.523 | 0.064 | -   | -   |
| HCM Ctrl Dly (s/v)    | 8.5  | -   | -   | 18.2 23.4   | 8.9   | -   | -   |
| HCM Lane LOS          | A    | -   | -   | C C         | A     | -   | -   |
| HCM 95th %tile Q(veh) | 0    | -   | -   | 0.3 2.9     | 0.2   | -   | -   |

HCM 7th Signalized Intersection Summary  
21: Mt. Alifan Dr./Mt. Abernathy Ave. & Balboa Ave.

Proposed Plan Conditions  
AM Peak Hour

|                              |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |                                                                                       |  |  |                                                                                                                                                                          |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                                                                                                     | NBT                                                                                 | NBR                                                                                 | SBL                                                                                                                                                                                                                                                         | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |    |  |  |    |  |   |  |  |    |  |  |
| Traffic Volume (veh/h)       | 100                                                                               | 1200                                                                                                                                                                                                                                                  | 70                                                                                | 290                                                                               | 1280                                                                                                                                                                                                                                                  | 190                                                                               | 80                                                                                                                                                                      | 190                                                                                 | 410                                                                                 | 230                                                                                                                                                                                                                                                         | 180                                                                                 | 130                                                                                 |
| Future Volume (veh/h)        | 100                                                                               | 1200                                                                                                                                                                                                                                                  | 70                                                                                | 290                                                                               | 1280                                                                                                                                                                                                                                                  | 190                                                                               | 80                                                                                                                                                                      | 190                                                                                 | 410                                                                                 | 230                                                                                                                                                                                                                                                         | 180                                                                                 | 130                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                                                                                                           | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                                                                                                        | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                                                                                                       | 0.99                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 1.00                                                                              | 1.00                                                                                                                                                                    |                                                                                     | 0.96                                                                                | 1.00                                                                                                                                                                                                                                                        |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                                                                                                        | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                                                                                                      |                                                                                     |                                                                                     | No                                                                                                                                                                                                                                                          |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                                                                                                                                                                                                  | 1870                                                                              | 1870                                                                              | 1870                                                                                                                                                                                                                                                  | 1870                                                                              | 1870                                                                                                                                                                    | 1870                                                                                | 1870                                                                                | 1870                                                                                                                                                                                                                                                        | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 105                                                                               | 1263                                                                                                                                                                                                                                                  | 59                                                                                | 305                                                                               | 1347                                                                                                                                                                                                                                                  | 160                                                                               | 84                                                                                                                                                                      | 200                                                                                 | 346                                                                                 | 242                                                                                                                                                                                                                                                         | 189                                                                                 | 110                                                                                 |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                                                                                                                                                                                                  | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                                                                                                  | 0.95                                                                              | 0.95                                                                                                                                                                    | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                                                                                                                                                                                        | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                                                                                                           | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 128                                                                               | 2141                                                                                                                                                                                                                                                  | 660                                                                               | 358                                                                               | 2832                                                                                                                                                                                                                                                  | 875                                                                               | 128                                                                                                                                                                     | 286                                                                                 | 552                                                                                 | 290                                                                                                                                                                                                                                                         | 374                                                                                 | 314                                                                                 |
| Arrive On Green              | 0.07                                                                              | 0.42                                                                                                                                                                                                                                                  | 0.42                                                                              | 0.40                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 0.04                                                                                                                                                                    | 0.15                                                                                | 0.15                                                                                | 0.08                                                                                                                                                                                                                                                        | 0.20                                                                                | 0.20                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 5106                                                                                                                                                                                                                                                  | 1574                                                                              | 1781                                                                              | 5106                                                                                                                                                                                                                                                  | 1578                                                                              | 3456                                                                                                                                                                    | 1870                                                                                | 1529                                                                                | 3456                                                                                                                                                                                                                                                        | 1870                                                                                | 1568                                                                                |
| Grp Volume(v), veh/h         | 105                                                                               | 1263                                                                                                                                                                                                                                                  | 59                                                                                | 305                                                                               | 1347                                                                                                                                                                                                                                                  | 160                                                                               | 84                                                                                                                                                                      | 200                                                                                 | 346                                                                                 | 242                                                                                                                                                                                                                                                         | 189                                                                                 | 110                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1702                                                                                                                                                                                                                                                  | 1574                                                                              | 1781                                                                              | 1702                                                                                                                                                                                                                                                  | 1578                                                                              | 1728                                                                                                                                                                    | 1870                                                                                | 1529                                                                                | 1728                                                                                                                                                                                                                                                        | 1870                                                                                | 1568                                                                                |
| Q Serve(g_s), s              | 8.1                                                                               | 26.7                                                                                                                                                                                                                                                  | 2.6                                                                               | 21.8                                                                              | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 3.4                                                                                                                                                                     | 14.2                                                                                | 4.7                                                                                 | 9.7                                                                                                                                                                                                                                                         | 12.6                                                                                | 8.4                                                                                 |
| Cycle Q Clear(g_c), s        | 8.1                                                                               | 26.7                                                                                                                                                                                                                                                  | 2.6                                                                               | 21.8                                                                              | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 3.4                                                                                                                                                                     | 14.2                                                                                | 4.7                                                                                 | 9.7                                                                                                                                                                                                                                                         | 12.6                                                                                | 8.4                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                                                                                                       | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 1.00                                                                              | 1.00                                                                                                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                                                                                                                                                                                        |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 128                                                                               | 2141                                                                                                                                                                                                                                                  | 660                                                                               | 358                                                                               | 2832                                                                                                                                                                                                                                                  | 875                                                                               | 128                                                                                                                                                                     | 286                                                                                 | 552                                                                                 | 290                                                                                                                                                                                                                                                         | 374                                                                                 | 314                                                                                 |
| V/C Ratio(X)                 | 0.82                                                                              | 0.59                                                                                                                                                                                                                                                  | 0.09                                                                              | 0.85                                                                              | 0.48                                                                                                                                                                                                                                                  | 0.18                                                                              | 0.66                                                                                                                                                                    | 0.70                                                                                | 0.63                                                                                | 0.83                                                                                                                                                                                                                                                        | 0.50                                                                                | 0.35                                                                                |
| Avail Cap(c_a), veh/h        | 262                                                                               | 2141                                                                                                                                                                                                                                                  | 660                                                                               | 358                                                                               | 2832                                                                                                                                                                                                                                                  | 875                                                                               | 180                                                                                                                                                                     | 529                                                                                 | 751                                                                                 | 336                                                                                                                                                                                                                                                         | 613                                                                                 | 514                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 2.00                                                                              | 2.00                                                                                                                                                                                                                                                  | 2.00                                                                              | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                                                                                                        | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 0.68                                                                              | 0.68                                                                                                                                                                                                                                                  | 0.68                                                                              | 0.49                                                                              | 0.49                                                                                                                                                                                                                                                  | 0.49                                                                              | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                                                                                                        | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 64.1                                                                              | 31.4                                                                                                                                                                                                                                                  | 16.4                                                                              | 40.0                                                                              | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 66.5                                                                                                                                                                    | 56.2                                                                                | 19.9                                                                                | 63.2                                                                                                                                                                                                                                                        | 49.8                                                                                | 48.2                                                                                |
| Incr Delay (d2), s/veh       | 3.4                                                                               | 0.8                                                                                                                                                                                                                                                   | 0.2                                                                               | 9.2                                                                               | 0.3                                                                                                                                                                                                                                                   | 0.2                                                                               | 2.1                                                                                                                                                                     | 1.2                                                                                 | 0.4                                                                                 | 12.9                                                                                                                                                                                                                                                        | 0.4                                                                                 | 0.2                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                                                                                                         | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.7                                                                               | 10.8                                                                                                                                                                                                                                                  | 1.2                                                                               | 8.4                                                                               | 0.1                                                                                                                                                                                                                                                   | 0.1                                                                               | 1.5                                                                                                                                                                     | 6.8                                                                                 | 6.7                                                                                 | 4.8                                                                                                                                                                                                                                                         | 6.0                                                                                 | 3.4                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 67.5                                                                              | 32.2                                                                                                                                                                                                                                                  | 16.6                                                                              | 49.2                                                                              | 0.3                                                                                                                                                                                                                                                   | 0.2                                                                               | 68.7                                                                                                                                                                    | 57.4                                                                                | 20.4                                                                                | 76.1                                                                                                                                                                                                                                                        | 50.2                                                                                | 48.4                                                                                |
| LnGrp LOS                    | E                                                                                 | C                                                                                                                                                                                                                                                     | B                                                                                 | D                                                                                 | A                                                                                                                                                                                                                                                     | A                                                                                 | E                                                                                                                                                                       | E                                                                                   | C                                                                                   | E                                                                                                                                                                                                                                                           | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h          | 1427                                                                              |                                                                                                                                                                                                                                                       |                                                                                   | 1812                                                                              |                                                                                                                                                                                                                                                       |                                                                                   | 630                                                                                                                                                                     |                                                                                     |                                                                                     | 541                                                                                                                                                                                                                                                         |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 34.1                                                                              |                                                                                                                                                                                                                                                       |                                                                                   | 8.5                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | 38.5                                                                                                                                                                    |                                                                                     |                                                                                     | 61.4                                                                                                                                                                                                                                                        |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                                                                                                                                                                                       |                                                                                   | A                                                                                 |                                                                                                                                                                                                                                                       |                                                                                   | D                                                                                                                                                                       |                                                                                     |                                                                                     | E                                                                                                                                                                                                                                                           |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                                                                                                                                                                                     | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                                                                                                       | 8                                                                                   |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 33.5                                                                              | 64.0                                                                                                                                                                                                                                                  | 9.6                                                                               | 32.9                                                                              | 14.4                                                                                                                                                                                                                                                  | 83.1                                                                              | 16.2                                                                                                                                                                    | 26.3                                                                                |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               | * 5.3                                                                                                                                                                                                                                                 | 4.4                                                                               | 4.9                                                                               | 4.4                                                                                                                                                                                                                                                   | 5.4                                                                               | 4.4                                                                                                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 9.1                                                                               | * 59                                                                                                                                                                                                                                                  | 7.3                                                                               | 45.9                                                                              | 20.6                                                                                                                                                                                                                                                  | 47.1                                                                              | 13.6                                                                                                                                                                    | 39.6                                                                                |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 23.8                                                                              | 28.7                                                                                                                                                                                                                                                  | 5.4                                                                               | 14.6                                                                              | 10.1                                                                                                                                                                                                                                                  | 2.0                                                                               | 11.7                                                                                                                                                                    | 16.2                                                                                |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 21.9                                                                                                                                                                                                                                                  | 0.0                                                                               | 0.9                                                                               | 0.1                                                                                                                                                                                                                                                   | 30.3                                                                              | 0.1                                                                                                                                                                     | 1.4                                                                                 |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |                                                                                     |

Intersection Summary

|                              |      |
|------------------------------|------|
| HCM 7th Control Delay, s/veh | 27.6 |
| HCM 7th LOS                  | C    |

Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Intersection

Intersection Delay, s/veh 15.4

Intersection LOS C

| Movement            | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
|---------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations |  |  |  |  |  |  |
| Traffic Vol, veh/h  | 100                                                                               | 160                                                                               | 230                                                                               | 250                                                                               | 380                                                                               | 180                                                                               |
| Future Vol, veh/h   | 100                                                                               | 160                                                                               | 230                                                                               | 250                                                                               | 380                                                                               | 180                                                                               |
| Peak Hour Factor    | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Heavy Vehicles, %   | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Mvmt Flow           | 105                                                                               | 168                                                                               | 242                                                                               | 263                                                                               | 400                                                                               | 189                                                                               |
| Number of Lanes     | 1                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 2                                                                                 | 0                                                                                 |

| Approach                      | EB   | NB   | SB   |
|-------------------------------|------|------|------|
| Opposing Approach             |      | SB   | NB   |
| Opposing Lanes                | 0    | 2    | 3    |
| Conflicting Approach Left SB  |      | EB   |      |
| Conflicting Lanes Left        | 2    | 2    | 0    |
| Conflicting Approach Right NB |      |      | EB   |
| Conflicting Lanes Right       | 3    | 0    | 2    |
| HCM Control Delay, s/veh      | 13.4 | 14.2 | 17.4 |
| HCM LOS                       | B    | B    | C    |

| Lane                     | NBLn1 | NBLn2 | NBLn3 | EBLn1 | EBLn2 | SBLn1 | SBLn2 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, %              | 100%  | 0%    | 0%    | 100%  | 0%    | 0%    | 0%    |
| Vol Thru, %              | 0%    | 100%  | 100%  | 0%    | 0%    | 100%  | 41%   |
| Vol Right, %             | 0%    | 0%    | 0%    | 0%    | 100%  | 0%    | 59%   |
| Sign Control             | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane      | 230   | 125   | 125   | 100   | 160   | 253   | 307   |
| LT Vol                   | 230   | 0     | 0     | 100   | 0     | 0     | 0     |
| Through Vol              | 0     | 125   | 125   | 0     | 0     | 253   | 127   |
| RT Vol                   | 0     | 0     | 0     | 0     | 160   | 0     | 180   |
| Lane Flow Rate           | 242   | 132   | 132   | 105   | 168   | 267   | 323   |
| Geometry Grp             | 6     | 6     | 6     | 6     | 6     | 6     | 6     |
| Degree of Util (X)       | 0.511 | 0.259 | 0.195 | 0.241 | 0.329 | 0.513 | 0.584 |
| Departure Headway (Hd)   | 7.599 | 7.09  | 5.324 | 8.248 | 7.03  | 6.928 | 6.51  |
| Convergence, Y/N         | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Cap                      | 477   | 508   | 675   | 436   | 512   | 523   | 555   |
| Service Time             | 5.319 | 4.81  | 3.044 | 5.992 | 4.773 | 4.648 | 4.229 |
| HCM Lane V/C Ratio       | 0.507 | 0.26  | 0.196 | 0.241 | 0.328 | 0.511 | 0.582 |
| HCM Control Delay, s/veh | 18    | 12.3  | 9.3   | 13.6  | 13.2  | 16.7  | 18    |
| HCM Lane LOS             | C     | B     | A     | B     | B     | C     | C     |
| HCM 95th-tile Q          | 2.9   | 1     | 0.7   | 0.9   | 1.4   | 2.9   | 3.7   |

HCM 7th Signalized Intersection Summary  
23: Mt. Albertine Ave./Cannington Dr. & Balboa Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBT   | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL   | SBT  | SBR  |
|------------------------------|------|-------|------|------|------|------|------|------|------|-------|------|------|
| Lane Configurations          |      |       |      |      |      |      |      |      |      |       |      |      |
| Traffic Volume (veh/h)       | 120  | 1690  | 150  | 90   | 1690 | 130  | 50   | 50   | 180  | 140   | 30   | 110  |
| Future Volume (veh/h)        | 120  | 1690  | 150  | 90   | 1690 | 130  | 50   | 50   | 180  | 140   | 30   | 110  |
| Initial Q (Qb), veh          | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |       | 0.97 | 1.00 |      | 1.00 | 1.00 |      | 0.98 | 1.00  |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Work Zone On Approach        | No   |       |      | No   |      |      | No   |      |      | No    |      |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870  | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870  | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 126  | 1779  | 126  | 95   | 1779 | 110  | 53   | 53   | 170  | 147   | 32   | 104  |
| Peak Hour Factor             | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2     | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2     | 2    | 2    |
| Cap, veh/h                   | 147  | 2241  | 677  | 117  | 2155 | 668  | 59   | 59   | 189  | 151   | 33   | 107  |
| Arrive On Green              | 0.16 | 0.88  | 0.88 | 0.07 | 0.42 | 0.42 | 0.19 | 0.19 | 0.19 | 0.17  | 0.17 | 0.17 |
| Sat Flow, veh/h              | 1781 | 5106  | 1543 | 1781 | 5106 | 1581 | 316  | 316  | 1014 | 890   | 194  | 629  |
| Grp Volume(v), veh/h         | 126  | 1779  | 126  | 95   | 1779 | 110  | 276  | 0    | 0    | 283   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1781 | 1702  | 1543 | 1781 | 1702 | 1581 | 1646 | 0    | 0    | 1713  | 0    | 0    |
| Q Serve(g_s), s              | 9.6  | 19.7  | 1.7  | 7.4  | 43.3 | 6.0  | 23.0 | 0.0  | 0.0  | 23.0  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 9.6  | 19.7  | 1.7  | 7.4  | 43.3 | 6.0  | 23.0 | 0.0  | 0.0  | 23.0  | 0.0  | 0.0  |
| Prop In Lane                 | 1.00 |       | 1.00 | 1.00 |      | 1.00 | 0.19 |      | 0.62 | 0.52  |      | 0.37 |
| Lane Grp Cap(c), veh/h       | 147  | 2241  | 677  | 117  | 2155 | 668  | 306  | 0    | 0    | 290   | 0    | 0    |
| V/C Ratio(X)                 | 0.86 | 0.79  | 0.19 | 0.81 | 0.83 | 0.16 | 0.90 | 0.00 | 0.00 | 0.98  | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 148  | 2241  | 677  | 288  | 2155 | 668  | 366  | 0    | 0    | 290   | 0    | 0    |
| HCM Platoon Ratio            | 2.00 | 2.00  | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.75 | 0.75  | 0.75 | 0.76 | 0.76 | 0.76 | 1.00 | 0.00 | 0.00 | 1.00  | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 57.7 | 6.0   | 4.9  | 64.5 | 35.9 | 25.1 | 55.7 | 0.0  | 0.0  | 57.9  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 28.1 | 2.3   | 0.5  | 3.8  | 2.9  | 0.4  | 20.2 | 0.0  | 0.0  | 46.0  | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 5.1  | 3.0   | 0.6  | 3.4  | 17.8 | 2.3  | 11.3 | 0.0  | 0.0  | 13.7  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |       |      |      |      |      |      |      |      |       |      |      |
| LnGrp Delay(d), s/veh        | 85.8 | 8.3   | 5.4  | 68.4 | 38.8 | 25.5 | 75.9 | 0.0  | 0.0  | 103.8 | 0.0  | 0.0  |
| LnGrp LOS                    | F    | A     | A    | E    | D    | C    | E    |      |      | F     |      |      |
| Approach Vol, veh/h          | 2031 |       |      | 1984 |      |      | 276  |      |      | 283   |      |      |
| Approach Delay, s/veh        | 12.9 |       |      | 39.5 |      |      | 75.9 |      |      | 103.8 |      |      |
| Approach LOS                 | B    |       |      | D    |      |      | E    |      |      | F     |      |      |
| Timer - Assigned Phs         | 1    | 2     |      | 4    | 5    | 6    |      | 8    |      |       |      |      |
| Phs Duration (G+Y+Rc), s     | 3.6  | 66.8  |      | 31.0 | 15.9 | 64.5 |      | 28.6 |      |       |      |      |
| Change Period (Y+Rc), s      | 4.4  | * 5.4 |      | 4.9  | 4.4  | 5.4  |      | 4.9  |      |       |      |      |
| Max Green Setting (Gmax), s  | 22.6 | * 43  |      | 31.1 | 11.6 | 54.0 |      | 23.7 |      |       |      |      |
| Max Q Clear Time (g_c+I), s  | 19.4 | 21.7  |      | 25.0 | 11.6 | 45.3 |      | 25.0 |      |       |      |      |
| Green Ext Time (p_c), s      | 0.1  | 18.4  |      | 0.6  | 0.0  | 7.5  |      | 0.0  |      |       |      |      |

Intersection Summary

HCM 7th Control Delay, s/veh 33.8  
HCM 7th LOS C

Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 24: Eckstrom Ave./Charger Blvd. & Balboa Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL     | EBT     | EBR  | WBL     | WBT     | WBR     | NBL     | NBT     | NBR     | SBL     | SBT     | SBR     |
|------------------------------|---------|---------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Lane Configurations          | ↰ ↱ ↲ ↳ | ↰ ↱ ↲ ↳ |      | ↰ ↱ ↲ ↳ | ↰ ↱ ↲ ↳ | ↰ ↱ ↲ ↳ | ↰ ↱ ↲ ↳ | ↰ ↱ ↲ ↳ | ↰ ↱ ↲ ↳ | ↰ ↱ ↲ ↳ | ↰ ↱ ↲ ↳ | ↰ ↱ ↲ ↳ |
| Traffic Volume (veh/h)       | 40      | 1840    | 130  | 310     | 1580    | 200     | 120     | 90      | 440     | 280     | 140     | 50      |
| Future Volume (veh/h)        | 40      | 1840    | 130  | 310     | 1580    | 200     | 120     | 90      | 440     | 280     | 140     | 50      |
| Initial Q (Qb), veh          | 0       | 0       | 0    | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| Lane Width Adj.              | 1.00    | 1.00    | 1.00 | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |
| Ped-Bike Adj(A_pbT)          | 1.00    |         | 0.99 | 1.00    |         | 0.97    | 1.00    |         | 0.98    | 1.00    |         | 0.92    |
| Parking Bus, Adj             | 1.00    | 1.00    | 1.00 | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |
| Work Zone On Approach        | No      |         |      | No      |         |         | No      |         |         | No      |         |         |
| Adj Sat Flow, veh/h/ln       | 1870    | 1870    | 1870 | 1856    | 1856    | 1856    | 1870    | 1870    | 1870    | 1870    | 1870    | 1870    |
| Adj Flow Rate, veh/h         | 42      | 1917    | 126  | 326     | 1663    | 169     | 111     | 117     | 332     | 295     | 147     | 48      |
| Peak Hour Factor             | 0.96    | 0.96    | 0.96 | 0.95    | 0.95    | 0.95    | 0.95    | 0.95    | 0.95    | 0.95    | 0.95    | 0.95    |
| Percent Heavy Veh, %         | 2       | 2       | 2    | 3       | 3       | 3       | 2       | 2       | 2       | 2       | 2       | 2       |
| Cap, veh/h                   | 54      | 2025    | 133  | 323     | 2870    | 868     | 121     | 127     | 792     | 348     | 257     | 84      |
| Arrive On Green              | 0.06    | 0.83    | 0.83 | 0.18    | 0.57    | 0.57    | 0.07    | 0.07    | 0.07    | 0.20    | 0.20    | 0.20    |
| Sat Flow, veh/h              | 1781    | 4892    | 320  | 1767    | 5066    | 1532    | 1781    | 1870    | 3122    | 1781    | 1317    | 430     |
| Grp Volume(v), veh/h         | 42      | 1332    | 711  | 326     | 1663    | 169     | 111     | 117     | 332     | 295     | 0       | 195     |
| Grp Sat Flow(s), veh/h/ln    | 1781    | 1702    | 1809 | 1767    | 1689    | 1532    | 1781    | 1870    | 1561    | 1781    | 0       | 1748    |
| Q Serve(g_s), s              | 3.3     | 43.3    | 44.4 | 25.6    | 29.7    | 7.5     | 8.7     | 8.7     | 9.5     | 22.4    | 0.0     | 14.1    |
| Cycle Q Clear(g_c), s        | 3.3     | 43.3    | 44.4 | 25.6    | 29.7    | 7.5     | 8.7     | 8.7     | 9.5     | 22.4    | 0.0     | 14.1    |
| Prop In Lane                 | 1.00    |         | 0.18 | 1.00    |         | 1.00    | 1.00    |         | 1.00    | 1.00    |         | 0.25    |
| Lane Grp Cap(c), veh/h       | 54      | 1409    | 749  | 323     | 2870    | 868     | 121     | 127     | 792     | 348     | 0       | 341     |
| V/C Ratio(X)                 | 0.78    | 0.95    | 0.95 | 1.01    | 0.58    | 0.19    | 0.92    | 0.92    | 0.42    | 0.85    | 0.00    | 0.57    |
| Avail Cap(c_a), veh/h        | 113     | 1409    | 749  | 323     | 2870    | 868     | 121     | 127     | 792     | 396     | 0       | 388     |
| HCM Platoon Ratio            | 2.00    | 2.00    | 2.00 | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |
| Upstream Filter(I)           | 0.48    | 0.48    | 0.48 | 0.67    | 0.67    | 0.67    | 1.00    | 1.00    | 1.00    | 1.00    | 0.00    | 1.00    |
| Uniform Delay (d), s/veh     | 65.3    | 10.8    | 10.9 | 57.2    | 19.6    | 14.8    | 64.9    | 64.9    | 44.0    | 54.3    | 0.0     | 51.0    |
| Incr Delay (d2), s/veh       | 4.4     | 8.0     | 13.7 | 43.2    | 0.6     | 0.3     | 56.8    | 56.0    | 0.3     | 12.9    | 0.0     | 0.6     |
| Initial Q Delay(d3), s/veh   | 0.0     | 0.0     | 0.0  | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| %ile BackOfQ(50%),veh/ln     | 1.5     | 5.8     | 7.4  | 15.0    | 11.1    | 2.6     | 5.9     | 6.1     | 4.9     | 11.3    | 0.0     | 6.3     |
| Unsig. Movement Delay, s/veh |         |         |      |         |         |         |         |         |         |         |         |         |
| LnGrp Delay(d), s/veh        | 69.7    | 18.8    | 24.5 | 100.4   | 20.2    | 15.1    | 121.6   | 120.9   | 44.2    | 67.2    | 0.0     | 51.6    |
| LnGrp LOS                    | E       | B       | C    | F       | C       | B       | F       | F       | D       | E       |         | D       |
| Approach Vol, veh/h          | 2085    |         |      | 2158    |         |         | 560     |         |         | 490     |         |         |
| Approach Delay, s/veh        | 21.7    |         |      | 31.9    |         |         | 75.6    |         |         | 61.0    |         |         |
| Approach LOS                 | C       |         |      | C       |         |         | E       |         |         | E       |         |         |
| Timer - Assigned Phs         | 1       | 2       |      | 4       | 5       | 6       |         | 8       |         |         |         |         |
| Phs Duration (G+Y+Rc), s     | 30.0    | 63.4    |      | 14.4    | 8.6     | 84.7    |         | 32.2    |         |         |         |         |
| Change Period (Y+Rc), s      | 4.4     | * 5.4   |      | 4.9     | 4.4     | 5.4     |         | 4.9     |         |         |         |         |
| Max Green Setting (Gmax), s  | 25.6    | * 54    |      | 9.5     | 8.9     | 70.9    |         | 31.1    |         |         |         |         |
| Max Q Clear Time (g_c+Y), s  | 27.6    | 46.4    |      | 11.5    | 5.3     | 31.7    |         | 24.4    |         |         |         |         |
| Green Ext Time (p_c), s      | 0.0     | 7.5     |      | 0.0     | 0.0     | 23.9    |         | 0.8     |         |         |         |         |

## Intersection Summary

HCM 7th Control Delay, s/veh 35.2  
HCM 7th LOS D

## Notes

User approved volume balancing among the lanes for turning movement.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 25: I-805 SB Ramps & Balboa Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                                                                                                           | EBL | EBT | EBR | WBL  | WBT  | WBR  | NBL | NBT | NBR | SBL  | SBT  | SBR  |
|--------------------------------------------------------------------------------------------------------------------|-----|-----|-----|------|------|------|-----|-----|-----|------|------|------|
| Lane Configurations                                                                                                |     |     |     |      | ↑↑↑↑ | ↑    |     |     |     |      | ↑    | ↑↑↑  |
| Traffic Volume (veh/h)                                                                                             | 0   | 0   | 0   | 0    | 1800 | 280  | 0   | 0   | 430 | 0    | 1    | 330  |
| Future Volume (veh/h)                                                                                              | 0   | 0   | 0   | 0    | 1800 | 280  | 0   | 0   | 430 | 0    | 1    | 330  |
| Initial Q (Qb), veh                                                                                                |     |     |     | 0    | 0    | 0    |     |     |     | 0    | 0    | 0    |
| Lane Width Adj.                                                                                                    |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)                                                                                                |     |     |     | 1.00 |      | 1.00 |     |     |     | 1.00 |      | 0.98 |
| Parking Bus, Adj                                                                                                   |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach                                                                                              |     |     |     | No   |      |      |     |     |     | No   |      |      |
| Adj Sat Flow, veh/h/ln                                                                                             |     |     |     | 0    | 1841 | 1841 |     |     |     | 0    | 1870 | 1870 |
| Adj Flow Rate, veh/h                                                                                               |     |     |     | 0    | 1895 | 0    |     |     |     | 0    | 1    | 267  |
| Peak Hour Factor                                                                                                   |     |     |     | 0.95 | 0.95 | 0.95 |     |     |     | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %                                                                                               |     |     |     | 0    | 4    | 4    |     |     |     | 0    | 2    | 2    |
| Cap, veh/h                                                                                                         |     |     |     | 0    | 2686 |      |     |     |     | 0    | 265  | 387  |
| Arrive On Green                                                                                                    |     |     |     | 0.00 | 0.53 | 0.00 |     |     |     | 0.00 | 0.14 | 0.14 |
| Sat Flow, veh/h                                                                                                    |     |     |     | 0    | 5191 | 1560 |     |     |     | 0    | 1870 | 2727 |
| Grp Volume(v), veh/h                                                                                               |     |     |     | 0    | 1895 | 0    |     |     |     | 0    | 1    | 267  |
| Grp Sat Flow(s),veh/h/ln                                                                                           |     |     |     | 0    | 1675 | 1560 |     |     |     | 0    | 1870 | 1364 |
| Q Serve(g_s), s                                                                                                    |     |     |     | 0.0  | 9.5  | 0.0  |     |     |     | 0.0  | 0.0  | 3.1  |
| Cycle Q Clear(g_c), s                                                                                              |     |     |     | 0.0  | 9.5  | 0.0  |     |     |     | 0.0  | 0.0  | 3.1  |
| Prop In Lane                                                                                                       |     |     |     | 0.00 |      | 1.00 |     |     |     | 0.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h                                                                                             |     |     |     | 0    | 2686 |      |     |     |     | 0    | 265  | 387  |
| V/C Ratio(X)                                                                                                       |     |     |     | 0.00 | 0.71 |      |     |     |     | 0.00 | 0.00 | 0.69 |
| Avail Cap(c_a), veh/h                                                                                              |     |     |     | 0    | 3313 |      |     |     |     | 0    | 383  | 559  |
| HCM Platoon Ratio                                                                                                  |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)                                                                                                 |     |     |     | 0.00 | 1.00 | 0.00 |     |     |     | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh                                                                                           |     |     |     | 0.0  | 5.9  | 0.0  |     |     |     | 0.0  | 12.4 | 13.7 |
| Incr Delay (d2), s/veh                                                                                             |     |     |     | 0.0  | 0.3  | 0.0  |     |     |     | 0.0  | 0.0  | 0.8  |
| Initial Q Delay(d3), s/veh                                                                                         |     |     |     | 0.0  | 0.0  | 0.0  |     |     |     | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln                                                                                           |     |     |     | 0.0  | 0.9  | 0.0  |     |     |     | 0.0  | 0.0  | 0.8  |
| Unsig. Movement Delay, s/veh                                                                                       |     |     |     |      |      |      |     |     |     |      |      |      |
| LnGrp Delay(d), s/veh                                                                                              |     |     |     | 0.0  | 6.2  | 0.0  |     |     |     | 0.0  | 12.4 | 14.6 |
| LnGrp LOS                                                                                                          |     |     |     |      | A    |      |     |     |     |      | B    | B    |
| Approach Vol, veh/h                                                                                                |     |     |     |      | 1895 |      |     |     |     |      | 268  |      |
| Approach Delay, s/veh                                                                                              |     |     |     |      | 6.2  |      |     |     |     |      | 14.6 |      |
| Approach LOS                                                                                                       |     |     |     |      | A    |      |     |     |     |      | B    |      |
| Timer - Assigned Phs                                                                                               |     |     |     | 4    |      | 6    |     |     |     |      |      |      |
| Phs Duration (G+Y+Rc), s                                                                                           |     |     |     | 9.9  |      | 23.8 |     |     |     |      |      |      |
| Change Period (Y+Rc), s                                                                                            |     |     |     | 5.1  |      | 5.8  |     |     |     |      |      |      |
| Max Green Setting (Gmax), s                                                                                        |     |     |     | 6.9  |      | 22.2 |     |     |     |      |      |      |
| Max Q Clear Time (g_c+l1), s                                                                                       |     |     |     | 5.1  |      | 11.5 |     |     |     |      |      |      |
| Green Ext Time (p_c), s                                                                                            |     |     |     | 0.1  |      | 6.5  |     |     |     |      |      |      |
| <b>Intersection Summary</b>                                                                                        |     |     |     |      |      |      |     |     |     |      |      |      |
| HCM 7th Control Delay, s/veh                                                                                       |     |     |     | 7.2  |      |      |     |     |     |      |      |      |
| HCM 7th LOS                                                                                                        |     |     |     | A    |      |      |     |     |     |      |      |      |
| <b>Notes</b>                                                                                                       |     |     |     |      |      |      |     |     |     |      |      |      |
| Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay. |     |     |     |      |      |      |     |     |     |      |      |      |

HCM 7th Signalized Intersection Summary  
26: I-805 NB Ramps & Balboa Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                                                                                                           | EBL  | EBT  | EBR  | WBL | WBT | WBR | NBL  | NBT  | NBR  | SBL | SBT | SBR |
|--------------------------------------------------------------------------------------------------------------------|------|------|------|-----|-----|-----|------|------|------|-----|-----|-----|
| Lane Configurations                                                                                                |      | ↑↑↑↑ | ↗    |     |     |     |      | ↑    | ↗↗   |     |     |     |
| Traffic Volume (veh/h)                                                                                             | 0    | 1620 | 860  | 0   | 0   | 0   | 0    | 1    | 460  | 0   | 0   | 380 |
| Future Volume (veh/h)                                                                                              | 0    | 1620 | 860  | 0   | 0   | 0   | 0    | 1    | 460  | 0   | 0   | 380 |
| Initial Q (Qb), veh                                                                                                | 0    | 0    | 0    |     |     |     | 0    | 0    | 0    |     |     |     |
| Lane Width Adj.                                                                                                    | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Ped-Bike Adj(A_pbT)                                                                                                | 1.00 |      | 1.00 |     |     |     | 1.00 |      | 1.00 |     |     |     |
| Parking Bus, Adj                                                                                                   | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Work Zone On Approach                                                                                              | No   |      |      |     |     |     | No   |      |      |     |     |     |
| Adj Sat Flow, veh/h/ln                                                                                             | 0    | 1841 | 1841 |     |     |     | 0    | 1870 | 1870 |     |     |     |
| Adj Flow Rate, veh/h                                                                                               | 0    | 1653 | 0    |     |     |     | 0    | 1    | 404  |     |     |     |
| Peak Hour Factor                                                                                                   | 0.98 | 0.98 | 0.98 |     |     |     | 0.95 | 0.95 | 0.95 |     |     |     |
| Percent Heavy Veh, %                                                                                               | 0    | 4    | 4    |     |     |     | 0    | 2    | 2    |     |     |     |
| Cap, veh/h                                                                                                         | 0    | 2388 |      |     |     |     | 0    | 372  | 555  |     |     |     |
| Arrive On Green                                                                                                    | 0.00 | 0.48 | 0.00 |     |     |     | 0.00 | 0.20 | 0.20 |     |     |     |
| Sat Flow, veh/h                                                                                                    | 0    | 5191 | 1560 |     |     |     | 0    | 1870 | 2790 |     |     |     |
| Grp Volume(v), veh/h                                                                                               | 0    | 1653 | 0    |     |     |     | 0    | 1    | 404  |     |     |     |
| Grp Sat Flow(s),veh/h/ln                                                                                           | 0    | 1675 | 1560 |     |     |     | 0    | 1870 | 1395 |     |     |     |
| Q Serve(g_s), s                                                                                                    | 0.0  | 8.6  | 0.0  |     |     |     | 0.0  | 0.0  | 4.5  |     |     |     |
| Cycle Q Clear(g_c), s                                                                                              | 0.0  | 8.6  | 0.0  |     |     |     | 0.0  | 0.0  | 4.5  |     |     |     |
| Prop In Lane                                                                                                       | 0.00 |      | 1.00 |     |     |     | 0.00 |      | 1.00 |     |     |     |
| Lane Grp Cap(c), veh/h                                                                                             | 0    | 2388 |      |     |     |     | 0    | 372  | 555  |     |     |     |
| V/C Ratio(X)                                                                                                       | 0.00 | 0.69 |      |     |     |     | 0.00 | 0.00 | 0.73 |     |     |     |
| Avail Cap(c_a), veh/h                                                                                              | 0    | 3035 |      |     |     |     | 0    | 498  | 742  |     |     |     |
| HCM Platoon Ratio                                                                                                  | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Upstream Filter(I)                                                                                                 | 0.00 | 1.00 | 0.00 |     |     |     | 0.00 | 1.00 | 1.00 |     |     |     |
| Uniform Delay (d), s/veh                                                                                           | 0.0  | 6.9  | 0.0  |     |     |     | 0.0  | 10.7 | 12.5 |     |     |     |
| Incr Delay (d2), s/veh                                                                                             | 0.0  | 0.3  | 0.0  |     |     |     | 0.0  | 0.0  | 1.4  |     |     |     |
| Initial Q Delay(d3), s/veh                                                                                         | 0.0  | 0.0  | 0.0  |     |     |     | 0.0  | 0.0  | 0.0  |     |     |     |
| %ile BackOfQ(50%),veh/ln                                                                                           | 0.0  | 1.1  | 0.0  |     |     |     | 0.0  | 0.0  | 1.2  |     |     |     |
| Unsig. Movement Delay, s/veh                                                                                       |      |      |      |     |     |     |      |      |      |     |     |     |
| LnGrp Delay(d), s/veh                                                                                              | 0.0  | 7.1  | 0.0  |     |     |     | 0.0  | 10.7 | 13.9 |     |     |     |
| LnGrp LOS                                                                                                          | A    |      |      |     |     |     | B    |      |      | B   |     |     |
| Approach Vol, veh/h                                                                                                | 1653 |      |      |     |     |     | 405  |      |      |     |     |     |
| Approach Delay, s/veh                                                                                              | 7.1  |      |      |     |     |     | 13.9 |      |      |     |     |     |
| Approach LOS                                                                                                       | A    |      |      |     |     |     | B    |      |      |     |     |     |
| Timer - Assigned Phs                                                                                               |      | 2    |      |     |     |     | 8    |      |      |     |     |     |
| Phs Duration (G+Y+Rc), s                                                                                           | 21.7 |      |      |     |     |     | 11.8 |      |      |     |     |     |
| Change Period (Y+Rc), s                                                                                            | 5.8  |      |      |     |     |     | 5.1  |      |      |     |     |     |
| Max Green Setting (Gmax), s                                                                                        | 20.2 |      |      |     |     |     | 8.9  |      |      |     |     |     |
| Max Q Clear Time (g_c+I1), s                                                                                       | 10.6 |      |      |     |     |     | 6.5  |      |      |     |     |     |
| Green Ext Time (p_c), s                                                                                            | 5.3  |      |      |     |     |     | 0.3  |      |      |     |     |     |
| Intersection Summary                                                                                               |      |      |      |     |     |     |      |      |      |     |     |     |
| HCM 7th Control Delay, s/veh                                                                                       |      | 8.5  |      |     |     |     |      |      |      |     |     |     |
| HCM 7th LOS                                                                                                        |      | A    |      |     |     |     |      |      |      |     |     |     |
| Notes                                                                                                              |      |      |      |     |     |     |      |      |      |     |     |     |
| Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay. |      |      |      |     |     |     |      |      |      |     |     |     |

# HCM 7th Signalized Intersection Summary 27: Clairemont Dr. & Balboa Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                      | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               | SBR                                                                                |
|-------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Lane Configurations           |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)        | 250                                                                               | 900                                                                               | 150                                                                               | 480                                                                               | 860                                                                               | 200                                                                               | 250                                                                               | 400                                                                               | 420                                                                               | 250                                                                               | 350                                                                               | 380                                                                                |
| Future Volume (veh/h)         | 250                                                                               | 900                                                                               | 150                                                                               | 480                                                                               | 860                                                                               | 200                                                                               | 250                                                                               | 400                                                                               | 420                                                                               | 250                                                                               | 350                                                                               | 380                                                                                |
| Initial Q (Qb), veh           | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Lane Width Adj.               | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Ped-Bike Adj(A_pbT)           | 1.00                                                                              |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                               |
| Parking Bus, Adj              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Work Zone On Approach         | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    |
| Adj Sat Flow, veh/h/ln        | 1856                                                                              | 1856                                                                              | 1856                                                                              | 1856                                                                              | 1856                                                                              | 1856                                                                              | 1841                                                                              | 1841                                                                              | 1841                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               |
| Adj Flow Rate, veh/h          | 263                                                                               | 947                                                                               | 142                                                                               | 505                                                                               | 905                                                                               | 190                                                                               | 263                                                                               | 421                                                                               | 442                                                                               | 263                                                                               | 368                                                                               | 360                                                                                |
| Peak Hour Factor              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               |
| Percent Heavy Veh, %          | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 4                                                                                 | 4                                                                                 | 4                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  |
| Cap, veh/h                    | 389                                                                               | 965                                                                               | 411                                                                               | 556                                                                               | 1078                                                                              | 465                                                                               | 276                                                                               | 932                                                                               | 659                                                                               | 231                                                                               | 848                                                                               | 549                                                                                |
| Arrive On Green               | 0.11                                                                              | 0.27                                                                              | 0.27                                                                              | 0.16                                                                              | 0.31                                                                              | 0.31                                                                              | 0.16                                                                              | 0.27                                                                              | 0.27                                                                              | 0.13                                                                              | 0.24                                                                              | 0.24                                                                               |
| Sat Flow, veh/h               | 3428                                                                              | 3526                                                                              | 1503                                                                              | 3428                                                                              | 3526                                                                              | 1522                                                                              | 1753                                                                              | 3497                                                                              | 1523                                                                              | 1781                                                                              | 3554                                                                              | 1549                                                                               |
| Grp Volume(v), veh/h          | 263                                                                               | 947                                                                               | 142                                                                               | 505                                                                               | 905                                                                               | 190                                                                               | 263                                                                               | 421                                                                               | 442                                                                               | 263                                                                               | 368                                                                               | 360                                                                                |
| Grp Sat Flow(s),veh/h/ln      | 1714                                                                              | 1763                                                                              | 1503                                                                              | 1714                                                                              | 1763                                                                              | 1522                                                                              | 1753                                                                              | 1749                                                                              | 1523                                                                              | 1781                                                                              | 1777                                                                              | 1549                                                                               |
| Q Serve(g_s), s               | 8.7                                                                               | 31.5                                                                              | 8.9                                                                               | 17.1                                                                              | 28.3                                                                              | 8.0                                                                               | 17.5                                                                              | 11.8                                                                              | 27.6                                                                              | 15.3                                                                              | 10.4                                                                              | 7.0                                                                                |
| Cycle Q Clear(g_c), s         | 8.7                                                                               | 31.5                                                                              | 8.9                                                                               | 17.1                                                                              | 28.3                                                                              | 8.0                                                                               | 17.5                                                                              | 11.8                                                                              | 27.6                                                                              | 15.3                                                                              | 10.4                                                                              | 7.0                                                                                |
| Prop In Lane                  | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                               |
| Lane Grp Cap(c), veh/h        | 389                                                                               | 965                                                                               | 411                                                                               | 556                                                                               | 1078                                                                              | 465                                                                               | 276                                                                               | 932                                                                               | 659                                                                               | 231                                                                               | 848                                                                               | 549                                                                                |
| V/C Ratio(X)                  | 0.68                                                                              | 0.98                                                                              | 0.35                                                                              | 0.91                                                                              | 0.84                                                                              | 0.41                                                                              | 0.95                                                                              | 0.45                                                                              | 0.67                                                                              | 1.14                                                                              | 0.43                                                                              | 0.66                                                                               |
| Avail Cap(c_a), veh/h         | 389                                                                               | 965                                                                               | 411                                                                               | 569                                                                               | 1362                                                                              | 588                                                                               | 276                                                                               | 978                                                                               | 679                                                                               | 231                                                                               | 894                                                                               | 570                                                                                |
| HCM Platoon Ratio             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Upstream Filter(I)            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Uniform Delay (d), s/veh      | 50.2                                                                              | 42.6                                                                              | 34.4                                                                              | 48.6                                                                              | 38.3                                                                              | 15.1                                                                              | 49.3                                                                              | 36.1                                                                              | 27.1                                                                              | 51.4                                                                              | 38.2                                                                              | 12.8                                                                               |
| Incr Delay (d2), s/veh        | 3.8                                                                               | 24.4                                                                              | 0.6                                                                               | 17.7                                                                              | 3.9                                                                               | 0.6                                                                               | 40.7                                                                              | 0.2                                                                               | 2.2                                                                               | 101.7                                                                             | 0.3                                                                               | 2.4                                                                                |
| Initial Q Delay(d3), s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                |
| %ile BackOfQ(50%),veh/ln      | 8.8                                                                               | 16.4                                                                              | 3.3                                                                               | 8.4                                                                               | 12.3                                                                              | 2.8                                                                               | 10.7                                                                              | 5.0                                                                               | 10.1                                                                              | 13.3                                                                              | 4.5                                                                               | 4.4                                                                                |
| Unsig. Movement Delay, s/veh  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| LnGrp Delay(d), s/veh         | 54.0                                                                              | 67.0                                                                              | 35.0                                                                              | 66.2                                                                              | 42.2                                                                              | 15.7                                                                              | 90.0                                                                              | 36.3                                                                              | 29.3                                                                              | 153.1                                                                             | 38.4                                                                              | 15.2                                                                               |
| LnGrp LOS                     | D                                                                                 | E                                                                                 | C                                                                                 | E                                                                                 | D                                                                                 | B                                                                                 | F                                                                                 | D                                                                                 | C                                                                                 | F                                                                                 | D                                                                                 | B                                                                                  |
| Approach Vol, veh/h           | 1352                                                                              |                                                                                   |                                                                                   | 1600                                                                              |                                                                                   |                                                                                   | 1126                                                                              |                                                                                   |                                                                                   | 991                                                                               |                                                                                   |                                                                                    |
| Approach Delay, s/veh         | 61.1                                                                              |                                                                                   |                                                                                   | 46.6                                                                              |                                                                                   |                                                                                   | 46.1                                                                              |                                                                                   |                                                                                   | 60.4                                                                              |                                                                                   |                                                                                    |
| Approach LOS                  | E                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                    |
| Timer - Assigned Phs          | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Phs Duration (G+Y+Rc), s      | 33.6                                                                              | 38.0                                                                              | 23.0                                                                              | 33.5                                                                              | 19.1                                                                              | 42.5                                                                              | 19.7                                                                              | 36.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Change Period (Y+Rc), s       | 4.4                                                                               | 5.7                                                                               | 4.4                                                                               | 5.3                                                                               | 5.7                                                                               | * 6.4                                                                             | 4.4                                                                               | 5.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Max Green Setting (Gmax), s   | 19.6                                                                              | 32.3                                                                              | 18.6                                                                              | 29.7                                                                              | 5.6                                                                               | * 46                                                                              | 15.3                                                                              | 33.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Max Q Clear Time (g_c+1/9), s | 19.6                                                                              | 33.5                                                                              | 19.5                                                                              | 12.4                                                                              | 10.7                                                                              | 30.3                                                                              | 17.3                                                                              | 29.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Green Ext Time (p_c), s       | 0.1                                                                               | 0.0                                                                               | 0.0                                                                               | 2.9                                                                               | 0.0                                                                               | 5.8                                                                               | 0.0                                                                               | 1.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    |

## Intersection Summary

HCM 7th Control Delay, s/veh 53.1  
HCM 7th LOS D

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



HCM 7th TWSC  
28: I-5 SB Ramps/I-5 SB Loop On Ramp & Clairemont Dr.

Proposed Plan Conditions  
AM Peak Hour

| Intersection             |      |      |      |      |      |      |      |      |       |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| Int Delay, s/veh         | 9.6  |      |      |      |      |      |      |      |       |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR   | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↑↑   |      |      | ↑↑   | ↑    | ↑    |      | ↑     |      |      |      |
| Traffic Vol, veh/h       | 0    | 280  | 110  | 0    | 300  | 830  | 90   | 0    | 560   | 0    | 0    | 0    |
| Future Vol, veh/h        | 0    | 280  | 110  | 0    | 300  | 830  | 90   | 0    | 560   | 0    | 0    | 0    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop  | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | Free | -    | -    | Yield | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | 90   | 0    | -    | 200   | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 1    | -     | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -     | -    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95    | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2     | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 295  | 116  | 0    | 316  | 874  | 95   | 0    | 589   | 0    | 0    | 0    |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |   |      |
|----------------------|--------|---|---|--------|---|---|--------|---|------|
| Conflicting Flow All | -      | 0 | 0 | -      | - | 0 | 511    | - | 205  |
| Stage 1              | -      | - | - | -      | - | - | 353    | - | -    |
| Stage 2              | -      | - | - | -      | - | - | 158    | - | -    |
| Critical Hdwy        | -      | - | - | -      | - | - | 6.84   | - | 6.94 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 5.84   | - | -    |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 5.84   | - | -    |
| Follow-up Hdwy       | -      | - | - | -      | - | - | 3.52   | - | 3.32 |
| Pot Cap-1 Maneuver   | 0      | - | - | 0      | - | 0 | 492    | 0 | 801  |
| Stage 1              | 0      | - | - | 0      | - | 0 | 682    | 0 | -    |
| Stage 2              | 0      | - | - | 0      | - | 0 | 854    | 0 | -    |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | - | -    |
| Mov Cap-1 Maneuver   | -      | - | - | -      | - | - | 492    | 0 | 801  |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 563    | 0 | -    |
| Stage 1              | -      | - | - | -      | - | - | 682    | 0 | -    |
| Stage 2              | -      | - | - | -      | - | - | 854    | 0 | -    |

| Approach          | EB | WB | NB    |
|-------------------|----|----|-------|
| HCM Ctrl Dly, s/v | 0  | 0  | 19.77 |
| HCM LOS           | C  |    |       |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBT |
|-----------------------|-------|-------|-----|-----|-----|
| Capacity (veh/h)      | 563   | 801   | -   | -   | -   |
| HCM Lane V/C Ratio    | 0.168 | 0.736 | -   | -   | -   |
| HCM Ctrl Dly (s/v)    | 12.7  | 20.9  | -   | -   | -   |
| HCM Lane LOS          | B     | C     | -   | -   | -   |
| HCM 95th %tile Q(veh) | 0.6   | 6.7   | -   | -   | -   |

HCM 7th Signalized Intersection Summary  
29: I-5 NB Off Ramp/I-5 NB On Ramp & Clairemont Dr.

Proposed Plan Conditions  
AM Peak Hour

|                                                                      |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                             | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                  |  |  |                                                                                   |                                                                                   |  |  |                                                                                    |  |  |                                                                                     |                                                                                     |                                                                                     |
| Traffic Volume (veh/h)                                               | 290                                                                               | 400                                                                               | 0                                                                                 | 0                                                                                 | 970                                                                               | 760                                                                               | 160                                                                                | 10                                                                                  | 450                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Future Volume (veh/h)                                                | 290                                                                               | 400                                                                               | 0                                                                                 | 0                                                                                 | 970                                                                               | 760                                                                               | 160                                                                                | 10                                                                                  | 450                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Initial Q (Qb), veh                                                  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane Width Adj.                                                      | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Ped-Bike Adj(A_pbT)                                                  | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Parking Bus, Adj                                                     | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Work Zone On Approach                                                | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                               | 1870                                                                              | 1870                                                                              | 0                                                                                 | 0                                                                                 | 1841                                                                              | 1841                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Adj Flow Rate, veh/h                                                 | 305                                                                               | 421                                                                               | 0                                                                                 | 0                                                                                 | 1071                                                                              | 527                                                                               | 168                                                                                | 11                                                                                  | 474                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor                                                     | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Percent Heavy Veh, %                                                 | 2                                                                                 | 2                                                                                 | 0                                                                                 | 0                                                                                 | 4                                                                                 | 4                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Cap, veh/h                                                           | 289                                                                               | 2086                                                                              | 0                                                                                 | 0                                                                                 | 1403                                                                              | 577                                                                               | 526                                                                                | 34                                                                                  | 497                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Arrive On Green                                                      | 0.16                                                                              | 0.59                                                                              | 0.00                                                                              | 0.00                                                                              | 0.38                                                                              | 0.38                                                                              | 0.31                                                                               | 0.31                                                                                | 0.31                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Sat Flow, veh/h                                                      | 1781                                                                              | 3647                                                                              | 0                                                                                 | 0                                                                                 | 3681                                                                              | 1513                                                                              | 1677                                                                               | 110                                                                                 | 1585                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Grp Volume(v), veh/h                                                 | 305                                                                               | 421                                                                               | 0                                                                                 | 0                                                                                 | 1071                                                                              | 527                                                                               | 179                                                                                | 0                                                                                   | 474                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Grp Sat Flow(s),veh/h/ln                                             | 1781                                                                              | 1777                                                                              | 0                                                                                 | 0                                                                                 | 1841                                                                              | 1513                                                                              | 1787                                                                               | 0                                                                                   | 1585                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Q Serve(g_s), s                                                      | 17.3                                                                              | 5.9                                                                               | 0.0                                                                               | 0.0                                                                               | 27.1                                                                              | 35.3                                                                              | 8.2                                                                                | 0.0                                                                                 | 31.3                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Cycle Q Clear(g_c), s                                                | 17.3                                                                              | 5.9                                                                               | 0.0                                                                               | 0.0                                                                               | 27.1                                                                              | 35.3                                                                              | 8.2                                                                                | 0.0                                                                                 | 31.3                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Prop In Lane                                                         | 1.00                                                                              |                                                                                   | 0.00                                                                              | 0.00                                                                              |                                                                                   | 1.00                                                                              | 0.94                                                                               |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Lane Grp Cap(c), veh/h                                               | 289                                                                               | 2086                                                                              | 0                                                                                 | 0                                                                                 | 1403                                                                              | 577                                                                               | 560                                                                                | 0                                                                                   | 497                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| V/C Ratio(X)                                                         | 1.06                                                                              | 0.20                                                                              | 0.00                                                                              | 0.00                                                                              | 0.76                                                                              | 0.91                                                                              | 0.32                                                                               | 0.00                                                                                | 0.95                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Avail Cap(c_a), veh/h                                                | 289                                                                               | 2180                                                                              | 0                                                                                 | 0                                                                                 | 1500                                                                              | 616                                                                               | 567                                                                                | 0                                                                                   | 503                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| HCM Platoon Ratio                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Upstream Filter(I)                                                   | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Uniform Delay (d), s/veh                                             | 44.7                                                                              | 10.3                                                                              | 0.0                                                                               | 0.0                                                                               | 28.8                                                                              | 31.4                                                                              | 28.0                                                                               | 0.0                                                                                 | 35.9                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Incr Delay (d2), s/veh                                               | 68.8                                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 1.9                                                                               | 16.9                                                                              | 0.3                                                                                | 0.0                                                                                 | 28.5                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Initial Q Delay(d3), s/veh                                           | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| %ile BackOfQ(50%),veh/ln                                             | 13.0                                                                              | 2.2                                                                               | 0.0                                                                               | 0.0                                                                               | 11.9                                                                              | 15.0                                                                              | 3.5                                                                                | 0.0                                                                                 | 27.6                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Unsig. Movement Delay, s/veh                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                | 113.5                                                                             | 10.3                                                                              | 0.0                                                                               | 0.0                                                                               | 30.8                                                                              | 48.3                                                                              | 28.3                                                                               | 0.0                                                                                 | 64.4                                                                                |                                                                                     |                                                                                     |                                                                                     |
| LnGrp LOS                                                            | F                                                                                 | B                                                                                 |                                                                                   |                                                                                   | C                                                                                 | D                                                                                 | C                                                                                  |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Vol, veh/h                                                  | 726                                                                               |                                                                                   |                                                                                   | 1598                                                                              |                                                                                   |                                                                                   | 653                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                | 53.7                                                                              |                                                                                   |                                                                                   | 36.6                                                                              |                                                                                   |                                                                                   | 54.5                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                                                         | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                 | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   | 5                                                                                 | 6                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                             | 68.2                                                                              |                                                                                   |                                                                                   | 38.6                                                                              |                                                                                   | 22.0                                                                              | 46.2                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                              | 5.5                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   | 4.7                                                                               | 5.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                          | 65.5                                                                              |                                                                                   |                                                                                   | 33.9                                                                              |                                                                                   | 17.3                                                                              | 43.5                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                         | 7.9                                                                               |                                                                                   |                                                                                   | 33.3                                                                              |                                                                                   | 19.3                                                                              | 37.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                              | 1.9                                                                               |                                                                                   |                                                                                   | 0.2                                                                               |                                                                                   | 0.0                                                                               | 3.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                         | 44.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                          | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| User approved volume balancing among the lanes for turning movement. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary

## 30: Denver St. & Clairemont Dr.

Proposed Plan Conditions  
AM Peak Hour



| Movement                      | EBL   | EBT   | EBR  | WBL   | WBT  | WBR  | NBL   | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|-------|-------|------|-------|------|------|-------|------|------|------|------|------|
| Lane Configurations           |       |       |      |       |      |      |       |      |      |      |      |      |
| Traffic Volume (veh/h)        | 140   | 710   | 220  | 140   | 1150 | 50   | 250   | 60   | 100  | 110  | 60   | 300  |
| Future Volume (veh/h)         | 140   | 710   | 220  | 140   | 1150 | 50   | 250   | 60   | 100  | 110  | 60   | 300  |
| Initial Q (Qb), veh           | 0     | 0     | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.               | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)           | 1.00  |       | 1.00 | 1.00  |      | 1.00 | 1.00  |      | 0.99 | 1.00 |      | 0.99 |
| Parking Bus, Adj              | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach         | No    |       |      | No    |      |      | No    |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln        | 1841  | 1841  | 1841 | 1826  | 1826 | 1826 | 1870  | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h          | 147   | 747   | 209  | 146   | 1198 | 42   | 263   | 63   | 94   | 116  | 63   | 284  |
| Peak Hour Factor              | 0.95  | 0.95  | 0.95 | 0.96  | 0.96 | 0.96 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %          | 4     | 4     | 4    | 5     | 5    | 5    | 2     | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                    | 135   | 1251  | 557  | 172   | 1299 | 46   | 257   | 207  | 309  | 142  | 70   | 316  |
| Arrive On Green               | 0.08  | 0.36  | 0.36 | 0.10  | 0.38 | 0.38 | 0.14  | 0.31 | 0.31 | 0.08 | 0.24 | 0.24 |
| Sat Flow, veh/h               | 1753  | 3497  | 1556 | 1739  | 3419 | 120  | 1781  | 674  | 1006 | 1781 | 294  | 1326 |
| Grp Volume(v), veh/h          | 147   | 747   | 209  | 146   | 608  | 632  | 263   | 0    | 157  | 116  | 0    | 347  |
| Grp Sat Flow(s),veh/h/ln      | 1753  | 1749  | 1556 | 1739  | 1735 | 1804 | 1781  | 0    | 1680 | 1781 | 0    | 1620 |
| Q Serve(g_s), s               | 9.6   | 21.8  | 8.0  | 10.3  | 41.8 | 41.8 | 18.0  | 0.0  | 8.9  | 8.0  | 0.0  | 25.9 |
| Cycle Q Clear(g_c), s         | 9.6   | 21.8  | 8.0  | 10.3  | 41.8 | 41.8 | 18.0  | 0.0  | 8.9  | 8.0  | 0.0  | 25.9 |
| Prop In Lane                  | 1.00  |       | 1.00 | 1.00  |      | 0.07 | 1.00  |      | 0.60 | 1.00 |      | 0.82 |
| Lane Grp Cap(c), veh/h        | 135   | 1251  | 557  | 172   | 659  | 685  | 257   | 0    | 516  | 142  | 0    | 386  |
| V/C Ratio(X)                  | 1.09  | 0.60  | 0.38 | 0.85  | 0.92 | 0.92 | 1.03  | 0.00 | 0.30 | 0.82 | 0.00 | 0.90 |
| Avail Cap(c_a), veh/h         | 135   | 1251  | 557  | 273   | 659  | 685  | 257   | 0    | 516  | 351  | 0    | 540  |
| HCM Platoon Ratio             | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)            | 0.76  | 0.76  | 0.76 | 0.43  | 0.43 | 0.43 | 1.00  | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh      | 57.7  | 32.8  | 12.2 | 55.4  | 37.0 | 37.0 | 53.5  | 0.0  | 33.1 | 56.6 | 0.0  | 46.1 |
| Incr Delay (d2), s/veh        | 94.3  | 1.6   | 1.5  | 3.5   | 10.7 | 10.4 | 62.9  | 0.0  | 0.1  | 4.4  | 0.0  | 11.2 |
| Initial Q Delay(d3), s/veh    | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 7.7   | 9.4   | 3.0  | 4.7   | 19.2 | 19.9 | 12.5  | 0.0  | 3.7  | 3.8  | 0.0  | 11.6 |
| Unsig. Movement Delay, s/veh  |       |       |      |       |      |      |       |      |      |      |      |      |
| LnGrp Delay(d), s/veh         | 152.0 | 34.4  | 13.7 | 58.9  | 47.7 | 47.4 | 116.4 | 0.0  | 33.2 | 61.0 | 0.0  | 57.4 |
| LnGrp LOS                     | F     | C     | B    | E     | D    | D    | F     |      | C    | E    |      | E    |
| Approach Vol, veh/h           | 1103  |       |      |       |      | 1386 |       | 420  |      | 463  |      |      |
| Approach Delay, s/veh         | 46.1  |       |      |       |      | 48.7 |       | 85.3 |      | 58.3 |      |      |
| Approach LOS                  | D     |       |      |       |      | D    |       | F    |      | E    |      |      |
| Timer - Assigned Phs          | 1     | 2     | 3    | 4     | 5    | 6    | 7     | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 6.7   | 50.6  | 22.9 | 34.7  | 14.0 | 53.4 | 14.3  | 43.3 |      |      |      |      |
| Change Period (Y+Rc), s       | 4.4   | * 5.9 | 4.9  | * 4.9 | 4.4  | 5.9  | 4.4   | 4.9  |      |      |      |      |
| Max Green Setting (Gmax), s   | 19.6  | * 27  | 18.0 | * 42  | 9.6  | 36.1 | 24.6  | 35.1 |      |      |      |      |
| Max Q Clear Time (g_c+1/2), s | 112.3 | 23.8  | 20.0 | 27.9  | 11.6 | 43.8 | 10.0  | 10.9 |      |      |      |      |
| Green Ext Time (p_c), s       | 0.1   | 2.0   | 0.0  | 1.3   | 0.0  | 0.0  | 0.1   | 0.6  |      |      |      |      |

### Intersection Summary

HCM 7th Control Delay, s/veh 53.7  
HCM 7th LOS D

### Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 31: Burgener Blvd. & Clairemont Dr.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBT   | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|-------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |       |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 10   | 520   | 270  | 190  | 750  | 10   | 530  | 10   | 240  | 10   | 10   | 10   |
| Future Volume (veh/h)        | 10   | 520   | 270  | 190  | 750  | 10   | 530  | 10   | 240  | 10   | 10   | 10   |
| Initial Q (Qb), veh          | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |       | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.99 | 1.00 |      | 0.96 |
| Parking Bus, Adj             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |       |      | No   |      |      | No   |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln       | 1826 | 1826  | 1826 | 1826 | 1826 | 1826 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 11   | 547   | 227  | 200  | 789  | 9    | 398  | 234  | 228  | 11   | 11   | 10   |
| Peak Hour Factor             | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 5    | 5     | 5    | 5    | 5    | 5    | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 18   | 672   | 1027 | 231  | 896  | 756  | 528  | 257  | 251  | 20   | 20   | 18   |
| Arrive On Green              | 0.01 | 0.37  | 0.37 | 0.13 | 0.49 | 0.49 | 0.30 | 0.30 | 0.30 | 0.03 | 0.03 | 0.03 |
| Sat Flow, veh/h              | 1739 | 1826  | 1541 | 1739 | 1826 | 1541 | 1781 | 867  | 845  | 591  | 591  | 537  |
| Grp Volume(v), veh/h         | 11   | 547   | 227  | 200  | 789  | 9    | 398  | 0    | 462  | 32   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1739 | 1826  | 1541 | 1739 | 1826 | 1541 | 1781 | 0    | 1712 | 1719 | 0    | 0    |
| Q Serve(g_s), s              | 0.6  | 27.8  | 5.9  | 11.6 | 39.8 | 0.3  | 20.8 | 0.0  | 26.7 | 1.9  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 0.6  | 27.8  | 5.9  | 11.6 | 39.8 | 0.3  | 20.8 | 0.0  | 26.7 | 1.9  | 0.0  | 0.0  |
| Prop In Lane                 | 1.00 |       | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.49 | 0.34 |      | 0.31 |
| Lane Grp Cap(c), veh/h       | 18   | 672   | 1027 | 231  | 896  | 756  | 528  | 0    | 508  | 58   | 0    | 0    |
| V/C Ratio(X)                 | 0.60 | 0.81  | 0.22 | 0.87 | 0.88 | 0.01 | 0.75 | 0.00 | 0.91 | 0.55 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 68   | 906   | 1224 | 305  | 1149 | 970  | 624  | 0    | 600  | 468  | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 50.6 | 29.3  | 6.8  | 43.7 | 23.5 | 13.4 | 32.7 | 0.0  | 34.8 | 48.9 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 11.3 | 4.3   | 0.1  | 14.9 | 7.5  | 0.0  | 3.4  | 0.0  | 15.0 | 3.0  | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.3  | 12.5  | 4.0  | 5.8  | 17.7 | 0.1  | 9.3  | 0.0  | 13.0 | 0.9  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |       |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 62.0 | 33.6  | 6.9  | 58.6 | 30.9 | 13.4 | 36.1 | 0.0  | 49.9 | 51.8 | 0.0  | 0.0  |
| LnGrp LOS                    | E    | C     | A    | E    | C    | B    | D    |      | D    | D    |      |      |
| Approach Vol, veh/h          | 785  |       |      | 998  |      |      | 860  |      |      | 32   |      |      |
| Approach Delay, s/veh        | 26.3 |       |      | 36.3 |      |      | 43.5 |      |      | 51.8 |      |      |
| Approach LOS                 | C    |       |      | D    |      |      | D    |      |      | D    |      |      |
| Timer - Assigned Phs         | 1    | 2     |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 7.7  | 43.2  |      | 34.5 | 5.1  | 55.7 |      | 7.5  |      |      |      |      |
| Change Period (Y+Rc), s      | 4.0  | * 5.3 |      | 4.0  | 4.0  | 5.3  |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s  | 18.0 | * 51  |      | 36.0 | 4.0  | 64.7 |      | 28.0 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 11.6 | 29.8  |      | 28.7 | 2.6  | 41.8 |      | 3.9  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.1  | 4.5   |      | 1.8  | 0.0  | 8.6  |      | 0.1  |      |      |      |      |

## Intersection Summary

HCM 7th Control Delay, s/veh 35.9  
HCM 7th LOS D

## Notes

User approved volume balancing among the lanes for turning movement.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 31.3

Intersection LOS D

| Movement            | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations |      | ↔    |      |      | ↔    | ↔    |      | ↔    | ↔    | ↔    | ↔    |      |
| Traffic Vol, veh/h  | 80   | 30   | 10   | 90   | 10   | 470  | 10   | 230  | 70   | 290  | 150  | 30   |
| Future Vol, veh/h   | 80   | 30   | 10   | 90   | 10   | 470  | 10   | 230  | 70   | 290  | 150  | 30   |
| Peak Hour Factor    | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Heavy Vehicles, %   | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow           | 84   | 32   | 11   | 95   | 11   | 495  | 11   | 242  | 74   | 305  | 158  | 32   |
| Number of Lanes     | 0    | 1    | 0    | 0    | 1    | 1    | 0    | 1    | 1    | 1    | 1    | 0    |

| Approach                      | EB  | WB   | NB   | SB |
|-------------------------------|-----|------|------|----|
| Opposing Approach             | WB  | EB   | SB   | NB |
| Opposing Lanes                | 2   | 1    | 2    | 2  |
| Conflicting Approach Left SB  |     | NB   | EB   | WB |
| Conflicting Lanes Left        | 2   | 2    | 1    | 2  |
| Conflicting Approach Right NB |     | SB   | WB   | EB |
| Conflicting Lanes Right       | 2   | 2    | 2    | 1  |
| HCM Control Delay, s/veh      | 6.2 | 46.9 | 19.3 | 24 |
| HCM LOS                       | C   | E    | C    | C  |

| Lane                     | NBLn1 | NBLn2 | EBLn1 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, %              | 4%    | 0%    | 67%   | 90%   | 0%    | 100%  | 0%    |
| Vol Thru, %              | 96%   | 0%    | 25%   | 10%   | 0%    | 0%    | 83%   |
| Vol Right, %             | 0%    | 100%  | 8%    | 0%    | 100%  | 0%    | 17%   |
| Sign Control             | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane      | 240   | 70    | 120   | 100   | 470   | 290   | 180   |
| LT Vol                   | 10    | 0     | 80    | 90    | 0     | 290   | 0     |
| Through Vol              | 230   | 0     | 30    | 10    | 0     | 0     | 150   |
| RT Vol                   | 0     | 70    | 10    | 0     | 470   | 0     | 30    |
| Lane Flow Rate           | 253   | 74    | 126   | 105   | 495   | 305   | 189   |
| Geometry Grp             | 5     | 5     | 4b    | 5     | 5     | 5     | 5     |
| Degree of Util (X)       | 0.575 | 0.152 | 0.318 | 0.236 | 0.949 | 0.708 | 0.406 |
| Departure Headway (Hd)   | 8.193 | 7.446 | 9.052 | 8.087 | 6.908 | 8.352 | 7.715 |
| Convergence, Y/N         | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Cap                      | 437   | 478   | 399   | 442   | 524   | 430   | 464   |
| Service Time             | 5.991 | 5.243 | 7.052 | 5.867 | 4.686 | 6.147 | 5.509 |
| HCM Lane V/C Ratio       | 0.579 | 0.155 | 0.316 | 0.238 | 0.945 | 0.709 | 0.407 |
| HCM Control Delay, s/veh | 21.6  | 11.6  | 16.2  | 13.4  | 54    | 29.2  | 15.7  |
| HCM Lane LOS             | C     | B     | C     | B     | F     | D     | C     |
| HCM 95th-tile Q          | 3.5   | 0.5   | 1.3   | 0.9   | 12    | 5.4   | 1.9   |

# HCM 7th Signalized Intersection Summary 33: Clairemont Dr. & Iroquois Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | ↔    |      |      | ↔    |      | ↖    | ↗    | ↖    | ↖    | ↗    | ↖    |
| Traffic Volume (veh/h)       | 50   | 20   | 90   | 160  | 10   | 210  | 30   | 600  | 130  | 150  | 740  | 40   |
| Future Volume (veh/h)        | 50   | 20   | 90   | 160  | 10   | 210  | 30   | 600  | 130  | 150  | 740  | 40   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.96 | 0.99 |      | 0.98 | 1.00 |      | 0.96 | 1.00 |      | 0.96 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1826 | 1826 | 1826 | 1841 | 1841 | 1841 |
| Adj Flow Rate, veh/h         | 53   | 21   | 86   | 168  | 11   | 199  | 32   | 632  | 110  | 158  | 779  | 34   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    | 5    | 5    | 5    | 4    | 4    | 4    |
| Cap, veh/h                   | 192  | 95   | 237  | 268  | 31   | 232  | 254  | 980  | 798  | 330  | 988  | 805  |
| Arrive On Green              | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
| Sat Flow, veh/h              | 374  | 328  | 815  | 611  | 106  | 796  | 653  | 1826 | 1487 | 703  | 1841 | 1501 |
| Grp Volume(v), veh/h         | 160  | 0    | 0    | 378  | 0    | 0    | 32   | 632  | 110  | 158  | 779  | 34   |
| Grp Sat Flow(s),veh/h/ln     | 1516 | 0    | 0    | 1513 | 0    | 0    | 653  | 1826 | 1487 | 703  | 1841 | 1501 |
| Q Serve(g_s), s              | 0.0  | 0.0  | 0.0  | 8.9  | 0.0  | 0.0  | 2.4  | 14.1 | 2.1  | 11.8 | 19.6 | 0.6  |
| Cycle Q Clear(g_c), s        | 4.4  | 0.0  | 0.0  | 13.3 | 0.0  | 0.0  | 21.9 | 14.1 | 2.1  | 25.9 | 19.6 | 0.6  |
| Prop In Lane                 | 0.33 |      | 0.54 | 0.44 |      | 0.53 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 525  | 0    | 0    | 531  | 0    | 0    | 254  | 980  | 798  | 330  | 988  | 805  |
| V/C Ratio(X)                 | 0.30 | 0.00 | 0.00 | 0.71 | 0.00 | 0.00 | 0.13 | 0.64 | 0.14 | 0.48 | 0.79 | 0.04 |
| Avail Cap(c_a), veh/h        | 605  | 0    | 0    | 611  | 0    | 0    | 301  | 1114 | 907  | 381  | 1123 | 915  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 16.0 | 0.0  | 0.0  | 18.9 | 0.0  | 0.0  | 19.5 | 9.4  | 6.7  | 18.6 | 10.7 | 6.3  |
| Incr Delay (d2), s/veh       | 0.4  | 0.0  | 0.0  | 3.8  | 0.0  | 0.0  | 0.1  | 0.7  | 0.0  | 0.4  | 2.9  | 0.0  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 1.6  | 0.0  | 0.0  | 4.7  | 0.0  | 0.0  | 0.3  | 4.3  | 0.5  | 1.7  | 6.6  | 0.2  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 16.4 | 0.0  | 0.0  | 22.6 | 0.0  | 0.0  | 19.6 | 10.1 | 6.7  | 19.0 | 13.6 | 6.3  |
| LnGrp LOS                    | B    |      |      | C    |      |      | B    | B    | A    | B    | B    | A    |
| Approach Vol, veh/h          | 160  |      | 378  |      |      | 774  |      |      | 971  |      |      |      |
| Approach Delay, s/veh        | 16.4 |      | 22.6 |      |      | 10.0 |      |      | 14.2 |      |      |      |
| Approach LOS                 | B    |      | C    |      |      | B    |      |      | B    |      |      |      |
| Timer - Assigned Phs         | 2    |      | 4    |      |      | 6    |      |      | 8    |      |      |      |
| Phs Duration (G+Y+Rc), s     | 35.8 |      | 21.8 |      |      | 35.8 |      |      | 21.8 |      |      |      |
| Change Period (Y+Rc), s      | 4.9  |      | 5.0  |      |      | 4.9  |      |      | 5.0  |      |      |      |
| Max Green Setting (Gmax), s  | 35.1 |      | 20.0 |      |      | 35.1 |      |      | 20.0 |      |      |      |
| Max Q Clear Time (g_c+I1), s | 23.9 |      | 6.4  |      |      | 27.9 |      |      | 15.3 |      |      |      |
| Green Ext Time (p_c), s      | 2.5  |      | 1.0  |      |      | 2.8  |      |      | 1.3  |      |      |      |
| Intersection Summary         |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh | 14.4 |      |      |      |      |      |      |      |      |      |      |      |
| HCM 7th LOS                  | B    |      |      |      |      |      |      |      |      |      |      |      |



HCM 7th TWSC  
34: Morena Blvd. & Napier St.

Proposed Plan Conditions  
AM Peak Hour

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.9  |      |      |      |      |      |
| Movement                 | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
| Lane Configurations      | Y    |      | ↑↑   |      | Y    | ↑↑   |
| Traffic Vol, veh/h       | 50   | 60   | 1230 | 110  | 40   | 750  |
| Future Vol, veh/h        | 50   | 60   | 1230 | 110  | 40   | 750  |
| Conflicting Peds, #/hr   | 1    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 0    | -    | -    | -    | 210  | -    |
| Veh in Median Storage, # | 1    | -    | 0    | -    | -    | 0    |
| Grade, %                 | 0    | -    | 0    | -    | -    | 0    |
| Peak Hour Factor         | 96   | 96   | 96   | 96   | 96   | 96   |
| Heavy Vehicles, %        | 2    | 2    | 5    | 5    | 5    | 5    |
| Mvmt Flow                | 52   | 63   | 1281 | 115  | 42   | 781  |

| Major/Minor          | Minor1 | Major1 | Major2 |   |      |
|----------------------|--------|--------|--------|---|------|
| Conflicting Flow All | 1814   | 698    | 0      | 0 | 1396 |
| Stage 1              | 1339   | -      | -      | - | -    |
| Stage 2              | 475    | -      | -      | - | -    |
| Critical Hdwy        | 6.84   | 6.94   | -      | - | 4.2  |
| Critical Hdwy Stg 1  | 5.84   | -      | -      | - | -    |
| Critical Hdwy Stg 2  | 5.84   | -      | -      | - | -    |
| Follow-up Hdwy       | 3.52   | 3.32   | -      | - | 2.25 |
| Pot Cap-1 Maneuver   | 70     | 383    | -      | - | 471  |
| Stage 1              | 209    | -      | -      | - | -    |
| Stage 2              | 592    | -      | -      | - | -    |
| Platoon blocked, %   |        |        | -      | - | -    |
| Mov Cap-1 Maneuver   | 63     | 383    | -      | - | 471  |
| Mov Cap-2 Maneuver   | 160    | -      | -      | - | -    |
| Stage 1              | 209    | -      | -      | - | -    |
| Stage 2              | 539    | -      | -      | - | -    |

| Approach          | WB    | NB | SB   |
|-------------------|-------|----|------|
| HCM Ctrl Dly, s/v | 34.27 | 0  | 0.68 |
| HCM LOS           | D     |    |      |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 234   | 471   |
| HCM Lane V/C Ratio    | -   | -        | 0.489 | 0.089 |
| HCM Ctrl Dly (s/v)    | -   | -        | 34.3  | 13.4  |
| HCM Lane LOS          | -   | -        | D     | B     |
| HCM 95th %tile Q(veh) | -   | -        | 2.5   | 0.3   |

HCM 7th Signalized Intersection Summary  
35: Morena Blvd. & Ashton St.

Proposed Plan Conditions  
AM Peak Hour

| Movement                                                                                           | WBL  | WBR   | NBT  | NBR  | SBL  | SBT  |
|----------------------------------------------------------------------------------------------------|------|-------|------|------|------|------|
| Lane Configurations                                                                                | W    | W     | T    | T    | L    | L    |
| Traffic Volume (veh/h)                                                                             | 210  | 180   | 1160 | 170  | 180  | 620  |
| Future Volume (veh/h)                                                                              | 210  | 180   | 1160 | 170  | 180  | 620  |
| Initial Q (Qb), veh                                                                                | 0    | 0     | 0    | 0    | 0    | 0    |
| Lane Width Adj.                                                                                    | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00 | 1.00  |      | 1.00 | 1.00 |      |
| Parking Bus, Adj                                                                                   | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach                                                                              | No   |       | No   |      |      | No   |
| Adj Sat Flow, veh/h/ln                                                                             | 1870 | 1870  | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h                                                                               | 216  | 167   | 1196 | 157  | 186  | 639  |
| Peak Hour Factor                                                                                   | 0.97 | 0.97  | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, %                                                                               | 2    | 2     | 5    | 5    | 5    | 5    |
| Cap, veh/h                                                                                         | 240  | 186   | 1337 | 175  | 222  | 2140 |
| Arrive On Green                                                                                    | 0.25 | 0.25  | 0.43 | 0.43 | 0.13 | 0.62 |
| Sat Flow, veh/h                                                                                    | 950  | 735   | 3176 | 404  | 1739 | 3561 |
| Grp Volume(v), veh/h                                                                               | 384  | 0     | 671  | 682  | 186  | 639  |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1690 | 0     | 1735 | 1753 | 1739 | 1735 |
| Q Serve(g_s), s                                                                                    | 17.4 | 0.0   | 28.2 | 28.5 | 8.3  | 6.8  |
| Cycle Q Clear(g_c), s                                                                              | 17.4 | 0.0   | 28.2 | 28.5 | 8.3  | 6.8  |
| Prop In Lane                                                                                       | 0.56 | 0.43  |      | 0.23 | 1.00 |      |
| Lane Grp Cap(c), veh/h                                                                             | 427  | 0     | 752  | 760  | 222  | 2140 |
| V/C Ratio(X)                                                                                       | 0.90 | 0.00  | 0.89 | 0.90 | 0.84 | 0.30 |
| Avail Cap(c_a), veh/h                                                                              | 644  | 0     | 768  | 776  | 227  | 2177 |
| HCM Platoon Ratio                                                                                  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)                                                                                 | 1.00 | 0.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh                                                                           | 28.5 | 0.0   | 20.7 | 20.8 | 33.7 | 7.1  |
| Incr Delay (d2), s/veh                                                                             | 8.2  | 0.0   | 13.0 | 13.5 | 21.7 | 0.1  |
| Initial Q Delay(d3), s/veh                                                                         | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln                                                                           | 7.7  | 0.0   | 13.2 | 13.5 | 4.7  | 2.2  |
| Unsig. Movement Delay, s/veh                                                                       |      |       |      |      |      |      |
| LnGrp Delay(d), s/veh                                                                              | 36.7 | 0.0   | 33.7 | 34.3 | 55.4 | 7.2  |
| LnGrp LOS                                                                                          | D    |       | C    | C    | E    | A    |
| Approach Vol, veh/h                                                                                | 384  |       | 1353 |      |      | 825  |
| Approach Delay, s/veh                                                                              | 36.7 |       | 34.0 |      |      | 18.1 |
| Approach LOS                                                                                       | D    |       | C    |      |      | B    |
| Timer - Assigned Phs                                                                               | 1    | 2     |      |      | 6    | 8    |
| Phs Duration (G+Y+Rc), s                                                                           | 14.5 | 39.7  |      |      | 54.1 | 24.9 |
| Change Period (Y+Rc), s                                                                            | 4.4  | * 5.4 |      |      | 5.4  | 4.9  |
| Max Green Setting (Gmax), s                                                                        | 10.3 | * 35  |      |      | 49.6 | 30.1 |
| Max Q Clear Time (g_c+I1), s                                                                       | 10.3 | 30.5  |      |      | 8.8  | 19.4 |
| Green Ext Time (p_c), s                                                                            | 0.0  | 3.7   |      |      | 7.3  | 0.5  |
| <b>Intersection Summary</b>                                                                        |      |       |      |      |      |      |
| HCM 7th Control Delay, s/veh                                                                       |      |       | 29.3 |      |      |      |
| HCM 7th LOS                                                                                        |      |       | C    |      |      |      |
| <b>Notes</b>                                                                                       |      |       |      |      |      |      |
| User approved volume balancing among the lanes for turning movement.                               |      |       |      |      |      |      |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |      |       |      |      |      |      |

# HCM 7th Signalized Intersection Summary 36: W Morena Blvd. & Morena Blvd.

Proposed Plan Conditions  
AM Peak Hour



| Movement                      | WBL   | WBR   | NBT  | NBR  | SBL   | SBT  |
|-------------------------------|-------|-------|------|------|-------|------|
| Lane Configurations           |       |       |      |      |       |      |
| Traffic Volume (veh/h)        | 140   | 540   | 790  | 110  | 270   | 560  |
| Future Volume (veh/h)         | 140   | 540   | 790  | 110  | 270   | 560  |
| Initial Q (Qb), veh           | 0     | 0     | 0    | 0    | 0     | 0    |
| Lane Width Adj.               | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Ped-Bike Adj(A_pbT)           | 1.00  | 1.00  |      | 1.00 | 1.00  |      |
| Parking Bus, Adj              | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Work Zone On Approach         | No    |       | No   |      | No    |      |
| Adj Sat Flow, veh/h/ln        | 1841  | 1841  | 1870 | 1870 | 1826  | 1826 |
| Adj Flow Rate, veh/h          | 147   | 506   | 832  | 104  | 284   | 589  |
| Peak Hour Factor              | 0.95  | 0.95  | 0.95 | 0.95 | 0.95  | 0.95 |
| Percent Heavy Veh, %          | 4     | 4     | 2    | 2    | 5     | 5    |
| Cap, veh/h                    | 545   | 679   | 1112 | 139  | 216   | 1865 |
| Arrive On Green               | 0.31  | 0.31  | 0.35 | 0.35 | 0.12  | 0.54 |
| Sat Flow, veh/h               | 1753  | 1560  | 3272 | 397  | 1739  | 3561 |
| Grp Volume(v), veh/h          | 147   | 506   | 465  | 471  | 284   | 589  |
| Grp Sat Flow(s), veh/h/ln     | 1753  | 1560  | 1777 | 1799 | 1739  | 1735 |
| Q Serve(g_s), s               | 4.4   | 18.8  | 16.0 | 16.0 | 8.6   | 6.5  |
| Cycle Q Clear(g_c), s         | 4.4   | 18.8  | 16.0 | 16.0 | 8.6   | 6.5  |
| Prop In Lane                  | 1.00  | 1.00  |      | 0.22 | 1.00  |      |
| Lane Grp Cap(c), veh/h        | 545   | 679   | 621  | 629  | 216   | 1865 |
| V/C Ratio(X)                  | 0.27  | 0.75  | 0.75 | 0.75 | 1.31  | 0.32 |
| Avail Cap(c_a), veh/h         | 658   | 780   | 786  | 795  | 216   | 2180 |
| HCM Platoon Ratio             | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Upstream Filter(I)            | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Uniform Delay (d), s/veh      | 17.9  | 16.4  | 19.8 | 19.8 | 30.3  | 8.9  |
| Incr Delay (d2), s/veh        | 0.1   | 2.7   | 3.6  | 3.5  | 170.4 | 0.1  |
| Initial Q Delay(d3), s/veh    | 0.0   | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 1.7   | 6.5   | 6.7  | 6.8  | 13.7  | 2.2  |
| Unsig. Movement Delay, s/veh  |       |       |      |      |       |      |
| LnGrp Delay(d), s/veh         | 18.0  | 19.0  | 23.4 | 23.4 | 200.7 | 9.0  |
| LnGrp LOS                     | B     | B     | C    | C    | F     | A    |
| Approach Vol, veh/h           | 653   |       | 936  |      |       | 873  |
| Approach Delay, s/veh         | 18.8  |       | 23.4 |      |       | 71.4 |
| Approach LOS                  | B     |       | C    |      |       | E    |
| Timer - Assigned Phs          | 1     | 2     |      |      | 6     | 8    |
| Phs Duration (G+Y+Rc), s      | 3.0   | 29.8  |      |      | 42.8  | 26.4 |
| Change Period (Y+Rc), s       | 4.4   | * 5.6 |      |      | 5.6   | 4.9  |
| Max Green Setting (Gmax), s   | 3.6   | * 31  |      |      | 43.5  | 26.0 |
| Max Q Clear Time (g_c+110, s) | 110.6 | 18.0  |      |      | 8.5   | 20.8 |
| Green Ext Time (p_c), s       | 0.0   | 6.2   |      |      | 4.7   | 0.7  |

## Intersection Summary

HCM 7th Control Delay, s/veh 39.2  
HCM 7th LOS D

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 37: Knoxville St. & Morena Blvd.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR   | SBL   | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|-------|-------|------|------|
| Lane Configurations          |      | ↰    |      |      | ↰    | ↱    |      | ↰    |       |       | ↰    |      |
| Traffic Volume (veh/h)       | 70   | 170  | 50   | 100  | 470  | 350  | 80   | 20   | 130   | 490   | 80   | 90   |
| Future Volume (veh/h)        | 70   | 170  | 50   | 100  | 470  | 350  | 80   | 20   | 130   | 490   | 80   | 90   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.99 | 1.00 |      | 0.97 | 1.00 |      | 1.00  | 1.00  |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |       |       | No   |      |
| Adj Sat Flow, veh/h/ln       | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1870 | 1870 | 1870  | 1870  | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 74   | 179  | 48   | 105  | 495  | 294  | 84   | 21   | 123   | 516   | 84   | 87   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95  | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 4    | 4    | 4    | 3    | 3    | 3    | 2    | 2    | 2     | 2     | 2    | 2    |
| Cap, veh/h                   | 128  | 274  | 60   | 173  | 637  | 728  | 262  | 92   | 307   | 469   | 57   | 59   |
| Arrive On Green              | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.34 | 0.34 | 0.34  | 0.34  | 0.34 | 0.34 |
| Sat Flow, veh/h              | 91   | 574  | 126  | 197  | 1337 | 1529 | 500  | 271  | 904   | 1031  | 168  | 174  |
| Grp Volume(v), veh/h         | 301  | 0    | 0    | 600  | 0    | 294  | 228  | 0    | 0     | 687   | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 792  | 0    | 0    | 1534 | 0    | 1529 | 1675 | 0    | 0     | 1373  | 0    | 0    |
| Q Serve(g_s), s              | 3.7  | 0.0  | 0.0  | 0.0  | 0.0  | 6.6  | 0.0  | 0.0  | 0.0   | 12.6  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 21.6 | 0.0  | 0.0  | 17.9 | 0.0  | 6.6  | 5.5  | 0.0  | 0.0   | 18.1  | 0.0  | 0.0  |
| Prop In Lane                 | 0.25 |      | 0.16 | 0.17 |      | 1.00 | 0.37 |      | 0.54  | 0.75  |      | 0.13 |
| Lane Grp Cap(c), veh/h       | 461  | 0    | 0    | 810  | 0    | 728  | 662  | 0    | 0     | 585   | 0    | 0    |
| V/C Ratio(X)                 | 0.65 | 0.00 | 0.00 | 0.74 | 0.00 | 0.40 | 0.34 | 0.00 | 0.00  | 1.17  | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 1334 | 0    | 0    | 1964 | 0    | 1782 | 662  | 0    | 0     | 585   | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00  | 1.00  | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 10.5 | 0.0  | 0.0  | 11.5 | 0.0  | 9.0  | 13.4 | 0.0  | 0.0   | 19.3  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 0.6  | 0.0  | 0.0  | 0.5  | 0.0  | 0.1  | 0.5  | 0.0  | 0.0   | 95.7  | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0   | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 1.8  | 0.0  | 0.0  | 4.7  | 0.0  | 1.8  | 1.9  | 0.0  | 0.0   | 22.5  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |       |       |      |      |
| LnGrp Delay(d), s/veh        | 11.1 | 0.0  | 0.0  | 12.0 | 0.0  | 9.2  | 13.9 | 0.0  | 0.0   | 115.0 | 0.0  | 0.0  |
| LnGrp LOS                    | B    |      | B    |      | A    |      | B    |      | F     |       |      |      |
| Approach Vol, veh/h          | 301  |      |      |      | 894  |      | 228  |      | 687   |       |      |      |
| Approach Delay, s/veh        | 11.1 |      |      |      | 11.1 |      | 13.9 |      | 115.0 |       |      |      |
| Approach LOS                 | B    |      |      |      | B    |      | B    |      | F     |       |      |      |
| Timer - Assigned Phs         | 2    |      | 4    |      | 6    |      | 8    |      |       |       |      |      |
| Phs Duration (G+Y+Rc), s     | 30.3 |      | 23.0 |      | 30.3 |      | 23.0 |      |       |       |      |      |
| Change Period (Y+Rc), s      | 4.9  |      | 4.9  |      | 4.9  |      | 4.9  |      |       |       |      |      |
| Max Green Setting (Gmax), s  | 62.1 |      | 18.1 |      | 62.1 |      | 18.1 |      |       |       |      |      |
| Max Q Clear Time (g_c+I1), s | 23.6 |      | 20.1 |      | 19.9 |      | 7.5  |      |       |       |      |      |
| Green Ext Time (p_c), s      | 1.7  |      | 0.0  |      | 3.5  |      | 1.4  |      |       |       |      |      |
| Intersection Summary         |      |      |      |      |      |      |      |      |       |       |      |      |
| HCM 7th Control Delay, s/veh |      | 45.2 |      |      |      |      |      |      |       |       |      |      |
| HCM 7th LOS                  |      | D    |      |      |      |      |      |      |       |       |      |      |

# HCM 7th Signalized Intersection Summary 38: Tecolote Rd. & Morena Blvd.

Proposed Plan Conditions  
AM Peak Hour



| Movement                                                             | EBL  | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR  | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               | SBR                                                                               |
|----------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations                                                  |      |  |  |  |  |      |  |  |  |  |  |  |
| Traffic Volume (veh/h)                                               | 50   | 240                                                                               | 580                                                                               | 440                                                                               | 280                                                                               | 60   | 620                                                                               | 130                                                                               | 450                                                                               | 50                                                                                | 80                                                                                | 80                                                                                |
| Future Volume (veh/h)                                                | 50   | 240                                                                               | 580                                                                               | 440                                                                               | 280                                                                               | 60   | 620                                                                               | 130                                                                               | 450                                                                               | 50                                                                                | 80                                                                                | 80                                                                                |
| Initial Q (Qb), veh                                                  | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Width Adj.                                                      | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Ped-Bike Adj(A_pbT)                                                  | 1.00 |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 1.00 | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              |
| Parking Bus, Adj                                                     | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach                                                |      | No                                                                                |                                                                                   |                                                                                   | No                                                                                |      |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |
| Adj Sat Flow, veh/h/ln                                               | 1856 | 1856                                                                              | 1856                                                                              | 1841                                                                              | 1841                                                                              | 1841 | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h                                                 | 53   | 367                                                                               | 382                                                                               | 270                                                                               | 565                                                                               | 52   | 653                                                                               | 137                                                                               | 379                                                                               | 53                                                                                | 84                                                                                | 76                                                                                |
| Peak Hour Factor                                                     | 0.95 | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Percent Heavy Veh, %                                                 | 3    | 3                                                                                 | 3                                                                                 | 4                                                                                 | 4                                                                                 | 4    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                                                           | 66   | 455                                                                               | 434                                                                               | 369                                                                               | 699                                                                               | 64   | 822                                                                               | 445                                                                               | 704                                                                               | 142                                                                               | 148                                                                               | 120                                                                               |
| Arrive On Green                                                      | 0.28 | 0.28                                                                              | 0.28                                                                              | 0.21                                                                              | 0.21                                                                              | 0.21 | 0.24                                                                              | 0.24                                                                              | 0.24                                                                              | 0.08                                                                              | 0.08                                                                              | 0.08                                                                              |
| Sat Flow, veh/h                                                      | 233  | 1611                                                                              | 1535                                                                              | 1753                                                                              | 3322                                                                              | 305  | 3456                                                                              | 1870                                                                              | 1555                                                                              | 1781                                                                              | 1853                                                                              | 1498                                                                              |
| Grp Volume(v), veh/h                                                 | 420  | 0                                                                                 | 382                                                                               | 270                                                                               | 313                                                                               | 304  | 653                                                                               | 137                                                                               | 379                                                                               | 53                                                                                | 80                                                                                | 80                                                                                |
| Grp Sat Flow(s),veh/h/ln                                             | 1844 | 0                                                                                 | 1535                                                                              | 1753                                                                              | 1841                                                                              | 1786 | 1728                                                                              | 1870                                                                              | 1555                                                                              | 1781                                                                              | 1777                                                                              | 1574                                                                              |
| Q Serve(g_s), s                                                      | 21.9 | 0.0                                                                               | 24.6                                                                              | 14.9                                                                              | 16.7                                                                              | 16.8 | 18.4                                                                              | 6.2                                                                               | 18.4                                                                              | 2.9                                                                               | 4.5                                                                               | 5.1                                                                               |
| Cycle Q Clear(g_c), s                                                | 21.9 | 0.0                                                                               | 24.6                                                                              | 14.9                                                                              | 16.7                                                                              | 16.8 | 18.4                                                                              | 6.2                                                                               | 18.4                                                                              | 2.9                                                                               | 4.5                                                                               | 5.1                                                                               |
| Prop In Lane                                                         | 0.13 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.17 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              |
| Lane Grp Cap(c), veh/h                                               | 521  | 0                                                                                 | 434                                                                               | 369                                                                               | 388                                                                               | 376  | 822                                                                               | 445                                                                               | 704                                                                               | 142                                                                               | 142                                                                               | 126                                                                               |
| V/C Ratio(X)                                                         | 0.81 | 0.00                                                                              | 0.88                                                                              | 0.73                                                                              | 0.81                                                                              | 0.81 | 0.79                                                                              | 0.31                                                                              | 0.54                                                                              | 0.37                                                                              | 0.56                                                                              | 0.63                                                                              |
| Avail Cap(c_a), veh/h                                                | 554  | 0                                                                                 | 461                                                                               | 457                                                                               | 480                                                                               | 465  | 1011                                                                              | 547                                                                               | 788                                                                               | 292                                                                               | 292                                                                               | 258                                                                               |
| HCM Platoon Ratio                                                    | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)                                                   | 1.00 | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh                                             | 34.5 | 0.0                                                                               | 35.5                                                                              | 38.2                                                                              | 38.9                                                                              | 38.9 | 37.1                                                                              | 32.5                                                                              | 20.8                                                                              | 45.2                                                                              | 45.9                                                                              | 46.2                                                                              |
| Incr Delay (d2), s/veh                                               | 9.6  | 0.0                                                                               | 18.6                                                                              | 4.6                                                                               | 8.0                                                                               | 8.5  | 3.6                                                                               | 0.4                                                                               | 0.6                                                                               | 1.6                                                                               | 3.5                                                                               | 5.2                                                                               |
| Initial Q Delay(d3), s/veh                                           | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln                                             | 1.0  | 0.0                                                                               | 11.3                                                                              | 6.8                                                                               | 8.3                                                                               | 8.2  | 8.1                                                                               | 2.9                                                                               | 9.7                                                                               | 1.4                                                                               | 2.1                                                                               | 2.2                                                                               |
| Unsig. Movement Delay, s/veh                                         |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d), s/veh                                                | 44.1 | 0.0                                                                               | 54.1                                                                              | 42.8                                                                              | 46.9                                                                              | 47.4 | 40.7                                                                              | 32.9                                                                              | 21.5                                                                              | 46.8                                                                              | 49.4                                                                              | 51.4                                                                              |
| LnGrp LOS                                                            | D    |                                                                                   | D                                                                                 | D                                                                                 | D                                                                                 | D    | D                                                                                 | C                                                                                 | C                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 |
| Approach Vol, veh/h                                                  | 802  |                                                                                   | 887                                                                               |                                                                                   |                                                                                   |      | 1169                                                                              |                                                                                   |                                                                                   | 213                                                                               |                                                                                   |                                                                                   |
| Approach Delay, s/veh                                                | 48.9 |                                                                                   | 45.8                                                                              |                                                                                   |                                                                                   |      | 33.6                                                                              |                                                                                   |                                                                                   | 49.5                                                                              |                                                                                   |                                                                                   |
| Approach LOS                                                         | D    |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |      | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |
| Timer - Assigned Phs                                                 | 2    |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   |      | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   |
| Phs Duration (G+Y+Rc), s                                             | 29.5 |                                                                                   | 34.2                                                                              |                                                                                   |                                                                                   |      | 13.2                                                                              |                                                                                   |                                                                                   | 26.7                                                                              |                                                                                   |                                                                                   |
| Change Period (Y+Rc), s                                              | 4.9  |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   |      | 4.9                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   |
| Max Green Setting (Gmax), s                                          | 30.3 |                                                                                   | 31.1                                                                              |                                                                                   |                                                                                   |      | 17.0                                                                              |                                                                                   |                                                                                   | 27.0                                                                              |                                                                                   |                                                                                   |
| Max Q Clear Time (g_c+I1), s                                         | 20.4 |                                                                                   | 26.6                                                                              |                                                                                   |                                                                                   |      | 7.1                                                                               |                                                                                   |                                                                                   | 18.8                                                                              |                                                                                   |                                                                                   |
| Green Ext Time (p_c), s                                              | 3.6  |                                                                                   | 2.6                                                                               |                                                                                   |                                                                                   |      | 0.7                                                                               |                                                                                   |                                                                                   | 3.0                                                                               |                                                                                   |                                                                                   |
| Intersection Summary                                                 |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 7th Control Delay, s/veh                                         | 42.2 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 7th LOS                                                          | D    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Notes                                                                |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| User approved volume balancing among the lanes for turning movement. |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

HCM 7th Signalized Intersection Summary  
39: Genesee Ave. & Marlesta Dr.

Proposed Plan Conditions  
AM Peak Hour



| Movement                      | WBL  | WBR   | NBT  | NBR  | SBL   | SBT  |
|-------------------------------|------|-------|------|------|-------|------|
| Lane Configurations           |      |       |      |      |       |      |
| Traffic Volume (veh/h)        | 180  | 240   | 990  | 180  | 400   | 730  |
| Future Volume (veh/h)         | 180  | 240   | 990  | 180  | 400   | 730  |
| Initial Q (Qb), veh           | 0    | 0     | 0    | 0    | 0     | 0    |
| Lane Width Adj.               | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Ped-Bike Adj(A_pbT)           | 1.00 | 1.00  |      | 1.00 | 1.00  |      |
| Parking Bus, Adj              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Work Zone On Approach         | No   |       | No   |      | No    |      |
| Adj Sat Flow, veh/h/ln        | 1870 | 1870  | 1870 | 1870 | 1811  | 1811 |
| Adj Flow Rate, veh/h          | 189  | 202   | 1042 | 151  | 421   | 768  |
| Peak Hour Factor              | 0.95 | 0.95  | 0.95 | 0.95 | 0.95  | 0.95 |
| Percent Heavy Veh, %          | 2    | 2     | 2    | 2    | 6     | 6    |
| Cap, veh/h                    | 217  | 568   | 993  | 1035 | 408   | 1446 |
| Arrive On Green               | 0.12 | 0.12  | 0.53 | 0.53 | 0.24  | 0.80 |
| Sat Flow, veh/h               | 1781 | 1585  | 1870 | 1585 | 1725  | 1811 |
| Grp Volume(v), veh/h          | 189  | 202   | 1042 | 151  | 421   | 768  |
| Grp Sat Flow(s), veh/h/ln     | 1781 | 1585  | 1870 | 1585 | 1725  | 1811 |
| Q Serve(g_s), s               | 14.8 | 13.3  | 75.4 | 5.2  | 33.6  | 21.0 |
| Cycle Q Clear(g_c), s         | 14.8 | 13.3  | 75.4 | 5.2  | 33.6  | 21.0 |
| Prop In Lane                  | 1.00 | 1.00  |      | 1.00 | 1.00  |      |
| Lane Grp Cap(c), veh/h        | 217  | 568   | 993  | 1035 | 408   | 1446 |
| V/C Ratio(X)                  | 0.87 | 0.36  | 1.05 | 0.15 | 1.03  | 0.53 |
| Avail Cap(c_a), veh/h         | 326  | 665   | 993  | 1035 | 408   | 1446 |
| HCM Platoon Ratio             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Upstream Filter(I)            | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Uniform Delay (d), s/veh      | 61.3 | 33.5  | 33.3 | 9.5  | 54.2  | 5.0  |
| Incr Delay (d2), s/veh        | 10.8 | 0.1   | 42.3 | 0.1  | 52.9  | 0.4  |
| Initial Q Delay(d3), s/veh    | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 7.4  | 5.2   | 43.3 | 2.5  | 20.2  | 6.0  |
| Unsig. Movement Delay, s/veh  |      |       |      |      |       |      |
| LnGrp Delay(d), s/veh         | 72.0 | 33.6  | 75.6 | 9.6  | 107.0 | 5.4  |
| LnGrp LOS                     | E    | C     | F    | A    | F     | A    |
| Approach Vol, veh/h           | 391  |       | 1193 |      |       | 1189 |
| Approach Delay, s/veh         | 52.2 |       | 67.2 |      |       | 41.4 |
| Approach LOS                  | D    |       | E    |      |       | D    |
| Timer - Assigned Phs          | 1    | 2     |      |      | 6     | 8    |
| Phs Duration (G+Y+Rc), s      | 38.0 | 81.8  |      |      | 119.8 | 22.2 |
| Change Period (Y+Rc), s       | 4.4  | * 6.4 |      |      | 6.4   | 4.9  |
| Max Green Setting (Gmax), s   | 33.6 | * 75  |      |      | 112.7 | 26.0 |
| Max Q Clear Time (g_c+Q_c), s | 33.6 | 77.4  |      |      | 23.0  | 16.8 |
| Green Ext Time (p_c), s       | 0.0  | 0.0   |      |      | 8.0   | 0.5  |
| <b>Intersection Summary</b>   |      |       |      |      |       |      |
| HCM 7th Control Delay, s/veh  |      |       | 54.0 |      |       |      |
| HCM 7th LOS                   |      |       | D    |      |       |      |

Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



# HCM 7th Signalized Intersection Summary 40: Linda Vista Rd. & Genesee Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               | SBR                                                                               |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 170                                                                               | 530                                                                               | 290                                                                               | 540                                                                               | 520                                                                               | 340                                                                               | 100                                                                               | 620                                                                               | 160                                                                               | 270                                                                               | 790                                                                               | 380                                                                               |
| Future Volume (veh/h)        | 170                                                                               | 530                                                                               | 290                                                                               | 540                                                                               | 520                                                                               | 340                                                                               | 100                                                                               | 620                                                                               | 160                                                                               | 270                                                                               | 790                                                                               | 380                                                                               |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.91                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 179                                                                               | 558                                                                               | 244                                                                               | 568                                                                               | 547                                                                               | 286                                                                               | 105                                                                               | 653                                                                               | 134                                                                               | 284                                                                               | 832                                                                               | 360                                                                               |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 206                                                                               | 736                                                                               | 393                                                                               | 573                                                                               | 915                                                                               | 405                                                                               | 144                                                                               | 1343                                                                              | 545                                                                               | 305                                                                               | 1020                                                                              | 439                                                                               |
| Arrive On Green              | 0.12                                                                              | 0.21                                                                              | 0.21                                                                              | 0.17                                                                              | 0.26                                                                              | 0.26                                                                              | 0.04                                                                              | 0.38                                                                              | 0.38                                                                              | 0.09                                                                              | 0.42                                                                              | 0.42                                                                              |
| Sat Flow, veh/h              | 1781                                                                              | 3554                                                                              | 1580                                                                              | 3456                                                                              | 3554                                                                              | 1574                                                                              | 3456                                                                              | 3554                                                                              | 1443                                                                              | 3456                                                                              | 2402                                                                              | 1035                                                                              |
| Grp Volume(v), veh/h         | 179                                                                               | 558                                                                               | 244                                                                               | 568                                                                               | 547                                                                               | 286                                                                               | 105                                                                               | 653                                                                               | 134                                                                               | 284                                                                               | 615                                                                               | 577                                                                               |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1580                                                                              | 1728                                                                              | 1777                                                                              | 1574                                                                              | 1728                                                                              | 1777                                                                              | 1443                                                                              | 1728                                                                              | 1777                                                                              | 1660                                                                              |
| Q Serve(g_s), s              | 11.9                                                                              | 17.7                                                                              | 16.5                                                                              | 19.7                                                                              | 16.2                                                                              | 19.8                                                                              | 3.6                                                                               | 16.8                                                                              | 7.6                                                                               | 9.8                                                                               | 36.5                                                                              | 36.8                                                                              |
| Cycle Q Clear(g_c), s        | 11.9                                                                              | 17.7                                                                              | 16.5                                                                              | 19.7                                                                              | 16.2                                                                              | 19.8                                                                              | 3.6                                                                               | 16.8                                                                              | 7.6                                                                               | 9.8                                                                               | 36.5                                                                              | 36.8                                                                              |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.62                                                                              |
| Lane Grp Cap(c), veh/h       | 206                                                                               | 736                                                                               | 393                                                                               | 573                                                                               | 915                                                                               | 405                                                                               | 144                                                                               | 1343                                                                              | 545                                                                               | 305                                                                               | 754                                                                               | 705                                                                               |
| V/C Ratio(X)                 | 0.87                                                                              | 0.76                                                                              | 0.62                                                                              | 0.99                                                                              | 0.60                                                                              | 0.71                                                                              | 0.73                                                                              | 0.49                                                                              | 0.25                                                                              | 0.93                                                                              | 0.81                                                                              | 0.82                                                                              |
| Avail Cap(c_a), veh/h        | 239                                                                               | 948                                                                               | 487                                                                               | 573                                                                               | 1060                                                                              | 470                                                                               | 144                                                                               | 1343                                                                              | 545                                                                               | 305                                                                               | 754                                                                               | 705                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.46                                                                              | 0.46                                                                              | 0.46                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 52.2                                                                              | 44.7                                                                              | 40.0                                                                              | 50.0                                                                              | 39.1                                                                              | 40.4                                                                              | 56.8                                                                              | 28.4                                                                              | 25.6                                                                              | 54.3                                                                              | 30.4                                                                              | 30.5                                                                              |
| Incr Delay (d2), s/veh       | 22.6                                                                              | 3.3                                                                               | 2.4                                                                               | 23.3                                                                              | 0.5                                                                               | 2.4                                                                               | 15.0                                                                              | 1.3                                                                               | 1.1                                                                               | 33.3                                                                              | 9.4                                                                               | 10.3                                                                              |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 6.5                                                                               | 7.9                                                                               | 6.7                                                                               | 10.2                                                                              | 7.0                                                                               | 7.9                                                                               | 1.9                                                                               | 7.4                                                                               | 2.8                                                                               | 5.7                                                                               | 17.3                                                                              | 16.4                                                                              |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d), s/veh        | 74.8                                                                              | 48.1                                                                              | 42.5                                                                              | 73.2                                                                              | 39.6                                                                              | 42.9                                                                              | 71.9                                                                              | 29.7                                                                              | 26.7                                                                              | 87.6                                                                              | 39.8                                                                              | 40.7                                                                              |
| LnGrp LOS                    | E                                                                                 | D                                                                                 | D                                                                                 | E                                                                                 | D                                                                                 | D                                                                                 | E                                                                                 | C                                                                                 | C                                                                                 | F                                                                                 | D                                                                                 | D                                                                                 |
| Approach Vol, veh/h          | 981                                                                               |                                                                                   | 1401                                                                              |                                                                                   |                                                                                   | 892                                                                               |                                                                                   |                                                                                   | 1476                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay, s/veh        | 51.6                                                                              |                                                                                   | 53.9                                                                              |                                                                                   |                                                                                   | 34.2                                                                              |                                                                                   |                                                                                   | 49.4                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                 | D                                                                                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 24.3                                                                              | 30.2                                                                              | 9.4                                                                               | 56.1                                                                              | 18.3                                                                              | 36.2                                                                              | 15.0                                                                              | 50.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Change Period (Y+Rc), s      | 4.4                                                                               | 5.3                                                                               | 4.4                                                                               | 5.2                                                                               | 4.4                                                                               | 5.3                                                                               | 4.4                                                                               | * 5.2                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Max Green Setting (Gmax), s  | 19.9                                                                              | 32.0                                                                              | 5.0                                                                               | 43.8                                                                              | 16.1                                                                              | 35.8                                                                              | 10.6                                                                              | * 39                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Max Q Clear Time (g_c+Y), s  | 21.7                                                                              | 19.7                                                                              | 5.6                                                                               | 38.8                                                                              | 13.9                                                                              | 21.8                                                                              | 11.8                                                                              | 18.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Green Ext Time (p_c), s      | 0.0                                                                               | 4.9                                                                               | 0.0                                                                               | 3.7                                                                               | 0.1                                                                               | 5.9                                                                               | 0.0                                                                               | 8.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Intersection Summary

HCM 7th Control Delay, s/veh 48.3  
HCM 7th LOS D

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary  
41: SR-163 SB On Ramp/SR-163 SB Ramps & Genesee Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT | NBR | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|-----|-----|------|------|------|
| Lane Configurations          |      | ↑↑   | ↑    |      | ↑↑   |      |      |     |     | ↑    | ↑↑   | ↑    |
| Traffic Volume (veh/h)       | 0    | 620  | 540  | 0    | 800  | 220  | 0    | 0   | 0   | 960  | 0    | 650  |
| Future Volume (veh/h)        | 0    | 620  | 540  | 0    | 800  | 220  | 0    | 0   | 0   | 960  | 0    | 650  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |      |     |     | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |      |     |     | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 |      |     |     | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |      |     |     | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   |      |      |      |     |     | No   |      |      |
| Adj Sat Flow, veh/h/ln       | 0    | 1870 | 1870 | 0    | 1870 | 1870 |      |     |     | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 0    | 646  | 0    | 0    | 833  | 0    |      |     |     | 1192 | 0    | 412  |
| Peak Hour Factor             | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |      |     |     | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %         | 0    | 2    | 2    | 0    | 2    | 2    |      |     |     | 2    | 2    | 2    |
| Cap, veh/h                   | 0    | 1156 |      | 0    | 1156 |      |      |     |     | 1432 | 0    | 637  |
| Arrive On Green              | 0.00 | 0.33 | 0.00 | 0.00 | 0.33 | 0.00 |      |     |     | 0.40 | 0.00 | 0.40 |
| Sat Flow, veh/h              | 0    | 3647 | 1585 | 0    | 3741 | 0    |      |     |     | 3563 | 0    | 1585 |
| Grp Volume(v), veh/h         | 0    | 646  | 0    | 0    | 833  | 0    |      |     |     | 1192 | 0    | 412  |
| Grp Sat Flow(s),veh/h/ln     | 0    | 1777 | 1585 | 0    | 1777 | 0    |      |     |     | 1781 | 0    | 1585 |
| Q Serve(g_s), s              | 0.0  | 6.0  | 0.0  | 0.0  | 8.3  | 0.0  |      |     |     | 12.0 | 0.0  | 8.4  |
| Cycle Q Clear(g_c), s        | 0.0  | 6.0  | 0.0  | 0.0  | 8.3  | 0.0  |      |     |     | 12.0 | 0.0  | 8.4  |
| Prop In Lane                 | 0.00 |      | 1.00 | 0.00 |      | 0.00 |      |     |     | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 0    | 1156 |      | 0    | 1156 |      |      |     |     | 1432 | 0    | 637  |
| V/C Ratio(X)                 | 0.00 | 0.56 |      | 0.00 | 0.72 |      |      |     |     | 0.83 | 0.00 | 0.65 |
| Avail Cap(c_a), veh/h        | 0    | 1769 |      | 0    | 1769 |      |      |     |     | 2157 | 0    | 960  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |      |     |     | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 |      |     |     | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 0.0  | 11.1 | 0.0  | 0.0  | 11.9 | 0.0  |      |     |     | 10.7 | 0.0  | 9.7  |
| Incr Delay (d2), s/veh       | 0.0  | 0.2  | 0.0  | 0.0  | 0.3  | 0.0  |      |     |     | 1.1  | 0.0  | 0.4  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |      |     |     | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.0  | 1.7  | 0.0  | 0.0  | 2.3  | 0.0  |      |     |     | 3.6  | 0.0  | 2.2  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |     |     |      |      |      |
| LnGrp Delay(d), s/veh        | 0.0  | 11.3 | 0.0  | 0.0  | 12.2 | 0.0  |      |     |     | 11.8 | 0.0  | 10.1 |
| LnGrp LOS                    | B    |      |      | B    |      |      |      |     |     | B    |      |      |
| Approach Vol, veh/h          | 646  |      |      | 833  |      |      |      |     |     | 1604 |      |      |
| Approach Delay, s/veh        | 11.3 |      |      | 12.2 |      |      |      |     |     | 11.4 |      |      |
| Approach LOS                 | B    |      |      | B    |      |      |      |     |     | B    |      |      |
| Timer - Assigned Phs         | 2    |      |      | 4    |      |      | 6    |     |     |      |      |      |
| Phs Duration (G+Y+Rc), s     | 18.8 |      |      | 21.2 |      |      | 18.8 |     |     |      |      |      |
| Change Period (Y+Rc), s      | 5.8  |      |      | 5.1  |      |      | 5.8  |     |     |      |      |      |
| Max Green Setting (Gmax), s  | 19.9 |      |      | 24.2 |      |      | 19.9 |     |     |      |      |      |
| Max Q Clear Time (g_c+l1), s | 8.0  |      |      | 14.0 |      |      | 10.3 |     |     |      |      |      |
| Green Ext Time (p_c), s      | 2.2  |      |      | 2.0  |      |      | 2.7  |     |     |      |      |      |

Intersection Summary

|                              |      |
|------------------------------|------|
| HCM 7th Control Delay, s/veh | 11.6 |
| HCM 7th LOS                  | B    |

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 7th Signalized Intersection Summary 42: Cardinal Rd./SR-163 NB Ramps & Genesee Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|-------|------|------|------|------|------|------|
| Lane Configurations          | ↰↱   | ↑↓   |      | ↰↱   | ↑↓   | ↰     |      | ↰↱   |      |      | ↑    | ↰↱   |
| Traffic Volume (veh/h)       | 550  | 1470 | 350  | 60   | 240  | 330   | 270  | 230  | 40   | 0    | 1    | 510  |
| Future Volume (veh/h)        | 550  | 1470 | 350  | 60   | 240  | 330   | 270  | 230  | 40   | 0    | 1    | 510  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 0.99  | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   |      |       | No   |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870 | 1870 | 1841 | 1841 | 1841  | 1870 | 1870 | 1870 | 0    | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 579  | 1547 | 340  | 63   | 210  | 281   | 284  | 242  | 38   | 0    | 1    | 376  |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 4    | 4    | 4     | 2    | 2    | 2    | 0    | 2    | 2    |
| Cap, veh/h                   | 637  | 1564 | 333  | 182  | 839  | 1413  | 326  | 289  | 45   | 0    | 43   | 579  |
| Arrive On Green              | 0.18 | 0.54 | 0.54 | 0.10 | 0.46 | 0.46  | 0.18 | 0.18 | 0.18 | 0.00 | 0.02 | 0.02 |
| Sat Flow, veh/h              | 3456 | 2915 | 620  | 1753 | 1841 | 3099  | 1781 | 1578 | 248  | 0    | 1870 | 2790 |
| Grp Volume(v), veh/h         | 579  | 923  | 964  | 63   | 210  | 281   | 284  | 0    | 280  | 0    | 1    | 376  |
| Grp Sat Flow(s),veh/h/ln     | 1728 | 1777 | 1759 | 1753 | 1841 | 1550  | 1781 | 0    | 1826 | 0    | 1870 | 1395 |
| Q Serve(g_s), s              | 21.2 | 64.6 | 69.2 | 4.3  | 9.0  | 7.0   | 20.0 | 0.0  | 19.1 | 0.0  | 0.1  | 3.0  |
| Cycle Q Clear(g_c), s        | 21.2 | 64.6 | 69.2 | 4.3  | 9.0  | 7.0   | 20.0 | 0.0  | 19.1 | 0.0  | 0.1  | 3.0  |
| Prop In Lane                 | 1.00 |      | 0.35 | 1.00 |      | 1.00  | 1.00 |      | 0.14 | 0.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 637  | 953  | 943  | 182  | 839  | 1413  | 326  | 0    | 334  | 0    | 43   | 579  |
| V/C Ratio(X)                 | 0.91 | 0.97 | 1.02 | 0.35 | 0.25 | 0.20  | 0.87 | 0.00 | 0.84 | 0.00 | 0.02 | 0.65 |
| Avail Cap(c_a), veh/h        | 908  | 953  | 943  | 204  | 839  | 1413  | 525  | 0    | 538  | 0    | 43   | 579  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 51.6 | 28.9 | 29.9 | 53.7 | 21.5 | 21.0  | 51.2 | 0.0  | 50.9 | 0.0  | 61.6 | 46.8 |
| Incr Delay (d2), s/veh       | 7.9  | 22.4 | 35.0 | 0.4  | 0.7  | 0.3   | 5.4  | 0.0  | 3.2  | 0.0  | 0.2  | 2.5  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.7  | 31.4 | 36.2 | 1.9  | 4.0  | 2.6   | 9.4  | 0.0  | 9.0  | 0.0  | 0.0  | 5.7  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |       |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 59.4 | 51.3 | 65.0 | 54.1 | 22.3 | 21.3  | 56.6 | 0.0  | 54.0 | 0.0  | 61.8 | 49.4 |
| LnGrp LOS                    | E    | D    | F    | D    | C    | C     | E    |      | D    |      | E    | D    |
| Approach Vol, veh/h          | 2466 |      |      | 554  |      |       | 564  |      |      | 377  |      |      |
| Approach Delay, s/veh        | 58.5 |      |      | 25.4 |      |       | 55.3 |      |      | 49.4 |      |      |
| Approach LOS                 | E    |      |      | C    |      |       | E    |      |      | D    |      |      |
| Timer - Assigned Phs         | 1    | 2    |      | 4    | 5    | 6     |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 18.1 | 75.7 |      | 6.5  | 28.5 | 65.3  |      | 28.7 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.7  | 6.5  |      | 3.5  | 4.7  | * 6.5 |      | 5.1  |      |      |      |      |
| Max Green Setting (Gmax), s  | 15.0 | 69.2 |      | 3.0  | 33.9 | * 51  |      | 38.0 |      |      |      |      |
| Max Q Clear Time (g_c+I), s  | 10.3 | 71.2 |      | 5.0  | 23.2 | 11.0  |      | 22.0 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 0.0  |      | 0.0  | 0.6  | 1.3   |      | 1.6  |      |      |      |      |

## Intersection Summary

|                              |      |
|------------------------------|------|
| HCM 7th Control Delay, s/veh | 52.6 |
| HCM 7th LOS                  | D    |

## Notes

User approved volume balancing among the lanes for turning movement.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 43: Linda Vista Rd. & Mesa College Dr.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations          |  |  |      |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 130                                                                               | 440                                                                               | 120  | 270                                                                               | 860                                                                               | 240                                                                               | 220                                                                                 | 390                                                                                 | 200                                                                                 | 290                                                                                 | 340                                                                                 | 160                                                                                 |
| Future Volume (veh/h)        | 130                                                                               | 440                                                                               | 120  | 270                                                                               | 860                                                                               | 240                                                                               | 220                                                                                 | 390                                                                                 | 200                                                                                 | 290                                                                                 | 340                                                                                 | 160                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.91 | 1.00                                                                              |                                                                                   | 0.94                                                                              | 1.00                                                                                |                                                                                     | 0.91                                                                                | 1.00                                                                                |                                                                                     | 0.92                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |      | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870 | 1841                                                                              | 1841                                                                              | 1841                                                                              | 1856                                                                                | 1856                                                                                | 1856                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 137                                                                               | 463                                                                               | 113  | 284                                                                               | 905                                                                               | 202                                                                               | 232                                                                                 | 411                                                                                 | 169                                                                                 | 305                                                                                 | 358                                                                                 | 134                                                                                 |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2    | 4                                                                                 | 4                                                                                 | 4                                                                                 | 3                                                                                   | 3                                                                                   | 3                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 154                                                                               | 954                                                                               | 230  | 647                                                                               | 2191                                                                              | 918                                                                               | 299                                                                                 | 590                                                                                 | 453                                                                                 | 308                                                                                 | 612                                                                                 | 477                                                                                 |
| Arrive On Green              | 0.09                                                                              | 0.34                                                                              | 0.34 | 0.37                                                                              | 0.63                                                                              | 0.63                                                                              | 0.09                                                                                | 0.32                                                                                | 0.32                                                                                | 0.09                                                                                | 0.33                                                                                | 0.33                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 2775                                                                              | 669  | 1753                                                                              | 3497                                                                              | 1466                                                                              | 3428                                                                                | 1856                                                                                | 1424                                                                                | 3456                                                                                | 1870                                                                                | 1456                                                                                |
| Grp Volume(v), veh/h         | 137                                                                               | 295                                                                               | 281  | 284                                                                               | 905                                                                               | 202                                                                               | 232                                                                                 | 411                                                                                 | 169                                                                                 | 305                                                                                 | 358                                                                                 | 134                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1668 | 1753                                                                              | 1749                                                                              | 1466                                                                              | 1714                                                                                | 1856                                                                                | 1424                                                                                | 1728                                                                                | 1870                                                                                | 1456                                                                                |
| Q Serve(g_s), s              | 8.4                                                                               | 14.3                                                                              | 14.7 | 13.4                                                                              | 14.3                                                                              | 8.6                                                                               | 7.3                                                                                 | 21.3                                                                                | 7.9                                                                                 | 9.7                                                                                 | 17.5                                                                                | 7.5                                                                                 |
| Cycle Q Clear(g_c), s        | 8.4                                                                               | 14.3                                                                              | 14.7 | 13.4                                                                              | 14.3                                                                              | 8.6                                                                               | 7.3                                                                                 | 21.3                                                                                | 7.9                                                                                 | 9.7                                                                                 | 17.5                                                                                | 7.5                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.40 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 154                                                                               | 611                                                                               | 573  | 647                                                                               | 2191                                                                              | 918                                                                               | 299                                                                                 | 590                                                                                 | 453                                                                                 | 308                                                                                 | 612                                                                                 | 477                                                                                 |
| V/C Ratio(X)                 | 0.89                                                                              | 0.48                                                                              | 0.49 | 0.44                                                                              | 0.41                                                                              | 0.22                                                                              | 0.78                                                                                | 0.70                                                                                | 0.37                                                                                | 0.99                                                                                | 0.58                                                                                | 0.28                                                                                |
| Avail Cap(c_a), veh/h        | 154                                                                               | 625                                                                               | 587  | 647                                                                               | 2191                                                                              | 918                                                                               | 611                                                                                 | 590                                                                                 | 453                                                                                 | 308                                                                                 | 612                                                                                 | 477                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 49.7                                                                              | 28.4                                                                              | 28.5 | 26.1                                                                              | 10.4                                                                              | 15.4                                                                              | 49.2                                                                                | 32.8                                                                                | 17.8                                                                                | 50.1                                                                                | 30.8                                                                                | 27.4                                                                                |
| Incr Delay (d2), s/veh       | 41.3                                                                              | 0.5                                                                               | 0.6  | 0.2                                                                               | 0.6                                                                               | 0.6                                                                               | 1.6                                                                                 | 6.7                                                                                 | 2.3                                                                                 | 48.6                                                                                | 4.1                                                                                 | 1.5                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 5.5                                                                               | 6.1                                                                               | 5.9  | 5.6                                                                               | 5.4                                                                               | 3.0                                                                               | 3.2                                                                                 | 10.6                                                                                | 2.9                                                                                 | 6.2                                                                                 | 8.5                                                                                 | 2.8                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 91.1                                                                              | 28.9                                                                              | 29.1 | 26.3                                                                              | 10.9                                                                              | 16.0                                                                              | 50.8                                                                                | 39.5                                                                                | 20.2                                                                                | 98.6                                                                                | 34.8                                                                                | 28.9                                                                                |
| LnGrp LOS                    | F                                                                                 | C                                                                                 | C    | C                                                                                 | B                                                                                 | B                                                                                 | D                                                                                   | D                                                                                   | C                                                                                   | F                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h          | 713                                                                               |                                                                                   | 1391 |                                                                                   |                                                                                   |                                                                                   | 812                                                                                 |                                                                                     |                                                                                     | 797                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 40.9                                                                              |                                                                                   | 14.8 |                                                                                   |                                                                                   |                                                                                   | 38.7                                                                                |                                                                                     |                                                                                     | 58.2                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   | B    |                                                                                   |                                                                                   |                                                                                   | D                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3    | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 52.2                                                                              | 40.2                                                                              | 46.0 | 43.6                                                                              | 14.0                                                                              | 41.4                                                                              | 13.9                                                                                | 75.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               | * 5.2                                                                             | 4.4  | * 5.8                                                                             | 4.4                                                                               | 5.4                                                                               | 4.4                                                                                 | 5.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 9.8                                                                               | * 35                                                                              | 7.6  | * 39                                                                              | 19.6                                                                              | 25.0                                                                              | 9.5                                                                                 | 35.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 11.5                                                                              | 23.3                                                                              | 15.4 | 16.7                                                                              | 9.3                                                                               | 19.5                                                                              | 10.4                                                                                | 16.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 3.5                                                                               | 0.0  | 3.4                                                                               | 0.3                                                                               | 2.5                                                                               | 0.0                                                                                 | 15.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Intersection Summary

HCM 7th Control Delay, s/veh 34.4  
HCM 7th LOS C

## Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC  
44: Linda Vista Rd. & Kearny High School Dwy./Dwy.

Proposed Plan Conditions  
AM Peak Hour

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.8  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↗    | ↕    |      | ↗    | ↕    |      |
| Traffic Vol, veh/h       | 5    | 0    | 20   | 5    | 0    | 5    | 90   | 800  | 20   | 10   | 700  | 30   |
| Future Vol, veh/h        | 5    | 0    | 20   | 5    | 0    | 5    | 90   | 800  | 20   | 10   | 700  | 30   |
| Conflicting Peds, #/hr   | 3    | 0    | 0    | 0    | 0    | 3    | 14   | 0    | 3    | 3    | 0    | 14   |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 300  | -    | -    | 150  | -    | -    |
| Veh in Median Storage, # | -    | 1    | -    | -    | 1    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 97   | 97   | 97   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 3    | 3    | 3    | 3    | 3    | 3    |
| Mvmt Flow                | 5    | 0    | 21   | 5    | 0    | 5    | 95   | 842  | 21   | 11   | 737  | 32   |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |      | Major2 |   |   |      |   |   |
|----------------------|--------|------|--------|------|--------|------|--------|---|---|------|---|---|
| Conflicting Flow All | 1401   | 1843 | 398    | 1435 | 1849   | 438  | 782    | 0 | 0 | 866  | 0 | 0 |
| Stage 1              | 788    | 788  | -      | 1045 | 1045   | -    | -      | - | - | -    | - | - |
| Stage 2              | 614    | 1056 | -      | 389  | 803    | -    | -      | - | - | -    | - | - |
| Critical Hdwy        | 7.54   | 6.54 | 6.94   | 7.54 | 6.54   | 6.94 | 4.16   | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1  | 6.54   | 5.54 | -      | 6.54 | 5.54   | -    | -      | - | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.54   | 5.54 | -      | 6.54 | 5.54   | -    | -      | - | - | -    | - | - |
| Follow-up Hdwy       | 3.52   | 4.02 | 3.32   | 3.52 | 4.02   | 3.32 | 2.23   | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver   | 100    | 74   | *885   | *94  | 74     | 567  | 1036   | - | - | 767  | - | - |
| Stage 1              | 567    | 548  | -      | *245 | 304    | -    | -      | - | - | -    | - | - |
| Stage 2              | 446    | 300  | -      | *834 | 538    | -    | -      | - | - | -    | - | - |
| Platoon blocked, %   |        |      | 0      |      |        |      | 0      | - | - | -    | - | - |
| Mov Cap-1 Maneuver   | 87     | 65   | *873   | *82  | 65     | 564  | 1022   | - | - | 765  | - | - |
| Mov Cap-2 Maneuver   | 247    | 186  | -      | *179 | 181    | -    | -      | - | - | -    | - | - |
| Stage 1              | 552    | 533  | -      | *221 | 275    | -    | -      | - | - | -    | - | - |
| Stage 2              | 400    | 272  | -      | *804 | 523    | -    | -      | - | - | -    | - | - |

| Approach          | EB    |  | WB    |  | NB   |  | SB   |  |
|-------------------|-------|--|-------|--|------|--|------|--|
| HCM Ctrl Dly, s/v | 11.51 |  | 18.79 |  | 0.88 |  | 0.13 |  |
| HCM LOS           | B     |  | C     |  |      |  |      |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1 | WBLn1 | SBL   | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|-------|-----|-----|
| Capacity (veh/h)      | 1022  | -   | -   | 579   | 272   | 765   | -   | -   |
| HCM Lane V/C Ratio    | 0.093 | -   | -   | 0.045 | 0.039 | 0.014 | -   | -   |
| HCM Ctrl Dly (s/v)    | 8.9   | -   | -   | 11.5  | 18.8  | 9.8   | -   | -   |
| HCM Lane LOS          | A     | -   | -   | B     | C     | A     | -   | -   |
| HCM 95th %tile Q(veh) | 0.3   | -   | -   | 0.1   | 0.1   | 0     | -   | -   |

| Notes                      |                                |
|----------------------------|--------------------------------|
| ~: Volume exceeds capacity | \$. Delay exceeds 300s         |
| +: Computation Not Defined | *: All major volume in platoon |

HCM 7th Signalized Intersection Summary  
46: SR-163 NB Off Ramp & Mesa College Dr.

Proposed Plan Conditions  
AM Peak Hour



| Movement                                                             | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
|----------------------------------------------------------------------|------|------|------|------|------|------|
| Lane Configurations                                                  | ↑↑   |      |      | ↑↑   | ↔↔   | ↗    |
| Traffic Volume (veh/h)                                               | 570  | 0    | 0    | 1160 | 460  | 620  |
| Future Volume (veh/h)                                                | 570  | 0    | 0    | 1160 | 460  | 620  |
| Initial Q (Qb), veh                                                  | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.                                                      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)                                                  |      | 1.00 | 1.00 |      | 1.00 | 1.00 |
| Parking Bus, Adj                                                     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach                                                | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln                                               | 1870 | 0    | 0    | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h                                                 | 600  | 0    | 0    | 1221 | 628  | 319  |
| Peak Hour Factor                                                     | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %                                                 | 2    | 0    | 0    | 2    | 2    | 2    |
| Cap, veh/h                                                           | 1653 | 0    | 0    | 1653 | 958  | 426  |
| Arrive On Green                                                      | 0.47 | 0.00 | 0.00 | 0.47 | 0.27 | 0.27 |
| Sat Flow, veh/h                                                      | 3741 | 0    | 0    | 3741 | 3563 | 1585 |
| Grp Volume(v), veh/h                                                 | 600  | 0    | 0    | 1221 | 628  | 319  |
| Grp Sat Flow(s), veh/h/ln                                            | 1777 | 0    | 0    | 1777 | 1781 | 1585 |
| Q Serve(g_s), s                                                      | 4.2  | 0.0  | 0.0  | 10.7 | 6.0  | 7.1  |
| Cycle Q Clear(g_c), s                                                | 4.2  | 0.0  | 0.0  | 10.7 | 6.0  | 7.1  |
| Prop In Lane                                                         |      | 0.00 | 0.00 |      | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h                                               | 1653 | 0    | 0    | 1653 | 958  | 426  |
| V/C Ratio(X)                                                         | 0.36 | 0.00 | 0.00 | 0.74 | 0.66 | 0.75 |
| Avail Cap(c_a), veh/h                                                | 2308 | 0    | 0    | 2308 | 1384 | 616  |
| HCM Platoon Ratio                                                    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)                                                   | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh                                             | 6.6  | 0.0  | 0.0  | 8.4  | 12.4 | 12.8 |
| Incr Delay (d2), s/veh                                               | 0.0  | 0.0  | 0.0  | 0.4  | 0.3  | 1.4  |
| Initial Q Delay(d3), s/veh                                           | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln                                             | 0.0  | 0.0  | 0.0  | 2.7  | 1.9  | 2.1  |
| Unsig. Movement Delay, s/veh                                         |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh                                                | 6.6  | 0.0  | 0.0  | 8.8  | 12.7 | 14.2 |
| LnGrp LOS                                                            | A    |      |      | A    | B    | B    |
| Approach Vol, veh/h                                                  | 600  |      |      | 1221 | 947  |      |
| Approach Delay, s/veh                                                | 6.6  |      |      | 8.8  | 13.2 |      |
| Approach LOS                                                         | A    |      |      | A    | B    |      |
| Timer - Assigned Phs                                                 | 2    |      |      | 4    |      | 6    |
| Phs Duration (G+Y+Rc), s                                             | 22.9 |      |      | 15.4 |      | 22.9 |
| Change Period (Y+Rc), s                                              | 5.1  |      |      | 5.1  |      | 5.1  |
| Max Green Setting (Gmax), s                                          | 24.9 |      |      | 14.9 |      | 24.9 |
| Max Q Clear Time (g_c+l1), s                                         | 6.2  |      |      | 9.1  |      | 12.7 |
| Green Ext Time (p_c), s                                              | 2.7  |      |      | 1.2  |      | 5.1  |
| <b>Intersection Summary</b>                                          |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh                                         |      |      | 9.8  |      |      |      |
| HCM 7th LOS                                                          |      |      | A    |      |      |      |
| <b>Notes</b>                                                         |      |      |      |      |      |      |
| User approved volume balancing among the lanes for turning movement. |      |      |      |      |      |      |



# HCM 7th Signalized Intersection Summary 47: Mission Bay Dr. & Garnet Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               | SBR                                                                                 |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 820                                                                               | 1000                                                                              | 580                                                                               | 200                                                                               | 800                                                                               | 300                                                                               | 450                                                                               | 450                                                                               | 300                                                                               | 300                                                                               | 290                                                                               | 480                                                                                 |
| Future Volume (veh/h)        | 820                                                                               | 1000                                                                              | 580                                                                               | 200                                                                               | 800                                                                               | 300                                                                               | 450                                                                               | 450                                                                               | 300                                                                               | 300                                                                               | 290                                                                               | 480                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.92                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1856                                                                              | 1856                                                                              | 1856                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                |
| Adj Flow Rate, veh/h         | 854                                                                               | 1042                                                                              | 483                                                                               | 208                                                                               | 833                                                                               | 263                                                                               | 469                                                                               | 469                                                                               | 245                                                                               | 312                                                                               | 302                                                                               | 418                                                                                 |
| Peak Hour Factor             | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   |
| Cap, veh/h                   | 912                                                                               | 1340                                                                              | 810                                                                               | 224                                                                               | 858                                                                               | 588                                                                               | 489                                                                               | 832                                                                               | 542                                                                               | 466                                                                               | 420                                                                               | 1356                                                                                |
| Arrive On Green              | 0.26                                                                              | 0.38                                                                              | 0.38                                                                              | 0.13                                                                              | 0.24                                                                              | 0.24                                                                              | 0.14                                                                              | 0.23                                                                              | 0.23                                                                              | 0.13                                                                              | 0.22                                                                              | 0.22                                                                                |
| Sat Flow, veh/h              | 3456                                                                              | 3554                                                                              | 1554                                                                              | 1767                                                                              | 3526                                                                              | 1547                                                                              | 3456                                                                              | 3554                                                                              | 1456                                                                              | 3456                                                                              | 1870                                                                              | 2759                                                                                |
| Grp Volume(v), veh/h         | 854                                                                               | 1042                                                                              | 483                                                                               | 208                                                                               | 833                                                                               | 263                                                                               | 469                                                                               | 469                                                                               | 245                                                                               | 312                                                                               | 302                                                                               | 418                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1728                                                                              | 1777                                                                              | 1554                                                                              | 1767                                                                              | 1763                                                                              | 1547                                                                              | 1728                                                                              | 1777                                                                              | 1456                                                                              | 1728                                                                              | 1870                                                                              | 1379                                                                                |
| Q Serve(g_s), s              | 36.2                                                                              | 38.8                                                                              | 10.7                                                                              | 17.5                                                                              | 35.1                                                                              | 9.0                                                                               | 20.2                                                                              | 17.5                                                                              | 0.0                                                                               | 12.9                                                                              | 22.4                                                                              | 7.4                                                                                 |
| Cycle Q Clear(g_c), s        | 36.2                                                                              | 38.8                                                                              | 10.7                                                                              | 17.5                                                                              | 35.1                                                                              | 9.0                                                                               | 20.2                                                                              | 17.5                                                                              | 0.0                                                                               | 12.9                                                                              | 22.4                                                                              | 7.4                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 912                                                                               | 1340                                                                              | 810                                                                               | 224                                                                               | 858                                                                               | 588                                                                               | 489                                                                               | 832                                                                               | 542                                                                               | 466                                                                               | 420                                                                               | 1356                                                                                |
| V/C Ratio(X)                 | 0.94                                                                              | 0.78                                                                              | 0.60                                                                              | 0.93                                                                              | 0.97                                                                              | 0.45                                                                              | 0.96                                                                              | 0.56                                                                              | 0.45                                                                              | 0.67                                                                              | 0.72                                                                              | 0.31                                                                                |
| Avail Cap(c_a), veh/h        | 1087                                                                              | 1684                                                                              | 961                                                                               | 224                                                                               | 858                                                                               | 588                                                                               | 489                                                                               | 832                                                                               | 542                                                                               | 466                                                                               | 420                                                                               | 1356                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.61                                                                              | 0.61                                                                              | 0.61                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 54.0                                                                              | 41.2                                                                              | 25.0                                                                              | 64.8                                                                              | 56.2                                                                              | 14.2                                                                              | 64.0                                                                              | 50.7                                                                              | 36.2                                                                              | 61.7                                                                              | 53.8                                                                              | 9.3                                                                                 |
| Incr Delay (d2), s/veh       | 12.3                                                                              | 2.2                                                                               | 1.1                                                                               | 28.8                                                                              | 17.6                                                                              | 0.5                                                                               | 30.3                                                                              | 2.8                                                                               | 2.7                                                                               | 3.0                                                                               | 10.1                                                                              | 0.6                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 16.9                                                                              | 16.9                                                                              | 11.7                                                                              | 9.5                                                                               | 17.3                                                                              | 3.5                                                                               | 11.0                                                                              | 8.2                                                                               | 7.1                                                                               | 5.9                                                                               | 11.8                                                                              | 2.6                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |
| LnGrp Delay(d), s/veh        | 66.3                                                                              | 43.4                                                                              | 26.1                                                                              | 93.6                                                                              | 73.8                                                                              | 14.7                                                                              | 94.3                                                                              | 53.5                                                                              | 38.9                                                                              | 64.7                                                                              | 63.9                                                                              | 9.9                                                                                 |
| LnGrp LOS                    | E                                                                                 | D                                                                                 | C                                                                                 | F                                                                                 | E                                                                                 | B                                                                                 | F                                                                                 | D                                                                                 | D                                                                                 | E                                                                                 | E                                                                                 | A                                                                                   |
| Approach Vol, veh/h          | 2379                                                                              |                                                                                   |                                                                                   | 1304                                                                              |                                                                                   |                                                                                   | 1183                                                                              |                                                                                   |                                                                                   | 1032                                                                              |                                                                                   |                                                                                     |
| Approach Delay, s/veh        | 48.1                                                                              |                                                                                   |                                                                                   | 65.0                                                                              |                                                                                   |                                                                                   | 66.6                                                                              |                                                                                   |                                                                                   | 42.3                                                                              |                                                                                   |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 35.6                                                                              | 39.0                                                                              | 44.0                                                                              | 41.4                                                                              | 24.6                                                                              | 40.0                                                                              | 23.9                                                                              | 61.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |
| Change Period (Y+Rc), s      | 4.4                                                                               | 5.3                                                                               | 4.4                                                                               | 4.9                                                                               | 4.4                                                                               | 4.9                                                                               | 4.9                                                                               | * 4.9                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |
| Max Green Setting (Gmax), s  | 13.6                                                                              | 33.7                                                                              | 47.2                                                                              | 36.5                                                                              | 12.6                                                                              | 35.1                                                                              | 12.6                                                                              | * 71                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |
| Max Q Clear Time (g_c+Y), s  | 22.2                                                                              | 24.4                                                                              | 38.2                                                                              | 37.1                                                                              | 14.9                                                                              | 19.5                                                                              | 19.5                                                                              | 40.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.8                                                                               | 1.3                                                                               | 0.0                                                                               | 0.0                                                                               | 5.7                                                                               | 0.0                                                                               | 15.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |

## Intersection Summary

HCM 7th Control Delay, s/veh 54.5  
HCM 7th LOS D

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 48: Morena Blvd. SB Ramps

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 110  | 160  | 320  | 860  | 300  | 400  |
| Future Volume (veh/h)        | 110  | 160  | 320  | 860  | 300  | 400  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870 | 1870 | 1870 | 1949 | 1949 |
| Adj Flow Rate, veh/h         | 116  | 168  | 337  | 905  | 316  | 421  |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 230  | 568  | 408  | 1237 | 639  | 755  |
| Arrive On Green              | 0.13 | 0.13 | 0.23 | 0.66 | 0.33 | 0.33 |
| Sat Flow, veh/h              | 1781 | 1585 | 1781 | 1870 | 1949 | 1651 |
| Grp Volume(v), veh/h         | 116  | 168  | 337  | 905  | 316  | 421  |
| Grp Sat Flow(s), veh/h/ln    | 1781 | 1585 | 1781 | 1870 | 1949 | 1651 |
| Q Serve(g_s), s              | 2.3  | 0.0  | 6.9  | 12.1 | 5.0  | 7.1  |
| Cycle Q Clear(g_c), s        | 2.3  | 0.0  | 6.9  | 12.1 | 5.0  | 7.1  |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 230  | 568  | 408  | 1237 | 639  | 755  |
| V/C Ratio(X)                 | 0.50 | 0.30 | 0.83 | 0.73 | 0.49 | 0.56 |
| Avail Cap(c_a), veh/h        | 1351 | 1565 | 466  | 2103 | 1478 | 1466 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 15.5 | 8.8  | 14.0 | 4.2  | 10.3 | 7.6  |
| Incr Delay (d2), s/veh       | 1.7  | 0.3  | 10.4 | 0.8  | 0.6  | 0.6  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.9  | 0.0  | 3.4  | 1.5  | 1.7  | 2.5  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 17.2 | 9.1  | 24.4 | 5.1  | 10.9 | 8.2  |
| LnGrp LOS                    | B    | A    | C    | A    | B    | A    |
| Approach Vol, veh/h          | 284  |      |      | 1242 | 737  |      |
| Approach Delay, s/veh        | 12.4 |      |      | 10.3 | 9.4  |      |
| Approach LOS                 | B    |      |      | B    | A    |      |
| Timer - Assigned Phs         | 2    |      |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     | 29.3 |      |      | 8.9  | 12.8 | 16.5 |
| Change Period (Y+Rc), s      | 4.0  |      |      | 4.0  | 4.0  | 4.0  |
| Max Green Setting (Gmax), s  | 43.0 |      |      | 29.0 | 10.0 | 29.0 |
| Max Q Clear Time (g_c+l1), s | 14.1 |      |      | 4.3  | 8.9  | 9.1  |
| Green Ext Time (p_c), s      |      | 8.3  |      | 0.9  | 0.1  | 3.4  |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh |      |      | 10.3 |      |      |      |
| HCM 7th LOS                  |      |      | B    |      |      |      |

# HCM 7th Signalized Intersection Summary 49: Morena Blvd. SB On Ramp/Morena Blvd. SB Ramps

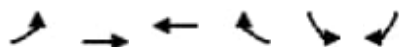
Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 30   | 10   | 10   | 140  | 80   | 280  | 10   | 870  | 690  | 70   | 340  | 50   |
| Future Volume (veh/h)        | 30   | 10   | 10   | 140  | 80   | 280  | 10   | 870  | 690  | 70   | 340  | 50   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.94 | 1.00 |      | 0.97 | 1.00 |      | 0.98 | 1.00 |      | 0.98 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   |      |      | No   |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1826 | 1826 | 1826 | 1826 | 1870 |
| Adj Flow Rate, veh/h         | 32   | 11   | 10   | 147  | 84   | 236  | 11   | 916  | 653  | 74   | 358  | 48   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 5    | 5    | 5    | 5    | 2    |
| Cap, veh/h                   | 175  | 86   | 78   | 228  | 130  | 389  | 23   | 1736 | 759  | 94   | 1662 | 221  |
| Arrive On Green              | 0.10 | 0.10 | 0.10 | 0.20 | 0.20 | 0.20 | 0.01 | 0.50 | 0.50 | 0.05 | 0.54 | 0.54 |
| Sat Flow, veh/h              | 1781 | 873  | 794  | 1154 | 659  | 1537 | 1781 | 3469 | 1516 | 1739 | 3070 | 408  |
| Grp Volume(v), veh/h         | 32   | 0    | 21   | 231  | 0    | 236  | 11   | 916  | 653  | 74   | 201  | 205  |
| Grp Sat Flow(s), veh/h/ln    | 1781 | 0    | 1667 | 1813 | 0    | 1537 | 1781 | 1735 | 1516 | 1739 | 1735 | 1743 |
| Q Serve(g_s), s              | 1.8  | 0.0  | 1.2  | 12.5 | 0.0  | 14.5 | 0.7  | 19.1 | 40.4 | 4.5  | 6.4  | 6.5  |
| Cycle Q Clear(g_c), s        | 1.8  | 0.0  | 1.2  | 12.5 | 0.0  | 14.5 | 0.7  | 19.1 | 40.4 | 4.5  | 6.4  | 6.5  |
| Prop In Lane                 | 1.00 |      | 0.48 | 0.64 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.23 |
| Lane Grp Cap(c), veh/h       | 175  | 0    | 164  | 358  | 0    | 389  | 23   | 1736 | 759  | 94   | 939  | 944  |
| V/C Ratio(X)                 | 0.18 | 0.00 | 0.13 | 0.65 | 0.00 | 0.61 | 0.47 | 0.53 | 0.86 | 0.79 | 0.21 | 0.22 |
| Avail Cap(c_a), veh/h        | 484  | 0    | 452  | 492  | 0    | 503  | 83   | 2241 | 980  | 114  | 1153 | 1159 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 44.2 | 0.0  | 44.0 | 39.4 | 0.0  | 35.3 | 52.3 | 18.1 | 23.4 | 49.9 | 12.7 | 12.7 |
| Incr Delay (d2), s/veh       | 0.5  | 0.0  | 0.3  | 2.0  | 0.0  | 1.5  | 14.2 | 0.3  | 6.4  | 25.2 | 0.1  | 0.1  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.8  | 0.0  | 0.5  | 5.7  | 0.0  | 5.5  | 0.4  | 7.5  | 15.0 | 2.6  | 2.5  | 2.5  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 44.7 | 0.0  | 44.3 | 41.4 | 0.0  | 36.9 | 66.6 | 18.4 | 29.8 | 75.2 | 12.8 | 12.8 |
| LnGrp LOS                    | D    |      | D    | D    |      | D    | E    | B    | C    | E    | B    | B    |
| Approach Vol, veh/h          | 53   |      |      | 467  |      |      | 1580 |      |      | 480  |      |      |
| Approach Delay, s/veh        | 44.6 |      |      | 39.1 |      |      | 23.4 |      |      | 22.4 |      |      |
| Approach LOS                 | D    |      |      | D    |      |      | C    |      |      | C    |      |      |
| Timer - Assigned Phs         | 1    | 2    |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 9.8  | 57.4 |      | 14.5 | 5.4  | 61.8 |      | 25.1 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.0  | 4.0  |      | 4.0  | 4.0  | 4.0  |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s  | 7.0  | 69.0 |      | 29.0 | 5.0  | 71.0 |      | 29.0 |      |      |      |      |
| Max Q Clear Time (g_c+I), s  | 10.5 | 42.4 |      | 3.8  | 2.7  | 8.5  |      | 16.5 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 11.1 |      | 0.1  | 0.0  | 2.7  |      | 1.8  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh | 26.5 |      |      |      |      |      |      |      |      |      |      |      |
| HCM 7th LOS                  | C    |      |      |      |      |      |      |      |      |      |      |      |

HCM 7th Signalized Intersection Summary  
50: Garnet Ave./Balboa Ave. & Moraga Ave.

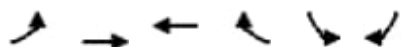
Proposed Plan Conditions  
AM Peak Hour



| Movement                                                                                           | EBL  | EBT   | WBT  | WBR  | SBL  | SBR  |
|----------------------------------------------------------------------------------------------------|------|-------|------|------|------|------|
| Lane Configurations                                                                                |      |       |      |      |      |      |
| Traffic Volume (veh/h)                                                                             | 500  | 1150  | 1470 | 180  | 190  | 380  |
| Future Volume (veh/h)                                                                              | 500  | 1150  | 1470 | 180  | 190  | 380  |
| Initial Q (Qb), veh                                                                                | 0    | 0     | 0    | 0    | 0    | 0    |
| Lane Width Adj.                                                                                    | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00 |       |      | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj                                                                                   | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach                                                                              |      | No    | No   |      | No   |      |
| Adj Sat Flow, veh/h/ln                                                                             | 1870 | 1870  | 1856 | 1856 | 1841 | 1841 |
| Adj Flow Rate, veh/h                                                                               | 526  | 1211  | 1547 | 151  | 200  | 320  |
| Peak Hour Factor                                                                                   | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %                                                                               | 2    | 2     | 3    | 3    | 4    | 4    |
| Cap, veh/h                                                                                         | 565  | 2383  | 1651 | 736  | 391  | 348  |
| Arrive On Green                                                                                    | 0.16 | 0.67  | 0.47 | 0.47 | 0.22 | 0.22 |
| Sat Flow, veh/h                                                                                    | 3456 | 3647  | 3618 | 1572 | 1753 | 1560 |
| Grp Volume(v), veh/h                                                                               | 526  | 1211  | 1547 | 151  | 200  | 320  |
| Grp Sat Flow(s), veh/h/ln                                                                          | 1728 | 1777  | 1763 | 1572 | 1753 | 1560 |
| Q Serve(g_s), s                                                                                    | 17.1 | 19.4  | 47.3 | 6.4  | 11.4 | 22.8 |
| Cycle Q Clear(g_c), s                                                                              | 17.1 | 19.4  | 47.3 | 6.4  | 11.4 | 22.8 |
| Prop In Lane                                                                                       | 1.00 |       |      | 1.00 | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h                                                                             | 565  | 2383  | 1651 | 736  | 391  | 348  |
| V/C Ratio(X)                                                                                       | 0.93 | 0.51  | 0.94 | 0.21 | 0.51 | 0.92 |
| Avail Cap(c_a), veh/h                                                                              | 565  | 2427  | 1670 | 745  | 478  | 425  |
| HCM Platoon Ratio                                                                                  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)                                                                                 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh                                                                           | 46.9 | 9.4   | 28.7 | 17.8 | 38.7 | 43.2 |
| Incr Delay (d2), s/veh                                                                             | 22.0 | 0.3   | 10.6 | 0.2  | 0.4  | 20.5 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln                                                                           | 8.8  | 6.4   | 20.6 | 2.2  | 4.9  | 19.9 |
| Unsig. Movement Delay, s/veh                                                                       |      |       |      |      |      |      |
| LnGrp Delay(d), s/veh                                                                              | 68.9 | 9.7   | 39.2 | 18.0 | 39.1 | 63.7 |
| LnGrp LOS                                                                                          | E    | A     | D    | B    | D    | E    |
| Approach Vol, veh/h                                                                                |      | 1737  | 1698 |      | 520  |      |
| Approach Delay, s/veh                                                                              |      | 27.6  | 37.3 |      | 54.2 |      |
| Approach LOS                                                                                       |      | C     | D    |      | D    |      |
| Timer - Assigned Phs                                                                               |      | 2     |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s                                                                           |      | 82.8  |      | 31.0 | 23.0 | 59.8 |
| Change Period (Y+Rc), s                                                                            |      | * 6.5 |      | 5.6  | 4.4  | 6.5  |
| Max Green Setting (Gmax), s                                                                        |      | * 78  |      | 31.0 | 18.6 | 53.9 |
| Max Q Clear Time (g_c+l1), s                                                                       |      | 21.4  |      | 24.8 | 19.1 | 49.3 |
| Green Ext Time (p_c), s                                                                            |      | 22.4  |      | 0.6  | 0.0  | 4.0  |
| <b>Intersection Summary</b>                                                                        |      |       |      |      |      |      |
| HCM 7th Control Delay, s/veh                                                                       |      |       | 35.3 |      |      |      |
| HCM 7th LOS                                                                                        |      |       | D    |      |      |      |
| <b>Notes</b>                                                                                       |      |       |      |      |      |      |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |      |       |      |      |      |      |

# HCM 7th Signalized Intersection Summary 51: Garnet Ave.

Proposed Plan Conditions  
AM Peak Hour



| Movement                     | EBL | EBT | WBT  | WBR  | SBL  | SBR  |
|------------------------------|-----|-----|------|------|------|------|
| Lane Configurations          |     |     | ↑↑↑↑ | ↑↑   | ↑↑   | ↑↑   |
| Traffic Volume (veh/h)       | 0   | 0   | 1580 | 270  | 1    | 720  |
| Future Volume (veh/h)        | 0   | 0   | 1580 | 270  | 1    | 720  |
| Initial Q (Qb), veh          |     |     | 0    | 0    | 0    | 0    |
| Lane Width Adj.              |     |     | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          |     |     |      | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj             |     |     | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |     |     | No   |      | No   |      |
| Adj Sat Flow, veh/h/ln       |     |     | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         |     |     | 1663 | 284  | 1    | 758  |
| Peak Hour Factor             |     |     | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         |     |     | 2    | 2    | 2    | 2    |
| Cap, veh/h                   |     |     | 4255 | 1321 | 0    | 0    |
| Arrive On Green              |     |     | 0.83 | 0.83 | 0.00 | 0.00 |
| Sat Flow, veh/h              |     |     | 5274 | 1585 | 0    |      |
| Grp Volume(v), veh/h         |     |     | 1663 | 284  | 0.0  |      |
| Grp Sat Flow(s),veh/h/ln     |     |     | 1702 | 1585 |      |      |
| Q Serve(g_s), s              |     |     | 2.2  | 1.0  |      |      |
| Cycle Q Clear(g_c), s        |     |     | 2.2  | 1.0  |      |      |
| Prop In Lane                 |     |     |      | 1.00 |      |      |
| Lane Grp Cap(c), veh/h       |     |     | 4255 | 1321 |      |      |
| V/C Ratio(X)                 |     |     | 0.39 | 0.22 |      |      |
| Avail Cap(c_a), veh/h        |     |     | 4255 | 1321 |      |      |
| HCM Platoon Ratio            |     |     | 1.00 | 1.00 |      |      |
| Upstream Filter(I)           |     |     | 1.00 | 1.00 |      |      |
| Uniform Delay (d), s/veh     |     |     | 0.6  | 0.5  |      |      |
| Incr Delay (d2), s/veh       |     |     | 0.3  | 0.4  |      |      |
| Initial Q Delay(d3), s/veh   |     |     | 0.0  | 0.0  |      |      |
| %ile BackOfQ(50%),veh/ln     |     |     | 0.1  | 0.1  |      |      |
| Unsig. Movement Delay, s/veh |     |     |      |      |      |      |
| LnGrp Delay(d), s/veh        |     |     | 0.8  | 0.8  |      |      |
| LnGrp LOS                    |     |     | A    | A    |      |      |
| Approach Vol, veh/h          |     |     | 1947 |      |      |      |
| Approach Delay, s/veh        |     |     | 0.8  |      |      |      |
| Approach LOS                 |     |     | A    |      |      |      |
| Timer - Assigned Phs         |     |     |      |      | 6    |      |
| Phs Duration (G+Y+Rc), s     |     |     |      |      | 27.0 |      |
| Change Period (Y+Rc), s      |     |     |      |      | 4.5  |      |
| Max Green Setting (Gmax), s  |     |     |      |      | 22.5 |      |
| Max Q Clear Time (g_c+l1), s |     |     |      |      | 4.2  |      |
| Green Ext Time (p_c), s      |     |     |      |      | 11.7 |      |
| <b>Intersection Summary</b>  |     |     |      |      |      |      |
| HCM 7th Control Delay, s/veh |     |     | 0.8  |      |      |      |
| HCM 7th LOS                  |     |     | A    |      |      |      |

# HCM 7th Signalized Intersection Summary

1: Regents Rd. & SR-52 WB On Ramp/SR-52 WB Off Ramp

Proposed Plan Conditions

PM Peak Hour

|                              |  |      |     |      |      |       |      |      |      |      |      |      |
|------------------------------|------------------------------------------------------------------------------------|------|-----|------|------|-------|------|------|------|------|------|------|
| Movement                     | EBL                                                                                | EBT  | EBR | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations          |                                                                                    |      |     |      | ↰    | ↱     | ↰↱   | ↰↱   |      |      | ↰↱   | ↱    |
| Traffic Volume (veh/h)       | 0                                                                                  | 0    | 0   | 980  | 10   | 280   | 400  | 580  | 0    | 0    | 570  | 220  |
| Future Volume (veh/h)        | 0                                                                                  | 0    | 0   | 980  | 10   | 280   | 400  | 580  | 0    | 0    | 570  | 220  |
| Initial Q (Qb), veh          |                                                                                    |      |     | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              |                                                                                    |      |     | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          |                                                                                    |      |     | 1.00 |      | 1.00  | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             |                                                                                    |      |     | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |                                                                                    |      |     | No   |      |       | No   |      |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       |                                                                                    |      |     | 1870 | 1870 | 1870  | 1796 | 1796 | 0    | 0    | 1841 | 1841 |
| Adj Flow Rate, veh/h         |                                                                                    |      |     | 1032 | 11   | 0     | 421  | 611  | 0    | 0    | 600  | 0    |
| Peak Hour Factor             |                                                                                    |      |     | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         |                                                                                    |      |     | 2    | 2    | 2     | 7    | 7    | 0    | 0    | 4    | 4    |
| Cap, veh/h                   |                                                                                    |      |     | 950  | 10   |       | 418  | 3508 | 0    | 0    | 2990 |      |
| Arrive On Green              |                                                                                    |      |     | 0.54 | 0.54 | 0.00  | 0.04 | 0.34 | 0.00 | 0.00 | 0.86 | 0.00 |
| Sat Flow, veh/h              |                                                                                    |      |     | 1763 | 19   | 1585  | 3319 | 3503 | 0    | 0    | 3589 | 1560 |
| Grp Volume(v), veh/h         |                                                                                    |      |     | 1043 | 0    | 0     | 421  | 611  | 0    | 0    | 600  | 0    |
| Grp Sat Flow(s),veh/h/ln     |                                                                                    |      |     | 1782 | 0    | 1585  | 1659 | 1706 | 0    | 0    | 1749 | 1560 |
| Q Serve(g_s), s              |                                                                                    |      |     | 53.9 | 0.0  | 0.0   | 12.6 | 0.0  | 0.0  | 0.0  | 3.0  | 0.0  |
| Cycle Q Clear(g_c), s        |                                                                                    |      |     | 53.9 | 0.0  | 0.0   | 12.6 | 0.0  | 0.0  | 0.0  | 3.0  | 0.0  |
| Prop In Lane                 |                                                                                    |      |     | 0.99 |      | 1.00  | 1.00 |      | 0.00 | 0.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       |                                                                                    |      |     | 961  | 0    |       | 418  | 3508 | 0    | 0    | 2990 |      |
| V/C Ratio(X)                 |                                                                                    |      |     | 1.09 | 0.00 |       | 1.01 | 0.17 | 0.00 | 0.00 | 0.20 |      |
| Avail Cap(c_a), veh/h        |                                                                                    |      |     | 961  | 0    |       | 418  | 3508 | 0    | 0    | 2990 |      |
| HCM Platoon Ratio            |                                                                                    |      |     | 1.00 | 1.00 | 1.00  | 0.33 | 0.33 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           |                                                                                    |      |     | 1.00 | 0.00 | 0.00  | 0.75 | 0.75 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh     |                                                                                    |      |     | 23.1 | 0.0  | 0.0   | 47.9 | 0.0  | 0.0  | 0.0  | 1.3  | 0.0  |
| Incr Delay (d2), s/veh       |                                                                                    |      |     | 55.2 | 0.0  | 0.0   | 39.8 | 0.1  | 0.0  | 0.0  | 0.2  | 0.0  |
| Initial Q Delay(d3), s/veh   |                                                                                    |      |     | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     |                                                                                    |      |     | 35.4 | 0.0  | 0.0   | 7.9  | 0.0  | 0.0  | 0.0  | 0.5  | 0.0  |
| Unsig. Movement Delay, s/veh |                                                                                    |      |     |      |      |       |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        |                                                                                    |      |     | 78.2 | 0.0  | 0.0   | 87.7 | 0.1  | 0.0  | 0.0  | 1.4  | 0.0  |
| LnGrp LOS                    |                                                                                    |      |     | F    |      |       | F    | A    |      |      | A    |      |
| Approach Vol, veh/h          |                                                                                    |      |     |      | 1043 |       |      | 1032 |      |      | 600  |      |
| Approach Delay, s/veh        |                                                                                    |      |     |      | 78.2 |       |      | 35.8 |      |      | 1.4  |      |
| Approach LOS                 |                                                                                    |      |     |      | E    |       |      | D    |      |      | A    |      |
| Timer - Assigned Phs         | 1                                                                                  | 2    |     |      |      | 6     |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 17.3                                                                               | 93.7 |     |      |      | 111.0 |      | 59.0 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.7                                                                                | 6.2  |     |      |      | * 6.2 |      | 5.1  |      |      |      |      |
| Max Green Setting (Gmax), s  | 12.6                                                                               | 17.5 |     |      |      | * 37  |      | 53.9 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 14.6                                                                               | 5.0  |     |      |      | 2.0   |      | 55.9 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0                                                                                | 3.3  |     |      |      | 4.7   |      | 0.0  |      |      |      |      |

## Intersection Summary

HCM 7th Control Delay, s/veh 44.6

HCM 7th LOS D

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



# HCM 7th Signalized Intersection Summary 2: SR-52 EB Off Ramp/SR-52 EB On Ramp & Regents Rd.

Proposed Plan Conditions  
PM Peak Hour



| Movement                                                                                                      | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL  | WBT | WBR  | NBL  | NBT                                                                               | NBR                                                                               | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----|------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations                                                                                           |  |  |  |      |     |      |      |  |  |  |  |  |
| Traffic Volume (veh/h)                                                                                        | 410                                                                               | 10                                                                                | 1050                                                                              | 0    | 0   | 0    | 0    | 570                                                                               | 430                                                                               | 220                                                                                 | 1330                                                                                | 0                                                                                   |
| Future Volume (veh/h)                                                                                         | 410                                                                               | 10                                                                                | 1050                                                                              | 0    | 0   | 0    | 0    | 570                                                                               | 430                                                                               | 220                                                                                 | 1330                                                                                | 0                                                                                   |
| Initial Q (Qb), veh                                                                                           | 0                                                                                 | 0                                                                                 | 0                                                                                 |      |     |      | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                               | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |      |     |      | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                           | 1.00                                                                              |                                                                                   | 1.00                                                                              |      |     |      | 1.00 |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj                                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |      |     |      | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                                         |                                                                                   | No                                                                                |                                                                                   |      |     |      |      | No                                                                                |                                                                                   |                                                                                     | No                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                                        | 1870                                                                              | 1870                                                                              | 1870                                                                              |      |     |      | 0    | 1796                                                                              | 1796                                                                              | 1796                                                                                | 1796                                                                                | 0                                                                                   |
| Adj Flow Rate, veh/h                                                                                          | 425                                                                               | 0                                                                                 | 0                                                                                 |      |     |      | 0    | 582                                                                               | 0                                                                                 | 224                                                                                 | 1357                                                                                | 0                                                                                   |
| Peak Hour Factor                                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              |      |     |      | 0.98 | 0.98                                                                              | 0.98                                                                              | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Percent Heavy Veh, %                                                                                          | 2                                                                                 | 2                                                                                 | 2                                                                                 |      |     |      | 0    | 7                                                                                 | 7                                                                                 | 7                                                                                   | 7                                                                                   | 0                                                                                   |
| Cap, veh/h                                                                                                    | 538                                                                               | 0                                                                                 |                                                                                   |      |     |      | 0    | 2000                                                                              |                                                                                   | 176                                                                                 | 2512                                                                                | 0                                                                                   |
| Arrive On Green                                                                                               | 0.15                                                                              | 0.00                                                                              | 0.00                                                                              |      |     |      | 0.00 | 0.59                                                                              | 0.00                                                                              | 0.03                                                                                | 0.24                                                                                | 0.00                                                                                |
| Sat Flow, veh/h                                                                                               | 3563                                                                              | 0                                                                                 | 1585                                                                              |      |     |      | 0    | 3503                                                                              | 1522                                                                              | 1711                                                                                | 3503                                                                                | 0                                                                                   |
| Grp Volume(v), veh/h                                                                                          | 425                                                                               | 0                                                                                 | 0                                                                                 |      |     |      | 0    | 582                                                                               | 0                                                                                 | 224                                                                                 | 1357                                                                                | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln                                                                                      | 1781                                                                              | 0                                                                                 | 1585                                                                              |      |     |      | 0    | 1706                                                                              | 1522                                                                              | 1711                                                                                | 1706                                                                                | 0                                                                                   |
| Q Serve(g_s), s                                                                                               | 11.5                                                                              | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0  | 8.5                                                                               | 0.0                                                                               | 10.3                                                                                | 34.6                                                                                | 0.0                                                                                 |
| Cycle Q Clear(g_c), s                                                                                         | 11.5                                                                              | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0  | 8.5                                                                               | 0.0                                                                               | 10.3                                                                                | 34.6                                                                                | 0.0                                                                                 |
| Prop In Lane                                                                                                  | 1.00                                                                              |                                                                                   | 1.00                                                                              |      |     |      | 0.00 |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 0.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                                        | 538                                                                               | 0                                                                                 |                                                                                   |      |     |      | 0    | 2000                                                                              |                                                                                   | 176                                                                                 | 2512                                                                                | 0                                                                                   |
| V/C Ratio(X)                                                                                                  | 0.79                                                                              | 0.00                                                                              |                                                                                   |      |     |      | 0.00 | 0.29                                                                              |                                                                                   | 1.27                                                                                | 0.54                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h                                                                                         | 1813                                                                              | 0                                                                                 |                                                                                   |      |     |      | 0    | 2000                                                                              |                                                                                   | 176                                                                                 | 2512                                                                                | 0                                                                                   |
| HCM Platoon Ratio                                                                                             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |      |     |      | 1.00 | 1.00                                                                              | 1.00                                                                              | 0.33                                                                                | 0.33                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                            | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              |      |     |      | 0.00 | 1.00                                                                              | 0.00                                                                              | 0.12                                                                                | 0.12                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh                                                                                      | 40.9                                                                              | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0  | 10.3                                                                              | 0.0                                                                               | 48.3                                                                                | 23.1                                                                                | 0.0                                                                                 |
| Incr Delay (d2), s/veh                                                                                        | 2.7                                                                               | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0  | 0.4                                                                               | 0.0                                                                               | 127.6                                                                               | 0.1                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh                                                                                    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                                      | 5.2                                                                               | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0  | 3.1                                                                               | 0.0                                                                               | 10.9                                                                                | 15.7                                                                                | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh                                                                                  |                                                                                   |                                                                                   |                                                                                   |      |     |      |      |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                                         | 43.6                                                                              | 0.0                                                                               | 0.0                                                                               |      |     |      | 0.0  | 10.7                                                                              | 0.0                                                                               | 175.9                                                                               | 23.2                                                                                | 0.0                                                                                 |
| LnGrp LOS                                                                                                     | D                                                                                 |                                                                                   |                                                                                   |      |     |      |      | B                                                                                 |                                                                                   | F                                                                                   | C                                                                                   |                                                                                     |
| Approach Vol, veh/h                                                                                           | 425                                                                               |                                                                                   |                                                                                   |      |     |      | 582  |                                                                                   |                                                                                   | 1581                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                                         | 43.6                                                                              |                                                                                   |                                                                                   |      |     |      | 10.7 |                                                                                   |                                                                                   | 44.8                                                                                |                                                                                     |                                                                                     |
| Approach LOS                                                                                                  | D                                                                                 |                                                                                   |                                                                                   |      |     |      | B    |                                                                                   |                                                                                   | D                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                                          | 2                                                                                 |                                                                                   |                                                                                   | 4    |     | 5    | 6    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                                      | 79.8                                                                              |                                                                                   |                                                                                   | 20.2 |     | 15.0 | 64.8 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                                       | 6.2                                                                               |                                                                                   |                                                                                   | 5.1  |     | 4.7  | 6.2  |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                                   | 37.8                                                                              |                                                                                   |                                                                                   | 50.9 |     | 10.3 | 22.8 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+l1), s                                                                                  | 36.6                                                                              |                                                                                   |                                                                                   | 13.5 |     | 12.3 | 10.5 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                                       | 0.9                                                                               |                                                                                   |                                                                                   | 1.6  |     | 0.0  | 3.1  |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                                          |                                                                                   |                                                                                   |                                                                                   |      |     |      |      |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                                  | 37.0                                                                              |                                                                                   |                                                                                   |      |     |      |      |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                                   | D                                                                                 |                                                                                   |                                                                                   |      |     |      |      |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                                         |                                                                                   |                                                                                   |                                                                                   |      |     |      |      |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| User approved volume balancing among the lanes for turning movement.                                          |                                                                                   |                                                                                   |                                                                                   |      |     |      |      |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay. |                                                                                   |                                                                                   |                                                                                   |      |     |      |      |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 4: Genesee Ave. & SR-52 EB Ramps

Proposed Plan Conditions  
PM Peak Hour



| Movement                                                                                                 | WBL                                                                               | WBR                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations                                                                                      |  |  |  |  |  |  |
| Traffic Volume (veh/h)                                                                                   | 310                                                                               | 280                                                                               | 630                                                                               | 250                                                                               | 580                                                                               | 1270                                                                              |
| Future Volume (veh/h)                                                                                    | 310                                                                               | 280                                                                               | 630                                                                               | 250                                                                               | 580                                                                               | 1270                                                                              |
| Initial Q (Qb), veh                                                                                      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Width Adj.                                                                                          | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Ped-Bike Adj(A_pbT)                                                                                      | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Parking Bus, Adj                                                                                         | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach                                                                                    | No                                                                                |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |
| Adj Sat Flow, veh/h/ln                                                                                   | 1870                                                                              | 1870                                                                              | 1826                                                                              | 1826                                                                              | 1826                                                                              | 1826                                                                              |
| Adj Flow Rate, veh/h                                                                                     | 326                                                                               | 236                                                                               | 663                                                                               | 0                                                                                 | 611                                                                               | 1337                                                                              |
| Peak Hour Factor                                                                                         | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Percent Heavy Veh, %                                                                                     | 2                                                                                 | 2                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                 |
| Cap, veh/h                                                                                               | 353                                                                               | 314                                                                               | 625                                                                               |                                                                                   | 594                                                                               | 1308                                                                              |
| Arrive On Green                                                                                          | 0.20                                                                              | 0.20                                                                              | 0.34                                                                              | 0.00                                                                              | 0.34                                                                              | 0.72                                                                              |
| Sat Flow, veh/h                                                                                          | 1781                                                                              | 1585                                                                              | 1826                                                                              | 1547                                                                              | 1739                                                                              | 1826                                                                              |
| Grp Volume(v), veh/h                                                                                     | 326                                                                               | 236                                                                               | 663                                                                               | 0                                                                                 | 611                                                                               | 1337                                                                              |
| Grp Sat Flow(s),veh/h/ln                                                                                 | 1781                                                                              | 1585                                                                              | 1826                                                                              | 1547                                                                              | 1739                                                                              | 1826                                                                              |
| Q Serve(g_s), s                                                                                          | 26.4                                                                              | 20.6                                                                              | 50.4                                                                              | 0.0                                                                               | 50.3                                                                              | 105.4                                                                             |
| Cycle Q Clear(g_c), s                                                                                    | 26.4                                                                              | 20.6                                                                              | 50.4                                                                              | 0.0                                                                               | 50.3                                                                              | 105.4                                                                             |
| Prop In Lane                                                                                             | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Lane Grp Cap(c), veh/h                                                                                   | 353                                                                               | 314                                                                               | 625                                                                               |                                                                                   | 594                                                                               | 1308                                                                              |
| V/C Ratio(X)                                                                                             | 0.92                                                                              | 0.75                                                                              | 1.06                                                                              |                                                                                   | 1.03                                                                              | 1.02                                                                              |
| Avail Cap(c_a), veh/h                                                                                    | 387                                                                               | 345                                                                               | 625                                                                               |                                                                                   | 594                                                                               | 1308                                                                              |
| HCM Platoon Ratio                                                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)                                                                                       | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh                                                                                 | 57.9                                                                              | 55.6                                                                              | 48.4                                                                              | 0.0                                                                               | 48.4                                                                              | 20.9                                                                              |
| Incr Delay (d2), s/veh                                                                                   | 26.2                                                                              | 8.2                                                                               | 53.0                                                                              | 0.0                                                                               | 44.3                                                                              | 30.7                                                                              |
| Initial Q Delay(d3), s/veh                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln                                                                                 | 14.5                                                                              | 9.0                                                                               | 31.4                                                                              | 0.0                                                                               | 28.4                                                                              | 48.2                                                                              |
| Unsig. Movement Delay, s/veh                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d), s/veh                                                                                    | 84.1                                                                              | 63.7                                                                              | 101.4                                                                             | 0.0                                                                               | 92.7                                                                              | 51.6                                                                              |
| LnGrp LOS                                                                                                | F                                                                                 | E                                                                                 | F                                                                                 |                                                                                   | F                                                                                 | F                                                                                 |
| Approach Vol, veh/h                                                                                      | 562                                                                               |                                                                                   | 663                                                                               |                                                                                   |                                                                                   | 1948                                                                              |
| Approach Delay, s/veh                                                                                    | 75.6                                                                              |                                                                                   | 101.4                                                                             |                                                                                   |                                                                                   | 64.5                                                                              |
| Approach LOS                                                                                             | E                                                                                 |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | E                                                                                 |
| Timer - Assigned Phs                                                                                     | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 |                                                                                   | 6                                                                                 |
| Phs Duration (G+Y+Rc), s                                                                                 | 55.0                                                                              | 57.9                                                                              |                                                                                   | 34.3                                                                              |                                                                                   | 112.9                                                                             |
| Change Period (Y+Rc), s                                                                                  | 4.7                                                                               | 7.5                                                                               |                                                                                   | 5.1                                                                               |                                                                                   | 7.5                                                                               |
| Max Green Setting (Gmax), s                                                                              | 50.3                                                                              | 50.4                                                                              |                                                                                   | 32.0                                                                              |                                                                                   | 105.4                                                                             |
| Max Q Clear Time (g_c+5.0), s                                                                            | 52.3                                                                              | 52.4                                                                              |                                                                                   | 28.4                                                                              |                                                                                   | 107.4                                                                             |
| Green Ext Time (p_c), s                                                                                  | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.7                                                                               |                                                                                   | 0.0                                                                               |
| Intersection Summary                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 7th Control Delay, s/veh                                                                             | 74.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 7th LOS                                                                                              | E                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Notes                                                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM 7th Signalized Intersection Summary 5: Clairemont Mesa Blvd. & Luna Ave.

Proposed Plan Conditions  
PM Peak Hour

|                                                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                                    |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |  |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)                                                                             | 400                                                                               | 30                                                                                | 210                                                                               | 10                                                                                | 40                                                                                | 50                                                                                | 240                                                                               | 520                                                                               | 50                                                                                 | 160                                                                                 | 1450                                                                                | 740                                                                                 |
| Future Volume (veh/h)                                                                              | 400                                                                               | 30                                                                                | 210                                                                               | 10                                                                                | 40                                                                                | 50                                                                                | 240                                                                               | 520                                                                               | 50                                                                                 | 160                                                                                 | 1450                                                                                | 740                                                                                 |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                               | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1870                                                                              | 1803                                                                              | 1803                                                                              | 1803                                                                              | 1803                                                                              | 1803                                                                              | 1841                                                                              | 1841                                                                              | 1800                                                                               | 1796                                                                                | 1796                                                                                | 1754                                                                                |
| Adj Flow Rate, veh/h                                                                               | 421                                                                               | 32                                                                                | 199                                                                               | 11                                                                                | 42                                                                                | 48                                                                                | 253                                                                               | 547                                                                               | 42                                                                                 | 168                                                                                 | 1526                                                                                | 779                                                                                 |
| Peak Hour Factor                                                                                   | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 4                                                                                 | 4                                                                                 | 4                                                                                  | 7                                                                                   | 7                                                                                   | 7                                                                                   |
| Cap, veh/h                                                                                         | 370                                                                               | 66                                                                                | 410                                                                               | 65                                                                                | 226                                                                               | 233                                                                               | 199                                                                               | 2489                                                                              | 1062                                                                               | 180                                                                                 | 2400                                                                                | 1045                                                                                |
| Arrive On Green                                                                                    | 0.31                                                                              | 0.31                                                                              | 0.31                                                                              | 0.31                                                                              | 0.31                                                                              | 0.31                                                                              | 0.23                                                                              | 1.00                                                                              | 1.00                                                                               | 0.11                                                                                | 0.70                                                                                | 0.70                                                                                |
| Sat Flow, veh/h                                                                                    | 1304                                                                              | 213                                                                               | 1325                                                                              | 103                                                                               | 731                                                                               | 755                                                                               | 1753                                                                              | 3497                                                                              | 1492                                                                               | 1711                                                                                | 3413                                                                                | 1486                                                                                |
| Grp Volume(v), veh/h                                                                               | 421                                                                               | 0                                                                                 | 231                                                                               | 101                                                                               | 0                                                                                 | 0                                                                                 | 253                                                                               | 547                                                                               | 42                                                                                 | 168                                                                                 | 1526                                                                                | 779                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1304                                                                              | 0                                                                                 | 1539                                                                              | 1589                                                                              | 0                                                                                 | 0                                                                                 | 1753                                                                              | 1749                                                                              | 1492                                                                               | 1711                                                                                | 1706                                                                                | 1486                                                                                |
| Q Serve(g_s), s                                                                                    | 22.4                                                                              | 0.0                                                                               | 14.6                                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 13.6                                                                              | 0.0                                                                               | 0.0                                                                                | 11.7                                                                                | 28.8                                                                                | 39.2                                                                                |
| Cycle Q Clear(g_c), s                                                                              | 37.1                                                                              | 0.0                                                                               | 14.6                                                                              | 14.7                                                                              | 0.0                                                                               | 0.0                                                                               | 13.6                                                                              | 0.0                                                                               | 0.0                                                                                | 11.7                                                                                | 28.8                                                                                | 39.2                                                                                |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                   | 0.86                                                                              | 0.11                                                                              |                                                                                   | 0.48                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                               | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 370                                                                               | 0                                                                                 | 476                                                                               | 525                                                                               | 0                                                                                 | 0                                                                                 | 199                                                                               | 2489                                                                              | 1062                                                                               | 180                                                                                 | 2400                                                                                | 1045                                                                                |
| V/C Ratio(X)                                                                                       | 1.14                                                                              | 0.00                                                                              | 0.49                                                                              | 0.19                                                                              | 0.00                                                                              | 0.00                                                                              | 1.27                                                                              | 0.22                                                                              | 0.04                                                                               | 0.94                                                                                | 0.64                                                                                | 0.75                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 370                                                                               | 0                                                                                 | 476                                                                               | 525                                                                               | 0                                                                                 | 0                                                                                 | 199                                                                               | 2489                                                                              | 1062                                                                               | 180                                                                                 | 2400                                                                                | 1045                                                                                |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 0.76                                                                              | 0.00                                                                              | 0.76                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 47.3                                                                              | 0.0                                                                               | 33.7                                                                              | 30.5                                                                              | 0.0                                                                               | 0.0                                                                               | 46.4                                                                              | 0.0                                                                               | 0.0                                                                                | 53.3                                                                                | 9.6                                                                                 | 11.1                                                                                |
| Incr Delay (d2), s/veh                                                                             | 84.3                                                                              | 0.0                                                                               | 0.8                                                                               | 0.1                                                                               | 0.0                                                                               | 0.0                                                                               | 154.3                                                                             | 0.2                                                                               | 0.1                                                                                | 48.1                                                                                | 1.3                                                                                 | 4.8                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 19.9                                                                              | 0.0                                                                               | 5.6                                                                               | 2.2                                                                               | 0.0                                                                               | 0.0                                                                               | 13.6                                                                              | 0.1                                                                               | 0.0                                                                                | 7.4                                                                                 | 9.8                                                                                 | 12.5                                                                                |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 131.6                                                                             | 0.0                                                                               | 34.5                                                                              | 30.6                                                                              | 0.0                                                                               | 0.0                                                                               | 200.7                                                                             | 0.2                                                                               | 0.1                                                                                | 101.4                                                                               | 10.8                                                                                | 15.9                                                                                |
| LnGrp LOS                                                                                          | F                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   |                                                                                   | F                                                                                 | A                                                                                 | A                                                                                  | F                                                                                   | B                                                                                   | B                                                                                   |
| Approach Vol, veh/h                                                                                | 652                                                                               |                                                                                   | 101                                                                               |                                                                                   |                                                                                   | 842                                                                               |                                                                                   |                                                                                   | 2473                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                              | 97.2                                                                              |                                                                                   | 30.6                                                                              |                                                                                   |                                                                                   | 60.4                                                                              |                                                                                   |                                                                                   | 18.6                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                                                                                       | F                                                                                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | B                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 7.0                                                                               | 92.5                                                                              |                                                                                   | 42.0                                                                              | 18.0                                                                              | 91.5                                                                              |                                                                                   | 42.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 4.4                                                                               | * 6.2                                                                             |                                                                                   | 4.9                                                                               | 4.4                                                                               | 6.2                                                                               |                                                                                   | 4.9                                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 12.6                                                                              | * 56                                                                              |                                                                                   | 37.1                                                                              | 13.6                                                                              | 53.8                                                                              |                                                                                   | 37.1                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I13), s                                                                      | 11.3                                                                              | 2.0                                                                               |                                                                                   | 39.1                                                                              | 15.6                                                                              | 41.2                                                                              |                                                                                   | 16.7                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                               | 7.2                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               | 10.4                                                                              |                                                                                   | 0.3                                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 40.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 6: Jutland Dr. & Luna Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                       | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR  | NBL                                                                               | NBT                                                                                 | NBR  | SBL                                                                                 | SBT                                                                                 | SBR  |
|--------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|
| Lane Configurations            |  |  |      |  |  |      |  |  |      |  |  |      |
| Traffic Volume (veh/h)         | 10                                                                                | 180                                                                               | 70   | 620                                                                               | 350                                                                               | 50   | 10                                                                                | 10                                                                                  | 430  | 30                                                                                  | 10                                                                                  | 10   |
| Future Volume (veh/h)          | 10                                                                                | 180                                                                               | 70   | 620                                                                               | 350                                                                               | 50   | 10                                                                                | 10                                                                                  | 430  | 30                                                                                  | 10                                                                                  | 10   |
| Initial Q (Qb), veh            | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                   | 0    | 0                                                                                   | 0                                                                                   | 0    |
| Lane Width Adj.                | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                                | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00 |
| Ped-Bike Adj(A_pbT)            | 1.00                                                                              |                                                                                   | 0.99 | 1.00                                                                              |                                                                                   | 1.00 | 1.00                                                                              |                                                                                     | 1.00 | 1.00                                                                                |                                                                                     | 0.99 |
| Parking Bus, Adj               | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                                | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00 |
| Work Zone On Approach          | No                                                                                |                                                                                   |      | No                                                                                |                                                                                   |      | No                                                                                |                                                                                     |      | No                                                                                  |                                                                                     |      |
| Adj Sat Flow, veh/h/ln         | 1870                                                                              | 1870                                                                              | 1870 | 1870                                                                              | 1870                                                                              | 1870 | 1841                                                                              | 1841                                                                                | 1841 | 1870                                                                                | 1870                                                                                | 1870 |
| Adj Flow Rate, veh/h           | 11                                                                                | 189                                                                               | 67   | 653                                                                               | 368                                                                               | 48   | 11                                                                                | 11                                                                                  | 408  | 32                                                                                  | 11                                                                                  | 10   |
| Peak Hour Factor               | 0.95                                                                              | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95                                                                                | 0.95 | 0.95                                                                                | 0.95                                                                                | 0.95 |
| Percent Heavy Veh, %           | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2    | 4                                                                                 | 4                                                                                   | 4    | 2                                                                                   | 2                                                                                   | 2    |
| Cap, veh/h                     | 23                                                                                | 210                                                                               | 74   | 697                                                                               | 871                                                                               | 114  | 467                                                                               | 11                                                                                  | 399  | 50                                                                                  | 21                                                                                  | 19   |
| Arrive On Green                | 0.01                                                                              | 0.16                                                                              | 0.16 | 0.39                                                                              | 0.54                                                                              | 0.54 | 0.27                                                                              | 0.26                                                                                | 0.26 | 0.03                                                                                | 0.02                                                                                | 0.02 |
| Sat Flow, veh/h                | 1781                                                                              | 1316                                                                              | 467  | 1781                                                                              | 1620                                                                              | 211  | 1753                                                                              | 41                                                                                  | 1523 | 1781                                                                                | 897                                                                                 | 816  |
| Grp Volume(v), veh/h           | 11                                                                                | 0                                                                                 | 256  | 653                                                                               | 0                                                                                 | 416  | 11                                                                                | 0                                                                                   | 419  | 32                                                                                  | 0                                                                                   | 21   |
| Grp Sat Flow(s),veh/h/ln       | 1781                                                                              | 0                                                                                 | 1783 | 1781                                                                              | 0                                                                                 | 1832 | 1753                                                                              | 0                                                                                   | 1564 | 1781                                                                                | 0                                                                                   | 1713 |
| Q Serve(g_s), s                | 0.7                                                                               | 0.0                                                                               | 15.9 | 39.7                                                                              | 0.0                                                                               | 15.3 | 0.5                                                                               | 0.0                                                                                 | 29.5 | 2.0                                                                                 | 0.0                                                                                 | 1.4  |
| Cycle Q Clear(g_c), s          | 0.7                                                                               | 0.0                                                                               | 15.9 | 39.7                                                                              | 0.0                                                                               | 15.3 | 0.5                                                                               | 0.0                                                                                 | 29.5 | 2.0                                                                                 | 0.0                                                                                 | 1.4  |
| Prop In Lane                   | 1.00                                                                              |                                                                                   | 0.26 | 1.00                                                                              |                                                                                   | 0.12 | 1.00                                                                              |                                                                                     | 0.97 | 1.00                                                                                |                                                                                     | 0.48 |
| Lane Grp Cap(c), veh/h         | 23                                                                                | 0                                                                                 | 284  | 697                                                                               | 0                                                                                 | 985  | 467                                                                               | 0                                                                                   | 410  | 50                                                                                  | 0                                                                                   | 40   |
| V/C Ratio(X)                   | 0.48                                                                              | 0.00                                                                              | 0.90 | 0.94                                                                              | 0.00                                                                              | 0.42 | 0.02                                                                              | 0.00                                                                                | 1.02 | 0.64                                                                                | 0.00                                                                                | 0.52 |
| Avail Cap(c_a), veh/h          | 221                                                                               | 0                                                                                 | 290  | 1114                                                                              | 0                                                                                 | 1216 | 467                                                                               | 0                                                                                   | 410  | 217                                                                                 | 0                                                                                   | 398  |
| HCM Platoon Ratio              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                                | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00 |
| Upstream Filter(I)             | 1.00                                                                              | 0.00                                                                              | 1.00 | 1.00                                                                              | 0.00                                                                              | 1.00 | 1.00                                                                              | 0.00                                                                                | 1.00 | 1.00                                                                                | 0.00                                                                                | 1.00 |
| Uniform Delay (d), s/veh       | 55.2                                                                              | 0.0                                                                               | 46.5 | 33.0                                                                              | 0.0                                                                               | 15.6 | 30.5                                                                              | 0.0                                                                                 | 41.6 | 54.2                                                                                | 0.0                                                                                 | 54.4 |
| Incr Delay (d2), s/veh         | 14.6                                                                              | 0.0                                                                               | 28.8 | 10.0                                                                              | 0.0                                                                               | 0.3  | 0.0                                                                               | 0.0                                                                                 | 50.5 | 12.8                                                                                | 0.0                                                                                 | 10.2 |
| Initial Q Delay(d3), s/veh     | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                                 | 0.0  | 0.0                                                                                 | 0.0                                                                                 | 0.0  |
| %ile BackOfQ(50%),veh/ln       | 0.4                                                                               | 0.0                                                                               | 9.3  | 18.6                                                                              | 0.0                                                                               | 6.3  | 0.2                                                                               | 0.0                                                                                 | 17.0 | 1.1                                                                                 | 0.0                                                                                 | 0.7  |
| Unsig. Movement Delay, s/veh   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                     |      |                                                                                     |                                                                                     |      |
| LnGrp Delay(d), s/veh          | 69.8                                                                              | 0.0                                                                               | 75.4 | 43.0                                                                              | 0.0                                                                               | 15.9 | 30.5                                                                              | 0.0                                                                                 | 92.1 | 67.0                                                                                | 0.0                                                                                 | 64.6 |
| LnGrp LOS                      | E                                                                                 |                                                                                   | E    | D                                                                                 |                                                                                   | B    | C                                                                                 |                                                                                     | F    | E                                                                                   |                                                                                     | E    |
| Approach Vol, veh/h            | 267                                                                               |                                                                                   |      | 1069                                                                              |                                                                                   |      | 430                                                                               |                                                                                     |      | 53                                                                                  |                                                                                     |      |
| Approach Delay, s/veh          | 75.1                                                                              |                                                                                   |      | 32.4                                                                              |                                                                                   |      | 90.5                                                                              |                                                                                     |      | 66.0                                                                                |                                                                                     |      |
| Approach LOS                   | E                                                                                 |                                                                                   |      | C                                                                                 |                                                                                   |      | F                                                                                 |                                                                                     |      | E                                                                                   |                                                                                     |      |
| Timer - Assigned Phs           | 1                                                                                 | 2                                                                                 | 3    | 4                                                                                 | 5                                                                                 | 6    | 7                                                                                 | 8                                                                                   |      |                                                                                     |                                                                                     |      |
| Phs Duration (G+Y+Rc), s       | 7.7                                                                               | 34.0                                                                              | 48.6 | 22.4                                                                              | 34.5                                                                              | 7.1  | 6.0                                                                               | 65.1                                                                                |      |                                                                                     |                                                                                     |      |
| Change Period (Y+Rc), s        | 4.5                                                                               | 4.5                                                                               | 4.5  | 4.5                                                                               | 4.5                                                                               | 4.5  | 4.5                                                                               | 4.5                                                                                 |      |                                                                                     |                                                                                     |      |
| Max Green Setting (Gmax), s    | 13.3                                                                              | 29.5                                                                              | 70.5 | 18.3                                                                              | 17.0                                                                              | 26.2 | 14.0                                                                              | 74.8                                                                                |      |                                                                                     |                                                                                     |      |
| Max Q Clear Time (g_c+I4.0), s | 14.0                                                                              | 31.5                                                                              | 41.7 | 17.9                                                                              | 2.5                                                                               | 3.4  | 2.7                                                                               | 17.3                                                                                |      |                                                                                     |                                                                                     |      |
| Green Ext Time (p_c), s        | 0.0                                                                               | 0.0                                                                               | 2.4  | 0.1                                                                               | 0.0                                                                               | 0.1  | 0.0                                                                               | 3.0                                                                                 |      |                                                                                     |                                                                                     |      |

## Intersection Summary

HCM 7th Control Delay, s/veh 53.4  
HCM 7th LOS D

## Notes

User approved pedestrian interval to be less than phase max green.

# HCM 7th Signalized Intersection Summary 7: Morena Blvd. & Jutland Dr.

Proposed Plan Conditions  
PM Peak Hour



| Movement                      | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|-------------------------------|------|------|------|------|------|------|
| Lane Configurations           |      |      |      |      |      |      |
| Traffic Volume (veh/h)        | 650  | 110  | 220  | 350  | 70   | 300  |
| Future Volume (veh/h)         | 650  | 110  | 220  | 350  | 70   | 300  |
| Initial Q (Qb), veh           | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.               | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)           | 1.00 | 1.00 |      | 1.00 | 1.00 |      |
| Parking Bus, Adj              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach         | No   |      | No   |      | No   |      |
| Adj Sat Flow, veh/h/ln        | 1841 | 1841 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h          | 684  | 116  | 232  | 368  | 74   | 316  |
| Peak Hour Factor              | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %          | 4    | 4    | 2    | 2    | 2    | 2    |
| Cap, veh/h                    | 811  | 721  | 579  | 491  | 0    | 1100 |
| Arrive On Green               | 0.46 | 0.46 | 0.31 | 0.31 | 0.00 | 0.31 |
| Sat Flow, veh/h               | 1753 | 1560 | 1870 | 1585 | 0    | 3647 |
| Grp Volume(v), veh/h          | 684  | 116  | 232  | 368  | 0    | 316  |
| Grp Sat Flow(s), veh/h/ln     | 1753 | 1560 | 1870 | 1585 | 0    | 1777 |
| Q Serve(g_s), s               | 13.6 | 1.7  | 3.9  | 8.2  | 0.0  | 2.7  |
| Cycle Q Clear(g_c), s         | 13.6 | 1.7  | 3.9  | 8.2  | 0.0  | 2.7  |
| Prop In Lane                  | 1.00 | 1.00 |      | 1.00 | 0.00 |      |
| Lane Grp Cap(c), veh/h        | 811  | 721  | 579  | 491  | 0    | 1100 |
| V/C Ratio(X)                  | 0.84 | 0.16 | 0.40 | 0.75 | 0.00 | 0.29 |
| Avail Cap(c_a), veh/h         | 1398 | 1244 | 947  | 803  | 0    | 2654 |
| HCM Platoon Ratio             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)            | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh      | 9.4  | 6.2  | 10.7 | 12.3 | 0.0  | 10.3 |
| Incr Delay (d2), s/veh        | 2.5  | 0.1  | 0.4  | 2.3  | 0.0  | 0.1  |
| Initial Q Delay(d3), s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 8.9  | 0.4  | 1.3  | 2.6  | 0.0  | 0.8  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh         | 11.9 | 6.3  | 11.2 | 14.6 | 0.0  | 10.5 |
| LnGrp LOS                     | B    | A    | B    | B    |      | B    |
| Approach Vol, veh/h           | 800  |      | 600  |      |      | 316  |
| Approach Delay, s/veh         | 11.0 |      | 13.3 |      |      | 10.5 |
| Approach LOS                  | B    |      | B    |      |      | B    |
| Timer - Assigned Phs          | 1    | 2    |      |      | 6    | 8    |
| Phs Duration (G+Y+Rc), s      | 0.0  | 16.7 |      |      | 16.7 | 22.8 |
| Change Period (Y+Rc), s       | 4.5  | 4.5  |      |      | 4.5  | 4.5  |
| Max Green Setting (Gmax), s   | 5.0  | 20.0 |      |      | 29.5 | 31.5 |
| Max Q Clear Time (g_c+I10), s | 10.2 |      |      |      | 4.7  | 15.6 |
| Green Ext Time (p_c), s       | 0.0  | 2.0  |      |      | 2.1  | 2.7  |
| <b>Intersection Summary</b>   |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh  |      |      | 11.7 |      |      |      |
| HCM 7th LOS                   |      |      | B    |      |      |      |

# HCM 7th Signalized Intersection Summary 8: Moraga Ave. & Clairemont Mesa Blvd.

Proposed Plan Conditions  
PM Peak Hour

|                                                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                                    |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |  |  |  |  |  |  |                                                                                   |  |                                                                                    |                                                                                     |    |                                                                                     |
| Traffic Volume (veh/h)                                                                             | 40                                                                                | 1150                                                                              | 480                                                                               | 490                                                                               | 630                                                                               | 70                                                                                | 170                                                                               | 40                                                                                | 320                                                                                | 80                                                                                  | 30                                                                                  | 10                                                                                  |
| Future Volume (veh/h)                                                                              | 40                                                                                | 1150                                                                              | 480                                                                               | 490                                                                               | 630                                                                               | 70                                                                                | 170                                                                               | 40                                                                                | 320                                                                                | 80                                                                                  | 30                                                                                  | 10                                                                                  |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                               | 1.00                                                                                |                                                                                     | 0.98                                                                                |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1841                                                                              | 1841                                                                              | 1800                                                                              | 1870                                                                              | 1870                                                                              | 1826                                                                              | 1783                                                                              | 1783                                                                              | 1783                                                                               | 1803                                                                                | 1803                                                                                | 1803                                                                                |
| Adj Flow Rate, veh/h                                                                               | 42                                                                                | 1211                                                                              | 404                                                                               | 516                                                                               | 663                                                                               | 59                                                                                | 179                                                                               | 42                                                                                | 303                                                                                | 84                                                                                  | 32                                                                                  | 10                                                                                  |
| Peak Hour Factor                                                                                   | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                                               | 4                                                                                 | 4                                                                                 | 4                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 4                                                                                 | 4                                                                                 | 4                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                                                                                         | 53                                                                                | 1128                                                                              | 479                                                                               | 652                                                                               | 2365                                                                              | 1023                                                                              | 209                                                                               | 45                                                                                | 293                                                                                | 229                                                                                 | 82                                                                                  | 22                                                                                  |
| Arrive On Green                                                                                    | 0.06                                                                              | 0.65                                                                              | 0.65                                                                              | 0.73                                                                              | 1.00                                                                              | 1.00                                                                              | 0.35                                                                              | 0.35                                                                              | 0.35                                                                               | 0.35                                                                                | 0.35                                                                                | 0.35                                                                                |
| Sat Flow, veh/h                                                                                    | 1753                                                                              | 3497                                                                              | 1484                                                                              | 1781                                                                              | 3554                                                                              | 1537                                                                              | 489                                                                               | 130                                                                               | 848                                                                                | 518                                                                                 | 237                                                                                 | 65                                                                                  |
| Grp Volume(v), veh/h                                                                               | 42                                                                                | 1211                                                                              | 404                                                                               | 516                                                                               | 663                                                                               | 59                                                                                | 524                                                                               | 0                                                                                 | 0                                                                                  | 126                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1753                                                                              | 1749                                                                              | 1484                                                                              | 1781                                                                              | 1777                                                                              | 1537                                                                              | 1467                                                                              | 0                                                                                 | 0                                                                                  | 819                                                                                 | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s                                                                                    | 2.8                                                                               | 38.7                                                                              | 25.5                                                                              | 22.2                                                                              | 0.0                                                                               | 0.0                                                                               | 28.2                                                                              | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s                                                                              | 2.8                                                                               | 38.7                                                                              | 25.5                                                                              | 22.2                                                                              | 0.0                                                                               | 0.0                                                                               | 41.5                                                                              | 0.0                                                                               | 0.0                                                                                | 13.3                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                                                                                       | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 0.34                                                                              |                                                                                   | 0.58                                                                               | 0.67                                                                                |                                                                                     | 0.08                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 53                                                                                | 1128                                                                              | 479                                                                               | 652                                                                               | 2365                                                                              | 1023                                                                              | 548                                                                               | 0                                                                                 | 0                                                                                  | 333                                                                                 | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                                                                                       | 0.79                                                                              | 1.07                                                                              | 0.84                                                                              | 0.79                                                                              | 0.28                                                                              | 0.06                                                                              | 0.96                                                                              | 0.00                                                                              | 0.00                                                                               | 0.38                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 105                                                                               | 1128                                                                              | 479                                                                               | 652                                                                               | 2365                                                                              | 1023                                                                              | 548                                                                               | 0                                                                                 | 0                                                                                  | 333                                                                                 | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio                                                                                  | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                                                 | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.68                                                                              | 0.68                                                                              | 0.68                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                               | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 56.0                                                                              | 21.3                                                                              | 19.0                                                                              | 13.2                                                                              | 0.0                                                                               | 0.0                                                                               | 39.6                                                                              | 0.0                                                                               | 0.0                                                                                | 29.6                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh                                                                             | 0.9                                                                               | 35.1                                                                              | 1.8                                                                               | 4.2                                                                               | 0.2                                                                               | 0.1                                                                               | 27.7                                                                              | 0.0                                                                               | 0.0                                                                                | 0.3                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 1.2                                                                               | 14.4                                                                              | 5.2                                                                               | 5.2                                                                               | 0.1                                                                               | 0.0                                                                               | 19.6                                                                              | 0.0                                                                               | 0.0                                                                                | 2.8                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                              | 56.9                                                                              | 56.4                                                                              | 20.7                                                                              | 17.4                                                                              | 0.2                                                                               | 0.1                                                                               | 67.3                                                                              | 0.0                                                                               | 0.0                                                                                | 29.9                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                                                                                          | E                                                                                 | F                                                                                 | C                                                                                 | B                                                                                 | A                                                                                 | A                                                                                 | E                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h                                                                                | 1657                                                                              |                                                                                   |                                                                                   |                                                                                   | 1238                                                                              |                                                                                   |                                                                                   |                                                                                   | 524                                                                                |                                                                                     | 126                                                                                 |                                                                                     |
| Approach Delay, s/veh                                                                              | 47.7                                                                              |                                                                                   |                                                                                   |                                                                                   | 7.4                                                                               |                                                                                   |                                                                                   |                                                                                   | 67.3                                                                               |                                                                                     | 29.9                                                                                |                                                                                     |
| Approach LOS                                                                                       | D                                                                                 |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   | E                                                                                  |                                                                                     | C                                                                                   |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                   |                                                                                    | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 49.2                                                                              | 44.0                                                                              |                                                                                   |                                                                                   | 46.4                                                                              | 8.0                                                                               | 85.2                                                                              |                                                                                   |                                                                                    | 46.4                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | 5.3                                                                               | * 5.3                                                                             |                                                                                   |                                                                                   | 4.9                                                                               | 4.4                                                                               | 5.3                                                                               |                                                                                   |                                                                                    | 4.9                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | 25.2                                                                              | * 39                                                                              |                                                                                   |                                                                                   | 41.5                                                                              | 7.2                                                                               | 56.7                                                                              |                                                                                   |                                                                                    | 41.5                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+24.2), s                                                                     | 24.2                                                                              | 40.7                                                                              |                                                                                   |                                                                                   | 15.3                                                                              | 4.8                                                                               | 2.0                                                                               |                                                                                   |                                                                                    | 43.5                                                                                |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.1                                                                               | 0.0                                                                               |                                                                                   |                                                                                   | 0.6                                                                               | 0.0                                                                               | 9.9                                                                               |                                                                                   |                                                                                    | 0.0                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                       | 35.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                        | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |



# HCM 7th Signalized Intersection Summary 9: Clairemont Dr & Clairemont Mesa Blvd.

Proposed Plan Conditions  
PM Peak Hour



| Movement                     | EBL  | EBT   | EBR  | WBL  | WBT  | WBR  | NBL  | NBT   | NBR  | SBL   | SBT  | SBR  |
|------------------------------|------|-------|------|------|------|------|------|-------|------|-------|------|------|
| Lane Configurations          | ↔↔   | ↕↕    |      | ↔↔   | ↕↕   |      | ↔    | ↕     | ↕    | ↔     | ↕    | ↕    |
| Traffic Volume (veh/h)       | 380  | 700   | 420  | 500  | 540  | 150  | 250  | 480   | 350  | 160   | 400  | 260  |
| Future Volume (veh/h)        | 380  | 700   | 420  | 500  | 540  | 150  | 250  | 480   | 350  | 160   | 400  | 260  |
| Initial Q (Qb), veh          | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0     | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |       | 0.95 | 1.00 |      | 0.98 | 1.00 |       | 0.97 | 1.00  |      | 0.96 |
| Parking Bus, Adj             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Work Zone On Approach        | No   |       |      | No   |      |      | No   |       |      | No    |      |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1823  | 1823 | 1870 | 1770 | 1770 | 1870 | 1870  | 1823 | 1856  | 1856 | 1778 |
| Adj Flow Rate, veh/h         | 400  | 737   | 398  | 526  | 568  | 142  | 260  | 500   | 292  | 168   | 421  | 219  |
| Peak Hour Factor             | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.96 | 0.96  | 0.96 | 0.95  | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2     | 2    | 2    | 2    | 2    | 2    | 2     | 2    | 3     | 3    | 3    |
| Cap, veh/h                   | 460  | 850   | 458  | 1356 | 1762 | 439  | 286  | 525   | 1028 | 168   | 413  | 522  |
| Arrive On Green              | 0.04 | 0.13  | 0.13 | 0.66 | 1.00 | 1.00 | 0.16 | 0.28  | 0.28 | 0.10  | 0.22 | 0.22 |
| Sat Flow, veh/h              | 3456 | 2135  | 1149 | 3456 | 2653 | 661  | 1781 | 1870  | 1500 | 1767  | 1856 | 1443 |
| Grp Volume(v), veh/h         | 400  | 597   | 538  | 526  | 359  | 351  | 260  | 500   | 292  | 168   | 421  | 219  |
| Grp Sat Flow(s),veh/h/ln     | 1728 | 1732  | 1552 | 1728 | 1681 | 1633 | 1781 | 1870  | 1500 | 1767  | 1856 | 1443 |
| Q Serve(g_s), s              | 13.8 | 40.6  | 40.8 | 8.4  | 0.0  | 0.0  | 17.2 | 31.5  | 0.0  | 11.4  | 26.7 | 13.8 |
| Cycle Q Clear(g_c), s        | 13.8 | 40.6  | 40.8 | 8.4  | 0.0  | 0.0  | 17.2 | 31.5  | 0.0  | 11.4  | 26.7 | 13.8 |
| Prop In Lane                 | 1.00 |       | 0.74 | 1.00 |      | 0.40 | 1.00 |       | 1.00 | 1.00  |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 460  | 690   | 618  | 1356 | 1117 | 1084 | 286  | 525   | 1028 | 168   | 413  | 522  |
| V/C Ratio(X)                 | 0.87 | 0.87  | 0.87 | 0.39 | 0.32 | 0.32 | 0.91 | 0.95  | 0.28 | 1.00  | 1.02 | 0.42 |
| Avail Cap(c_a), veh/h        | 507  | 690   | 618  | 1356 | 1117 | 1084 | 304  | 528   | 1030 | 168   | 413  | 522  |
| HCM Platoon Ratio            | 0.33 | 0.33  | 0.33 | 1.67 | 1.67 | 1.67 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.09 | 0.09  | 0.09 | 0.66 | 0.66 | 0.66 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 56.3 | 49.0  | 49.1 | 14.0 | 0.0  | 0.0  | 49.5 | 42.4  | 7.9  | 54.3  | 46.6 | 29.3 |
| Incr Delay (d2), s/veh       | 1.4  | 1.5   | 1.7  | 0.0  | 0.5  | 0.5  | 27.5 | 27.5  | 0.2  | 69.6  | 49.1 | 0.6  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 6.5  | 19.1  | 17.2 | 2.8  | 0.2  | 0.2  | 9.8  | 18.3  | 2.9  | 8.3   | 17.8 | 4.8  |
| Unsig. Movement Delay, s/veh |      |       |      |      |      |      |      |       |      |       |      |      |
| LnGrp Delay(d), s/veh        | 57.7 | 50.5  | 50.8 | 14.1 | 0.5  | 0.5  | 77.0 | 69.8  | 8.1  | 123.9 | 95.7 | 30.0 |
| LnGrp LOS                    | E    | D     | D    | B    | A    | A    | E    | E     | A    | F     | F    | C    |
| Approach Vol, veh/h          | 1535 |       |      | 1236 |      |      | 1052 |       |      | 808   |      |      |
| Approach Delay, s/veh        | 52.5 |       |      | 6.3  |      |      | 54.5 |       |      | 83.8  |      |      |
| Approach LOS                 | D    |       |      | A    |      |      | D    |       |      | F     |      |      |
| Timer - Assigned Phs         | 1    | 2     | 3    | 4    | 5    | 6    | 7    | 8     |      |       |      |      |
| Phs Duration (G+Y+Rc), s     | 53.4 | 53.0  | 23.7 | 31.8 | 20.4 | 86.0 | 16.5 | 39.0  |      |       |      |      |
| Change Period (Y+Rc), s      | 5.1  | * 5.2 | 4.4  | 5.1  | 4.4  | 5.1  | 5.1  | * 5.3 |      |       |      |      |
| Max Green Setting (Gmax), s  | 7.6  | * 48  | 20.5 | 25.0 | 17.6 | 37.9 | 11.4 | * 34  |      |       |      |      |
| Max Q Clear Time (g_c+T1), s | 42.8 | 42.8  | 19.2 | 28.7 | 15.8 | 2.0  | 13.4 | 33.5  |      |       |      |      |
| Green Ext Time (p_c), s      | 0.0  | 3.3   | 0.1  | 0.0  | 0.2  | 6.0  | 0.0  | 0.2   |      |       |      |      |

## Intersection Summary

HCM 7th Control Delay, s/veh 46.0  
HCM 7th LOS D

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 10: Rolfe Rd. & Clairemont Mesa Blvd.

Proposed Plan Conditions  
PM Peak Hour



| Movement                       | EBL  | EBT  | EBR  | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|--------------------------------|------|------|------|------|------|-------|------|------|------|------|------|------|
| Lane Configurations            |      |      |      |      |      |       |      |      |      |      |      |      |
| Traffic Volume (veh/h)         | 200  | 1000 | 100  | 170  | 950  | 210   | 70   | 30   | 70   | 180  | 40   | 190  |
| Future Volume (veh/h)          | 200  | 1000 | 100  | 170  | 950  | 210   | 70   | 30   | 70   | 180  | 40   | 190  |
| Initial Q (Qb), veh            | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)            | 1.00 |      | 1.00 | 1.00 |      | 0.97  | 1.00 |      | 0.98 | 1.00 |      | 0.98 |
| Parking Bus, Adj               | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach          | No   |      |      | No   |      |       | No   |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln         | 1885 | 1803 | 1803 | 1870 | 1803 | 1803  | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h           | 211  | 1053 | 94   | 179  | 1000 | 199   | 74   | 32   | 67   | 189  | 42   | 180  |
| Peak Hour Factor               | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %           | 1    | 2    | 2    | 2    | 2    | 2     | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                     | 238  | 1662 | 148  | 206  | 1434 | 285   | 115  | 55   | 80   | 271  | 74   | 316  |
| Arrive On Green                | 0.18 | 0.70 | 0.70 | 0.15 | 0.67 | 0.67  | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 |
| Sat Flow, veh/h                | 1795 | 3181 | 284  | 1781 | 2835 | 563   | 298  | 227  | 332  | 1296 | 305  | 1306 |
| Grp Volume(v), veh/h           | 211  | 567  | 580  | 179  | 603  | 596   | 173  | 0    | 0    | 189  | 0    | 222  |
| Grp Sat Flow(s), veh/h/ln      | 1795 | 1713 | 1751 | 1781 | 1713 | 1685  | 857  | 0    | 0    | 1296 | 0    | 1611 |
| Q Serve(g_s), s                | 13.8 | 21.6 | 21.7 | 11.8 | 26.0 | 26.2  | 11.1 | 0.0  | 0.0  | 1.0  | 0.0  | 14.5 |
| Cycle Q Clear(g_c), s          | 13.8 | 21.6 | 21.7 | 11.8 | 26.0 | 26.2  | 25.7 | 0.0  | 0.0  | 26.7 | 0.0  | 14.5 |
| Prop In Lane                   | 1.00 |      | 0.16 | 1.00 |      | 0.33  | 0.43 |      | 0.39 | 1.00 |      | 0.81 |
| Lane Grp Cap(c), veh/h         | 238  | 896  | 915  | 206  | 866  | 852   | 250  | 0    | 0    | 271  | 0    | 390  |
| V/C Ratio(X)                   | 0.89 | 0.63 | 0.63 | 0.87 | 0.70 | 0.70  | 0.69 | 0.00 | 0.00 | 0.70 | 0.00 | 0.57 |
| Avail Cap(c_a), veh/h          | 308  | 896  | 915  | 276  | 866  | 852   | 274  | 0    | 0    | 293  | 0    | 418  |
| HCM Platoon Ratio              | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)             | 0.44 | 0.44 | 0.44 | 0.59 | 0.59 | 0.59  | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh       | 48.6 | 12.0 | 12.0 | 49.9 | 14.0 | 14.0  | 47.1 | 0.0  | 0.0  | 44.9 | 0.0  | 40.0 |
| Incr Delay (d2), s/veh         | 9.3  | 1.5  | 1.5  | 10.4 | 2.8  | 2.8   | 6.2  | 0.0  | 0.0  | 5.1  | 0.0  | 0.8  |
| Initial Q Delay(d3), s/veh     | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln       | 6.5  | 6.5  | 6.6  | 5.6  | 8.4  | 8.3   | 5.5  | 0.0  | 0.0  | 5.9  | 0.0  | 5.9  |
| Unsig. Movement Delay, s/veh   |      |      |      |      |      |       |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh          | 57.9 | 13.5 | 13.5 | 60.3 | 16.7 | 16.8  | 53.2 | 0.0  | 0.0  | 50.0 | 0.0  | 40.8 |
| LnGrp LOS                      | E    | B    | B    | E    | B    | B     | D    |      |      | D    |      | D    |
| Approach Vol, veh/h            | 1358 |      |      | 1378 |      |       | 173  |      |      | 411  |      |      |
| Approach Delay, s/veh          | 20.4 |      |      | 22.4 |      |       | 53.2 |      |      | 45.1 |      |      |
| Approach LOS                   | C    |      |      | C    |      |       | D    |      |      | D    |      |      |
| Timer - Assigned Phs           | 1    | 2    |      | 4    | 5    | 6     |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s       | 8.2  | 67.8 |      | 33.9 | 20.3 | 65.8  |      | 33.9 |      |      |      |      |
| Change Period (Y+Rc), s        | 4.4  | 5.1  |      | 4.9  | 4.4  | * 5.1 |      | 4.9  |      |      |      |      |
| Max Green Setting (Gmax), s    | 18.6 | 55.9 |      | 31.1 | 20.6 | * 54  |      | 31.1 |      |      |      |      |
| Max Q Clear Time (g_c+11.8), s | 13.8 | 23.7 |      | 28.7 | 15.8 | 28.2  |      | 27.7 |      |      |      |      |
| Green Ext Time (p_c), s        | 0.1  | 14.8 |      | 0.3  | 0.1  | 11.6  |      | 0.3  |      |      |      |      |

## Intersection Summary

HCM 7th Control Delay, s/veh 26.0  
HCM 7th LOS C

## Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary  
11: Kleefeld Ave./Clairemont Dr. & Clairemont Mesa Blvd.

Proposed Plan Conditions  
PM Peak Hour

|                                                                      |  |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                             | EBL                                                                                | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL  | NBT                                                                               | NBR  | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                  |   |  |      |  |  |  |      |  |      |  |  |  |
| Traffic Volume (veh/h)                                               | 180                                                                                | 880                                                                               | 110  | 60                                                                                | 1060                                                                              | 410                                                                               | 90   | 50                                                                                | 40   | 490                                                                                 | 50                                                                                  | 200                                                                                 |
| Future Volume (veh/h)                                                | 180                                                                                | 880                                                                               | 110  | 60                                                                                | 1060                                                                              | 410                                                                               | 90   | 50                                                                                | 40   | 490                                                                                 | 50                                                                                  | 200                                                                                 |
| Initial Q (Qb), veh                                                  | 0                                                                                  | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                      | 1.00                                                                               | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                  | 1.00                                                                               |                                                                                   | 0.99 | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00 |                                                                                   | 0.98 | 1.00                                                                                |                                                                                     | 0.97                                                                                |
| Parking Bus, Adj                                                     | 1.00                                                                               | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                | No                                                                                 |                                                                                   |      | No                                                                                |                                                                                   |                                                                                   | No   |                                                                                   |      | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                               | 1870                                                                               | 1782                                                                              | 1782 | 1841                                                                              | 1841                                                                              | 1754                                                                              | 1820 | 1820                                                                              | 1820 | 1856                                                                                | 1856                                                                                | 1756                                                                                |
| Adj Flow Rate, veh/h                                                 | 189                                                                                | 926                                                                               | 104  | 63                                                                                | 1104                                                                              | 342                                                                               | 95   | 53                                                                                | 38   | 554                                                                                 | 0                                                                                   | 169                                                                                 |
| Peak Hour Factor                                                     | 0.95                                                                               | 0.95                                                                              | 0.95 | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.95 | 0.95                                                                              | 0.95 | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %                                                 | 2                                                                                  | 2                                                                                 | 2    | 4                                                                                 | 4                                                                                 | 4                                                                                 | 2    | 2                                                                                 | 2    | 3                                                                                   | 3                                                                                   | 3                                                                                   |
| Cap, veh/h                                                           | 143                                                                                | 1439                                                                              | 162  | 73                                                                                | 1507                                                                              | 634                                                                               | 123  | 68                                                                                | 49   | 659                                                                                 | 0                                                                                   | 270                                                                                 |
| Arrive On Green                                                      | 0.16                                                                               | 0.94                                                                              | 0.94 | 0.03                                                                              | 0.29                                                                              | 0.29                                                                              | 0.14 | 0.14                                                                              | 0.14 | 0.19                                                                                | 0.00                                                                                | 0.19                                                                                |
| Sat Flow, veh/h                                                      | 1781                                                                               | 3066                                                                              | 344  | 1753                                                                              | 3497                                                                              | 1471                                                                              | 872  | 486                                                                               | 349  | 3534                                                                                | 0                                                                                   | 1447                                                                                |
| Grp Volume(v), veh/h                                                 | 189                                                                                | 511                                                                               | 519  | 63                                                                                | 1104                                                                              | 342                                                                               | 186  | 0                                                                                 | 0    | 554                                                                                 | 0                                                                                   | 169                                                                                 |
| Grp Sat Flow(s),veh/h/ln                                             | 1781                                                                               | 1693                                                                              | 1718 | 1753                                                                              | 1749                                                                              | 1471                                                                              | 1707 | 0                                                                                 | 0    | 1767                                                                                | 0                                                                                   | 1447                                                                                |
| Q Serve(g_s), s                                                      | 9.6                                                                                | 5.6                                                                               | 5.6  | 4.3                                                                               | 34.2                                                                              | 23.5                                                                              | 12.6 | 0.0                                                                               | 0.0  | 18.1                                                                                | 0.0                                                                                 | 12.9                                                                                |
| Cycle Q Clear(g_c), s                                                | 9.6                                                                                | 5.6                                                                               | 5.6  | 4.3                                                                               | 34.2                                                                              | 23.5                                                                              | 12.6 | 0.0                                                                               | 0.0  | 18.1                                                                                | 0.0                                                                                 | 12.9                                                                                |
| Prop In Lane                                                         | 1.00                                                                               |                                                                                   | 0.20 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 0.51 |                                                                                   | 0.20 | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                               | 143                                                                                | 794                                                                               | 806  | 73                                                                                | 1507                                                                              | 634                                                                               | 240  | 0                                                                                 | 0    | 659                                                                                 | 0                                                                                   | 270                                                                                 |
| V/C Ratio(X)                                                         | 1.33                                                                               | 0.64                                                                              | 0.64 | 0.86                                                                              | 0.73                                                                              | 0.54                                                                              | 0.77 | 0.00                                                                              | 0.00 | 0.84                                                                                | 0.00                                                                                | 0.63                                                                                |
| Avail Cap(c_a), veh/h                                                | 143                                                                                | 794                                                                               | 806  | 73                                                                                | 1507                                                                              | 634                                                                               | 412  | 0                                                                                 | 0    | 854                                                                                 | 0                                                                                   | 350                                                                                 |
| HCM Platoon Ratio                                                    | 2.00                                                                               | 2.00                                                                              | 2.00 | 0.67                                                                              | 0.67                                                                              | 0.67                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                   | 0.69                                                                               | 0.69                                                                              | 0.69 | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 1.00 | 0.00                                                                              | 0.00 | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                             | 50.4                                                                               | 2.1                                                                               | 2.1  | 58.0                                                                              | 36.4                                                                              | 32.6                                                                              | 49.7 | 0.0                                                                               | 0.0  | 47.1                                                                                | 0.0                                                                                 | 45.0                                                                                |
| Incr Delay (d2), s/veh                                               | 176.3                                                                              | 2.8                                                                               | 2.7  | 9.1                                                                               | 0.3                                                                               | 0.3                                                                               | 2.0  | 0.0                                                                               | 0.0  | 4.8                                                                                 | 0.0                                                                                 | 0.9                                                                                 |
| Initial Q Delay(d3), s/veh                                           | 0.0                                                                                | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0  | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                             | 0.8                                                                                | 1.5                                                                               | 1.5  | 2.1                                                                               | 15.2                                                                              | 8.8                                                                               | 5.5  | 0.0                                                                               | 0.0  | 8.4                                                                                 | 0.0                                                                                 | 4.7                                                                                 |
| Unsig. Movement Delay, s/veh                                         |                                                                                    |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                | 226.7                                                                              | 4.9                                                                               | 4.9  | 67.0                                                                              | 36.7                                                                              | 32.9                                                                              | 51.7 | 0.0                                                                               | 0.0  | 51.9                                                                                | 0.0                                                                                 | 45.8                                                                                |
| LnGrp LOS                                                            | F                                                                                  | A                                                                                 | A    | E                                                                                 | D                                                                                 | C                                                                                 | D    |                                                                                   |      | D                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h                                                  | 1219                                                                               |                                                                                   |      | 1509                                                                              |                                                                                   |                                                                                   | 186  |                                                                                   |      | 723                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                | 39.3                                                                               |                                                                                   |      | 37.1                                                                              |                                                                                   |                                                                                   | 51.7 |                                                                                   |      | 50.5                                                                                |                                                                                     |                                                                                     |
| Approach LOS                                                         | D                                                                                  |                                                                                   |      | D                                                                                 |                                                                                   |                                                                                   | D    |                                                                                   |      | D                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                 | 1                                                                                  | 2                                                                                 |      | 4                                                                                 | 5                                                                                 | 6                                                                                 |      | 8                                                                                 |      |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                             | 9.4                                                                                | 61.5                                                                              |      | 21.8                                                                              | 14.0                                                                              | 56.9                                                                              |      | 27.3                                                                              |      |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                              | 4.4                                                                                | * 5.2                                                                             |      | 4.9                                                                               | 4.4                                                                               | 5.2                                                                               |      | 4.9                                                                               |      |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                          | 5.0                                                                                | * 38                                                                              |      | 29.0                                                                              | 9.6                                                                               | 33.0                                                                              |      | 29.0                                                                              |      |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I), s                                          | 10.3                                                                               | 7.6                                                                               |      | 14.6                                                                              | 11.6                                                                              | 36.2                                                                              |      | 20.1                                                                              |      |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                              | 0.0                                                                                | 12.5                                                                              |      | 0.6                                                                               | 0.0                                                                               | 0.0                                                                               |      | 1.1                                                                               |      |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                 |                                                                                    |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                         | 41.2                                                                               |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                          | D                                                                                  |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                |                                                                                    |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
| User approved pedestrian interval to be less than phase max green.   |                                                                                    |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |
| User approved volume balancing among the lanes for turning movement. |                                                                                    |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 12: Genesee Ave. & Clairemont Mesa Blvd.

Proposed Plan Conditions  
PM Peak Hour

|                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
|-------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                               |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                      | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations           |  |  |  |  |  |  |  |  |   |   |  |  |
| Traffic Volume (veh/h)        | 250                                                                               | 800                                                                               | 450                                                                               | 450                                                                               | 980                                                                               | 150                                                                               | 400                                                                               | 550                                                                               | 200                                                                                | 170                                                                                 | 950                                                                                 | 150                                                                                 |
| Future Volume (veh/h)         | 250                                                                               | 800                                                                               | 450                                                                               | 450                                                                               | 980                                                                               | 150                                                                               | 400                                                                               | 550                                                                               | 200                                                                                | 170                                                                                 | 950                                                                                 | 150                                                                                 |
| Initial Q (Qb), veh           | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.               | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)           | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                               | 1.00                                                                                |                                                                                     | 0.99                                                                                |
| Parking Bus, Adj              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach         | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln        | 1841                                                                              | 1841                                                                              | 1754                                                                              | 1796                                                                              | 1796                                                                              | 1711                                                                              | 1856                                                                              | 1856                                                                              | 1856                                                                               | 1826                                                                                | 1826                                                                                | 1826                                                                                |
| Adj Flow Rate, veh/h          | 258                                                                               | 825                                                                               | 371                                                                               | 469                                                                               | 1021                                                                              | 125                                                                               | 412                                                                               | 567                                                                               | 165                                                                                | 179                                                                                 | 1000                                                                                | 126                                                                                 |
| Peak Hour Factor              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %          | 4                                                                                 | 4                                                                                 | 4                                                                                 | 7                                                                                 | 7                                                                                 | 7                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                  | 5                                                                                   | 5                                                                                   | 5                                                                                   |
| Cap, veh/h                    | 215                                                                               | 816                                                                               | 497                                                                               | 348                                                                               | 939                                                                               | 555                                                                               | 389                                                                               | 718                                                                               | 766                                                                                | 206                                                                                 | 717                                                                                 | 699                                                                                 |
| Arrive On Green               | 0.02                                                                              | 0.08                                                                              | 0.08                                                                              | 0.11                                                                              | 0.28                                                                              | 0.28                                                                              | 0.11                                                                              | 0.39                                                                              | 0.39                                                                               | 0.12                                                                                | 0.39                                                                                | 0.39                                                                                |
| Sat Flow, veh/h               | 3401                                                                              | 3497                                                                              | 1410                                                                              | 3319                                                                              | 3413                                                                              | 1391                                                                              | 3428                                                                              | 1856                                                                              | 1553                                                                               | 1739                                                                                | 1826                                                                                | 1532                                                                                |
| Grp Volume(v), veh/h          | 258                                                                               | 825                                                                               | 371                                                                               | 469                                                                               | 1021                                                                              | 125                                                                               | 412                                                                               | 567                                                                               | 165                                                                                | 179                                                                                 | 1000                                                                                | 126                                                                                 |
| Grp Sat Flow(s),veh/h/ln      | 1700                                                                              | 1749                                                                              | 1410                                                                              | 1659                                                                              | 1706                                                                              | 1391                                                                              | 1714                                                                              | 1856                                                                              | 1553                                                                               | 1739                                                                                | 1826                                                                                | 1532                                                                                |
| Q Serve(g_s), s               | 7.6                                                                               | 28.0                                                                              | 27.2                                                                              | 12.6                                                                              | 33.0                                                                              | 7.2                                                                               | 13.6                                                                              | 32.4                                                                              | 7.2                                                                                | 12.1                                                                                | 47.1                                                                                | 5.9                                                                                 |
| Cycle Q Clear(g_c), s         | 7.6                                                                               | 28.0                                                                              | 27.2                                                                              | 12.6                                                                              | 33.0                                                                              | 7.2                                                                               | 13.6                                                                              | 32.4                                                                              | 7.2                                                                                | 12.1                                                                                | 47.1                                                                                | 5.9                                                                                 |
| Prop In Lane                  | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                               | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h        | 215                                                                               | 816                                                                               | 497                                                                               | 348                                                                               | 939                                                                               | 555                                                                               | 389                                                                               | 718                                                                               | 766                                                                                | 206                                                                                 | 717                                                                                 | 699                                                                                 |
| V/C Ratio(X)                  | 1.20                                                                              | 1.01                                                                              | 0.75                                                                              | 1.35                                                                              | 1.09                                                                              | 0.23                                                                              | 1.06                                                                              | 0.79                                                                              | 0.22                                                                               | 0.87                                                                                | 1.40                                                                                | 0.18                                                                                |
| Avail Cap(c_a), veh/h         | 215                                                                               | 816                                                                               | 497                                                                               | 348                                                                               | 939                                                                               | 555                                                                               | 389                                                                               | 718                                                                               | 766                                                                                | 328                                                                                 | 717                                                                                 | 699                                                                                 |
| HCM Platoon Ratio             | 0.33                                                                              | 0.33                                                                              | 0.33                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)            | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.50                                                                              | 0.50                                                                              | 0.50                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh      | 58.7                                                                              | 55.4                                                                              | 41.5                                                                              | 53.7                                                                              | 43.5                                                                              | 24.2                                                                              | 53.2                                                                              | 32.5                                                                              | 17.3                                                                               | 52.0                                                                                | 36.4                                                                                | 19.4                                                                                |
| Incr Delay (d2), s/veh        | 112.9                                                                             | 27.1                                                                              | 6.1                                                                               | 165.1                                                                             | 49.1                                                                              | 0.5                                                                               | 62.5                                                                              | 5.4                                                                               | 0.1                                                                                | 8.3                                                                                 | 186.4                                                                               | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln      | 6.8                                                                               | 16.2                                                                              | 11.0                                                                              | 13.2                                                                              | 20.0                                                                              | 0.1                                                                               | 9.1                                                                               | 15.1                                                                              | 2.5                                                                                | 5.6                                                                                 | 56.8                                                                                | 2.0                                                                                 |
| Unsig. Movement Delay, s/veh  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh         | 171.7                                                                             | 82.5                                                                              | 47.6                                                                              | 218.8                                                                             | 92.6                                                                              | 24.7                                                                              | 115.7                                                                             | 37.9                                                                              | 17.4                                                                               | 60.3                                                                                | 222.8                                                                               | 19.4                                                                                |
| LnGrp LOS                     | F                                                                                 | F                                                                                 | D                                                                                 | F                                                                                 | F                                                                                 | C                                                                                 | F                                                                                 | D                                                                                 | B                                                                                  | E                                                                                   | F                                                                                   | B                                                                                   |
| Approach Vol, veh/h           | 1454                                                                              |                                                                                   |                                                                                   | 1615                                                                              |                                                                                   |                                                                                   | 1144                                                                              |                                                                                   |                                                                                    | 1305                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh         | 89.4                                                                              |                                                                                   |                                                                                   | 124.0                                                                             |                                                                                   |                                                                                   | 63.0                                                                              |                                                                                   |                                                                                    | 180.9                                                                               |                                                                                     |                                                                                     |
| Approach LOS                  | F                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                    | F                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs          | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s      | 7.0                                                                               | 33.0                                                                              | 18.0                                                                              | 52.0                                                                              | 12.0                                                                              | 38.0                                                                              | 18.6                                                                              | 51.4                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s       | 4.4                                                                               | 5.0                                                                               | 4.4                                                                               | 4.9                                                                               | 4.4                                                                               | 5.0                                                                               | 4.4                                                                               | 4.9                                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s   | 12.6                                                                              | 28.0                                                                              | 13.6                                                                              | 47.1                                                                              | 7.6                                                                               | 33.0                                                                              | 22.6                                                                              | 38.1                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+1/4), s | 14.6                                                                              | 30.0                                                                              | 15.6                                                                              | 49.1                                                                              | 9.6                                                                               | 35.0                                                                              | 14.1                                                                              | 34.4                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s       | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                               | 1.0                                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh  | 115.7                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                   | F                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary 13: Limerick Ave. & Clairemont Mesa Blvd.

Proposed Plan Conditions  
PM Peak Hour

|                               |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                      | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations           |  |  |  |  |  |  |  |  |  |    |    |    |
| Traffic Volume (veh/h)        | 120                                                                               | 1100                                                                              | 200                                                                               | 230                                                                               | 1200                                                                              | 250                                                                               | 140                                                                               | 130                                                                               | 120                                                                               | 200                                                                                 | 160                                                                                 | 80                                                                                  |
| Future Volume (veh/h)         | 120                                                                               | 1100                                                                              | 200                                                                               | 230                                                                               | 1200                                                                              | 250                                                                               | 140                                                                               | 130                                                                               | 120                                                                               | 200                                                                                 | 160                                                                                 | 80                                                                                  |
| Initial Q (Qb), veh           | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.               | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)           | 1.00                                                                              |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                                |                                                                                     | 0.93                                                                                |
| Parking Bus, Adj              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach         | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln        | 1796                                                                              | 1796                                                                              | 1796                                                                              | 1826                                                                              | 1826                                                                              | 1826                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h          | 126                                                                               | 1158                                                                              | 169                                                                               | 242                                                                               | 1263                                                                              | 210                                                                               | 147                                                                               | 137                                                                               | 113                                                                               | 211                                                                                 | 168                                                                                 | 76                                                                                  |
| Peak Hour Factor              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %          | 7                                                                                 | 7                                                                                 | 7                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                    | 143                                                                               | 1361                                                                              | 581                                                                               | 246                                                                               | 1586                                                                              | 703                                                                               | 163                                                                               | 171                                                                               | 141                                                                               | 217                                                                                 | 252                                                                                 | 114                                                                                 |
| Arrive On Green               | 0.08                                                                              | 0.40                                                                              | 0.40                                                                              | 0.14                                                                              | 0.46                                                                              | 0.46                                                                              | 0.09                                                                              | 0.18                                                                              | 0.18                                                                              | 0.12                                                                                | 0.21                                                                                | 0.21                                                                                |
| Sat Flow, veh/h               | 1711                                                                              | 3413                                                                              | 1457                                                                              | 1739                                                                              | 3469                                                                              | 1539                                                                              | 1781                                                                              | 937                                                                               | 773                                                                               | 1781                                                                                | 1187                                                                                | 537                                                                                 |
| Grp Volume(v), veh/h          | 126                                                                               | 1158                                                                              | 169                                                                               | 242                                                                               | 1263                                                                              | 210                                                                               | 147                                                                               | 0                                                                                 | 250                                                                               | 211                                                                                 | 0                                                                                   | 244                                                                                 |
| Grp Sat Flow(s),veh/h/ln      | 1711                                                                              | 1706                                                                              | 1457                                                                              | 1739                                                                              | 1735                                                                              | 1539                                                                              | 1781                                                                              | 0                                                                                 | 1710                                                                              | 1781                                                                                | 0                                                                                   | 1723                                                                                |
| Q Serve(g_s), s               | 8.7                                                                               | 37.1                                                                              | 9.5                                                                               | 16.7                                                                              | 37.3                                                                              | 10.3                                                                              | 9.8                                                                               | 0.0                                                                               | 16.8                                                                              | 14.2                                                                                | 0.0                                                                                 | 15.6                                                                                |
| Cycle Q Clear(g_c), s         | 8.7                                                                               | 37.1                                                                              | 9.5                                                                               | 16.7                                                                              | 37.3                                                                              | 10.3                                                                              | 9.8                                                                               | 0.0                                                                               | 16.8                                                                              | 14.2                                                                                | 0.0                                                                                 | 15.6                                                                                |
| Prop In Lane                  | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.45                                                                              | 1.00                                                                                |                                                                                     | 0.31                                                                                |
| Lane Grp Cap(c), veh/h        | 143                                                                               | 1361                                                                              | 581                                                                               | 246                                                                               | 1586                                                                              | 703                                                                               | 163                                                                               | 0                                                                                 | 311                                                                               | 217                                                                                 | 0                                                                                   | 366                                                                                 |
| V/C Ratio(X)                  | 0.88                                                                              | 0.85                                                                              | 0.29                                                                              | 0.98                                                                              | 0.80                                                                              | 0.30                                                                              | 0.90                                                                              | 0.00                                                                              | 0.80                                                                              | 0.97                                                                                | 0.00                                                                                | 0.67                                                                                |
| Avail Cap(c_a), veh/h         | 143                                                                               | 1361                                                                              | 581                                                                               | 246                                                                               | 1586                                                                              | 703                                                                               | 163                                                                               | 0                                                                                 | 413                                                                               | 217                                                                                 | 0                                                                                   | 468                                                                                 |
| HCM Platoon Ratio             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)            | 0.41                                                                              | 0.41                                                                              | 0.41                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh      | 54.4                                                                              | 32.8                                                                              | 24.5                                                                              | 51.4                                                                              | 27.8                                                                              | 20.5                                                                              | 54.0                                                                              | 0.0                                                                               | 47.0                                                                              | 52.5                                                                                | 0.0                                                                                 | 43.4                                                                                |
| Incr Delay (d2), s/veh        | 21.8                                                                              | 3.0                                                                               | 0.5                                                                               | 52.1                                                                              | 4.2                                                                               | 1.1                                                                               | 42.0                                                                              | 0.0                                                                               | 6.0                                                                               | 53.2                                                                                | 0.0                                                                                 | 1.2                                                                                 |
| Initial Q Delay(d3), s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln      | 4.6                                                                               | 15.4                                                                              | 3.4                                                                               | 10.7                                                                              | 15.8                                                                              | 3.9                                                                               | 6.3                                                                               | 0.0                                                                               | 7.7                                                                               | 9.5                                                                                 | 0.0                                                                                 | 6.8                                                                                 |
| Unsig. Movement Delay, s/veh  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh         | 76.3                                                                              | 35.8                                                                              | 25.1                                                                              | 103.4                                                                             | 32.1                                                                              | 21.6                                                                              | 95.9                                                                              | 0.0                                                                               | 53.0                                                                              | 105.7                                                                               | 0.0                                                                                 | 44.6                                                                                |
| LnGrp LOS                     | E                                                                                 | D                                                                                 | C                                                                                 | F                                                                                 | C                                                                                 | C                                                                                 | F                                                                                 |                                                                                   | D                                                                                 | F                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h           | 1453                                                                              |                                                                                   |                                                                                   | 1715                                                                              |                                                                                   |                                                                                   | 397                                                                               |                                                                                   |                                                                                   | 455                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh         | 38.1                                                                              |                                                                                   |                                                                                   | 40.8                                                                              |                                                                                   |                                                                                   | 68.9                                                                              |                                                                                   |                                                                                   | 72.9                                                                                |                                                                                     |                                                                                     |
| Approach LOS                  | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs          | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s      | 31.4                                                                              | 52.8                                                                              | 15.4                                                                              | 30.4                                                                              | 14.4                                                                              | 59.8                                                                              | 19.0                                                                              | 26.8                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s       | 4.4                                                                               | 5.0                                                                               | 4.4                                                                               | 4.9                                                                               | 4.4                                                                               | * 5                                                                               | 4.4                                                                               | 4.9                                                                               |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s   | 7.6                                                                               | 40.7                                                                              | 11.0                                                                              | 32.6                                                                              | 10.0                                                                              | * 48                                                                              | 14.6                                                                              | 29.0                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+11g), s | 11.8                                                                              | 39.1                                                                              | 11.8                                                                              | 17.6                                                                              | 10.7                                                                              | 39.3                                                                              | 16.2                                                                              | 18.8                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s       | 0.0                                                                               | 1.6                                                                               | 0.0                                                                               | 0.8                                                                               | 0.0                                                                               | 8.0                                                                               | 0.0                                                                               | 0.7                                                                               |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

## Intersection Summary

HCM 7th Control Delay, s/veh 46.2  
HCM 7th LOS D

## Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary  
 15: I-805 NB Off-Ramp/I-805 NB On-Ramp & Clairemont Mesa Blvd.

Proposed Plan Conditions  
 PM Peak Hour



| Movement                                                                                                           | EBL  | EBT  | EBR  | WBL  | WBT | WBR | NBL  | NBT  | NBR  | SBL | SBT | SBR |
|--------------------------------------------------------------------------------------------------------------------|------|------|------|------|-----|-----|------|------|------|-----|-----|-----|
| Lane Configurations                                                                                                |      | ↑↑↑↑ | ↗    |      |     |     |      | ↑    | ↗↗   |     |     |     |
| Traffic Volume (veh/h)                                                                                             | 0    | 1710 | 480  | 0    | 0   | 0   | 0    | 1    | 1050 | 0   | 0   | 660 |
| Future Volume (veh/h)                                                                                              | 0    | 1710 | 480  | 0    | 0   | 0   | 0    | 1    | 1050 | 0   | 0   | 660 |
| Initial Q (Qb), veh                                                                                                | 0    | 0    | 0    |      |     |     | 0    | 0    | 0    |     |     |     |
| Lane Width Adj.                                                                                                    | 1.00 | 1.00 | 1.00 |      |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Ped-Bike Adj(A_pbT)                                                                                                | 1.00 |      | 1.00 |      |     |     | 1.00 |      | 1.00 |     |     |     |
| Parking Bus, Adj                                                                                                   | 1.00 | 1.00 | 1.00 |      |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Work Zone On Approach                                                                                              |      | No   |      |      |     |     |      | No   |      |     |     |     |
| Adj Sat Flow, veh/h/ln                                                                                             | 0    | 1826 | 1826 |      |     |     | 0    | 1870 | 1870 |     |     |     |
| Adj Flow Rate, veh/h                                                                                               | 0    | 1800 | 0    |      |     |     | 0    | 1    | 1073 |     |     |     |
| Peak Hour Factor                                                                                                   | 0.95 | 0.95 | 0.95 |      |     |     | 0.95 | 0.95 | 0.95 |     |     |     |
| Percent Heavy Veh, %                                                                                               | 0    | 5    | 5    |      |     |     | 0    | 2    | 2    |     |     |     |
| Cap, veh/h                                                                                                         | 0    | 2392 |      |      |     |     | 0    | 760  | 1133 |     |     |     |
| Arrive On Green                                                                                                    | 0.00 | 0.48 | 0.00 |      |     |     | 0.00 | 0.41 | 0.41 |     |     |     |
| Sat Flow, veh/h                                                                                                    | 0    | 5149 | 1547 |      |     |     | 0    | 1870 | 2790 |     |     |     |
| Grp Volume(v), veh/h                                                                                               | 0    | 1800 | 0    |      |     |     | 0    | 1    | 1073 |     |     |     |
| Grp Sat Flow(s),veh/h/ln                                                                                           | 0    | 1662 | 1547 |      |     |     | 0    | 1870 | 1395 |     |     |     |
| Q Serve(g_s), s                                                                                                    | 0.0  | 28.6 | 0.0  |      |     |     | 0.0  | 0.0  | 36.2 |     |     |     |
| Cycle Q Clear(g_c), s                                                                                              | 0.0  | 28.6 | 0.0  |      |     |     | 0.0  | 0.0  | 36.2 |     |     |     |
| Prop In Lane                                                                                                       | 0.00 |      | 1.00 |      |     |     | 0.00 |      | 1.00 |     |     |     |
| Lane Grp Cap(c), veh/h                                                                                             | 0    | 2392 |      |      |     |     | 0    | 760  | 1133 |     |     |     |
| V/C Ratio(X)                                                                                                       | 0.00 | 0.75 |      |      |     |     | 0.00 | 0.00 | 0.95 |     |     |     |
| Avail Cap(c_a), veh/h                                                                                              | 0    | 2968 |      |      |     |     | 0    | 785  | 1171 |     |     |     |
| HCM Platoon Ratio                                                                                                  | 1.00 | 1.00 | 1.00 |      |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Upstream Filter(I)                                                                                                 | 0.00 | 1.00 | 0.00 |      |     |     | 0.00 | 1.00 | 1.00 |     |     |     |
| Uniform Delay (d), s/veh                                                                                           | 0.0  | 20.6 | 0.0  |      |     |     | 0.0  | 17.2 | 27.9 |     |     |     |
| Incr Delay (d2), s/veh                                                                                             | 0.0  | 0.9  | 0.0  |      |     |     | 0.0  | 0.0  | 15.1 |     |     |     |
| Initial Q Delay(d3), s/veh                                                                                         | 0.0  | 0.0  | 0.0  |      |     |     | 0.0  | 0.0  | 0.0  |     |     |     |
| %ile BackOfQ(50%),veh/ln                                                                                           | 0.0  | 10.5 | 0.0  |      |     |     | 0.0  | 0.0  | 13.9 |     |     |     |
| Unsig. Movement Delay, s/veh                                                                                       |      |      |      |      |     |     |      |      |      |     |     |     |
| LnGrp Delay(d), s/veh                                                                                              | 0.0  | 21.5 | 0.0  |      |     |     | 0.0  | 17.2 | 43.0 |     |     |     |
| LnGrp LOS                                                                                                          | C    |      |      | B D  |     |     |      |      |      |     |     |     |
| Approach Vol, veh/h                                                                                                | 1800 |      |      | 1074 |     |     |      |      |      |     |     |     |
| Approach Delay, s/veh                                                                                              | 21.5 |      |      | 43.0 |     |     |      |      |      |     |     |     |
| Approach LOS                                                                                                       | C    |      |      | D    |     |     |      |      |      |     |     |     |
| Timer - Assigned Phs                                                                                               | 2    |      |      | 8    |     |     |      |      |      |     |     |     |
| Phs Duration (G+Y+Rc), s                                                                                           | 52.7 |      |      | 44.7 |     |     |      |      |      |     |     |     |
| Change Period (Y+Rc), s                                                                                            | 6.0  |      |      | 5.1  |     |     |      |      |      |     |     |     |
| Max Green Setting (Gmax), s                                                                                        | 58.0 |      |      | 40.9 |     |     |      |      |      |     |     |     |
| Max Q Clear Time (g_c+I1), s                                                                                       | 30.6 |      |      | 38.2 |     |     |      |      |      |     |     |     |
| Green Ext Time (p_c), s                                                                                            | 16.1 |      |      | 1.4  |     |     |      |      |      |     |     |     |
| Intersection Summary                                                                                               |      |      |      |      |     |     |      |      |      |     |     |     |
| HCM 7th Control Delay, s/veh                                                                                       | 29.5 |      |      |      |     |     |      |      |      |     |     |     |
| HCM 7th LOS                                                                                                        | C    |      |      |      |     |     |      |      |      |     |     |     |
| Notes                                                                                                              |      |      |      |      |     |     |      |      |      |     |     |     |
| Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay. |      |      |      |      |     |     |      |      |      |     |     |     |



HCM 7th Signalized Intersection Summary  
16: Genesee Ave. & Derrick Dr.

Proposed Plan Conditions  
PM Peak Hour



| Movement                      | EBL   | EBT   | EBR  | WBL   | WBT  | WBR  | NBL   | NBT  | NBR  | SBL   | SBT  | SBR  |
|-------------------------------|-------|-------|------|-------|------|------|-------|------|------|-------|------|------|
| Lane Configurations           |       | ↔     |      |       | ↔    | ↔    | ↔     | ↕    | ↔    | ↔     | ↕    | ↔    |
| Traffic Volume (veh/h)        | 90    | 60    | 110  | 290   | 50   | 140  | 90    | 1170 | 370  | 200   | 1280 | 70   |
| Future Volume (veh/h)         | 90    | 60    | 110  | 290   | 50   | 140  | 90    | 1170 | 370  | 200   | 1280 | 70   |
| Initial Q (Qb), veh           | 0     | 0     | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0     | 0    | 0    |
| Lane Width Adj.               | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)           | 0.99  |       | 0.97 | 0.99  |      | 0.99 | 1.00  |      | 1.00 | 1.00  |      | 0.97 |
| Parking Bus, Adj              | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Work Zone On Approach         | No    |       |      | No    |      |      | No    |      |      | No    |      |      |
| Adj Sat Flow, veh/h/ln        | 1730  | 1730  | 1730 | 1870  | 1870 | 1716 | 1870  | 1870 | 1800 | 1856  | 1856 | 1814 |
| Adj Flow Rate, veh/h          | 95    | 63    | 104  | 305   | 53   | 118  | 95    | 1232 | 311  | 211   | 1347 | 59   |
| Peak Hour Factor              | 0.95  | 0.95  | 0.95 | 0.95  | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 |
| Percent Heavy Veh, %          | 2     | 2     | 2    | 2     | 2    | 2    | 2     | 2    | 2    | 3     | 3    | 3    |
| Cap, veh/h                    | 52    | 36    | 23   | 294   | 39   | 498  | 86    | 2226 | 951  | 212   | 2460 | 1044 |
| Arrive On Green               | 0.35  | 0.35  | 0.35 | 0.35  | 0.35 | 0.35 | 0.10  | 1.00 | 1.00 | 0.12  | 0.70 | 0.70 |
| Sat Flow, veh/h               | 0     | 102   | 67   | 644   | 112  | 1434 | 1781  | 3554 | 1519 | 1767  | 3526 | 1496 |
| Grp Volume(v), veh/h          | 262   | 0     | 0    | 358   | 0    | 118  | 95    | 1232 | 311  | 211   | 1347 | 59   |
| Grp Sat Flow(s),veh/h/ln      | 170   | 0     | 0    | 756   | 0    | 1434 | 1781  | 1777 | 1519 | 1767  | 1763 | 1496 |
| Q Serve(g_s), s               | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  | 5.6  | 4.6   | 0.0  | 0.0  | 11.3  | 17.7 | 1.2  |
| Cycle Q Clear(g_c), s         | 33.0  | 0.0   | 0.0  | 33.0  | 0.0  | 5.6  | 4.6   | 0.0  | 0.0  | 11.3  | 17.7 | 1.2  |
| Prop In Lane                  | 0.36  |       | 0.40 | 0.85  |      | 1.00 | 1.00  |      | 1.00 | 1.00  |      | 1.00 |
| Lane Grp Cap(c), veh/h        | 111   | 0     | 0    | 333   | 0    | 498  | 86    | 2226 | 951  | 212   | 2460 | 1044 |
| V/C Ratio(X)                  | 2.37  | 0.00  | 0.00 | 1.08  | 0.00 | 0.24 | 1.10  | 0.55 | 0.33 | 0.99  | 0.55 | 0.06 |
| Avail Cap(c_a), veh/h         | 111   | 0     | 0    | 333   | 0    | 498  | 86    | 2226 | 951  | 212   | 2460 | 1044 |
| HCM Platoon Ratio             | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 2.00  | 2.00 | 2.00 | 1.00  | 1.00 | 1.00 |
| Upstream Filter(I)            | 1.00  | 0.00  | 0.00 | 1.00  | 0.00 | 1.00 | 0.39  | 0.39 | 0.39 | 1.00  | 1.00 | 1.00 |
| Uniform Delay (d), s/veh      | 30.8  | 0.0   | 0.0  | 34.5  | 0.0  | 22.0 | 42.9  | 0.0  | 0.0  | 41.8  | 7.0  | 4.5  |
| Incr Delay (d2), s/veh        | 643.0 | 0.0   | 0.0  | 70.8  | 0.0  | 0.1  | 90.3  | 0.4  | 0.4  | 60.2  | 0.9  | 0.1  |
| Initial Q Delay(d3), s/veh    | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 22.4  | 0.0   | 0.0  | 14.4  | 0.0  | 1.9  | 4.1   | 0.1  | 0.1  | 8.3   | 5.4  | 0.3  |
| Unsig. Movement Delay, s/veh  |       |       |      |       |      |      |       |      |      |       |      |      |
| LnGrp Delay(d), s/veh         | 673.9 | 0.0   | 0.0  | 105.3 | 0.0  | 22.1 | 133.2 | 0.4  | 0.4  | 102.0 | 7.9  | 4.6  |
| LnGrp LOS                     | F     |       |      | F     |      | C    | F     | A    | A    | F     | A    | A    |
| Approach Vol, veh/h           | 262   |       |      | 476   |      |      | 1638  |      |      | 1617  |      |      |
| Approach Delay, s/veh         | 673.9 |       |      | 84.7  |      |      | 8.1   |      |      | 20.1  |      |      |
| Approach LOS                  | F     |       |      | F     |      |      | A     |      |      | C     |      |      |
| Timer - Assigned Phs          | 1     | 2     |      | 4     | 5    | 6    |       | 8    |      |       |      |      |
| Phs Duration (G+Y+Rc), s      | 5.8   | 65.8  |      | 37.9  | 9.0  | 72.6 |       | 37.9 |      |       |      |      |
| Change Period (Y+Rc), s       | 4.4   | * 5.6 |      | 4.9   | 4.4  | 5.6  |       | 4.9  |      |       |      |      |
| Max Green Setting (Gmax), s   | 1.4   | * 36  |      | 33.0  | 4.6  | 42.5 |       | 33.0 |      |       |      |      |
| Max Q Clear Time (g_c+113, s) | 113.3 | 2.0   |      | 35.0  | 6.6  | 19.7 |       | 35.0 |      |       |      |      |
| Green Ext Time (p_c), s       | 0.0   | 31.2  |      | 0.0   | 0.0  | 18.3 |       | 0.0  |      |       |      |      |

Intersection Summary

HCM 7th Control Delay, s/veh 65.7  
HCM 7th LOS E

Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary  
17: Genesee Ave. & Mt. Etna Dr.

Proposed Plan Conditions  
PM Peak Hour



| Movement                      | EBL  | EBT   | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL   | SBT  | SBR  |
|-------------------------------|------|-------|------|------|------|------|------|------|------|-------|------|------|
| Lane Configurations           |      |       |      |      |      |      |      |      |      |       |      |      |
| Traffic Volume (veh/h)        | 120  | 100   | 140  | 220  | 100  | 270  | 260  | 1260 | 240  | 320   | 1230 | 160  |
| Future Volume (veh/h)         | 120  | 100   | 140  | 220  | 100  | 270  | 260  | 1260 | 240  | 320   | 1230 | 160  |
| Initial Q (Qb), veh           | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    |
| Lane Width Adj.               | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)           | 0.99 |       | 0.99 | 0.99 |      | 0.99 | 1.00 |      | 0.99 | 1.00  |      | 0.99 |
| Parking Bus, Adj              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Work Zone On Approach         | No   |       |      | No   |      |      | No   |      |      | No    |      |      |
| Adj Sat Flow, veh/h/ln        | 1870 | 1870  | 1870 | 1870 | 1870 | 1870 | 1856 | 1856 | 1786 | 1870  | 1870 | 1786 |
| Adj Flow Rate, veh/h          | 126  | 105   | 132  | 232  | 105  | 256  | 274  | 1326 | 202  | 337   | 1295 | 134  |
| Peak Hour Factor              | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 |
| Percent Heavy Veh, %          | 2    | 2     | 2    | 2    | 2    | 2    | 3    | 3    | 3    | 2     | 2    | 2    |
| Cap, veh/h                    | 235  | 256   | 322  | 342  | 164  | 399  | 272  | 1265 | 538  | 257   | 1261 | 533  |
| Arrive On Green               | 0.34 | 0.34  | 0.34 | 0.34 | 0.34 | 0.34 | 0.15 | 0.36 | 0.36 | 0.29  | 0.71 | 0.71 |
| Sat Flow, veh/h               | 1015 | 748   | 940  | 1135 | 478  | 1166 | 1767 | 3526 | 1499 | 1781  | 3554 | 1503 |
| Grp Volume(v), veh/h          | 126  | 0     | 237  | 232  | 0    | 361  | 274  | 1326 | 202  | 337   | 1295 | 134  |
| Grp Sat Flow(s), veh/h/ln     | 1015 | 0     | 1688 | 1135 | 0    | 1645 | 1767 | 1763 | 1499 | 1781  | 1777 | 1503 |
| Q Serve(g_s), s               | 11.3 | 0.0   | 10.2 | 18.7 | 0.0  | 17.6 | 14.6 | 34.1 | 9.5  | 13.7  | 33.7 | 3.0  |
| Cycle Q Clear(g_c), s         | 28.9 | 0.0   | 10.2 | 28.9 | 0.0  | 17.6 | 14.6 | 34.1 | 9.5  | 13.7  | 33.7 | 3.0  |
| Prop In Lane                  | 1.00 |       | 0.56 | 1.00 |      | 0.71 | 1.00 |      | 1.00 | 1.00  |      | 1.00 |
| Lane Grp Cap(c), veh/h        | 235  | 0     | 577  | 342  | 0    | 562  | 272  | 1265 | 538  | 257   | 1261 | 533  |
| V/C Ratio(X)                  | 0.54 | 0.00  | 0.41 | 0.68 | 0.00 | 0.64 | 1.01 | 1.05 | 0.38 | 1.31  | 1.03 | 0.25 |
| Avail Cap(c_a), veh/h         | 262  | 0     | 622  | 372  | 0    | 606  | 272  | 1265 | 538  | 257   | 1261 | 533  |
| HCM Platoon Ratio             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00  | 2.00 | 2.00 |
| Upstream Filter(I)            | 1.00 | 0.00  | 1.00 | 1.00 | 0.00 | 1.00 | 0.09 | 0.09 | 0.09 | 0.39  | 0.39 | 0.39 |
| Uniform Delay (d), s/veh      | 38.5 | 0.0   | 23.9 | 35.0 | 0.0  | 26.4 | 40.2 | 30.4 | 22.6 | 33.8  | 13.8 | 9.3  |
| Incr Delay (d2), s/veh        | 1.4  | 0.0   | 0.3  | 4.0  | 0.0  | 1.8  | 18.6 | 24.0 | 0.2  | 150.6 | 23.2 | 0.4  |
| Initial Q Delay(d3), s/veh    | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 2.9  | 0.0   | 4.1  | 5.4  | 0.0  | 7.0  | 7.6  | 17.8 | 3.2  | 15.5  | 8.8  | 0.9  |
| Unsig. Movement Delay, s/veh  |      |       |      |      |      |      |      |      |      |       |      |      |
| LnGrp Delay(d), s/veh         | 40.0 | 0.0   | 24.3 | 39.0 | 0.0  | 28.2 | 58.8 | 54.5 | 22.7 | 184.4 | 37.0 | 9.8  |
| LnGrp LOS                     | D    |       | C    | D    |      | C    | F    | F    | C    | F     | F    | A    |
| Approach Vol, veh/h           | 363  |       |      | 593  |      |      | 1802 |      |      | 1766  |      |      |
| Approach Delay, s/veh         | 29.7 |       |      | 32.4 |      |      | 51.6 |      |      | 63.0  |      |      |
| Approach LOS                  | C    |       |      | C    |      |      | D    |      |      | E     |      |      |
| Timer - Assigned Phs          | 1    | 2     |      | 4    | 5    | 6    |      | 8    |      |       |      |      |
| Phs Duration (G+Y+Rc), s      | 38.6 | 39.0  |      | 37.4 | 19.0 | 38.6 |      | 37.4 |      |       |      |      |
| Change Period (Y+Rc), s       | 4.9  | * 4.9 |      | 4.9  | 4.4  | 4.9  |      | 4.9  |      |       |      |      |
| Max Green Setting (Gmax), s   | 34   | * 34  |      | 35.0 | 14.6 | 31.2 |      | 35.0 |      |       |      |      |
| Max Q Clear Time (g_c+1/5), s | 36.1 |       |      | 30.9 | 16.6 | 35.7 |      | 30.9 |      |       |      |      |
| Green Ext Time (p_c), s       | 0.0  | 0.0   |      | 0.6  | 0.0  | 0.0  |      | 1.1  |      |       |      |      |

Intersection Summary

|                              |      |
|------------------------------|------|
| HCM 7th Control Delay, s/veh | 51.8 |
| HCM 7th LOS                  | D    |

Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 18: Genesee Ave. & Balboa Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               | SBR                                                                               |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 400                                                                               | 980                                                                               | 220                                                                               | 240                                                                               | 1170                                                                              | 440                                                                               | 300                                                                               | 790                                                                               | 330                                                                               | 380                                                                               | 820                                                                               | 310                                                                               |
| Future Volume (veh/h)        | 400                                                                               | 980                                                                               | 220                                                                               | 240                                                                               | 1170                                                                              | 440                                                                               | 300                                                                               | 790                                                                               | 330                                                                               | 380                                                                               | 820                                                                               | 310                                                                               |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1856                                                                              | 1856                                                                              | 1780                                                                              | 1870                                                                              | 1870                                                                              | 1775                                                                              | 1811                                                                              | 1811                                                                              | 1728                                                                              | 1856                                                                              | 1856                                                                              | 1761                                                                              |
| Adj Flow Rate, veh/h         | 412                                                                               | 1010                                                                              | 182                                                                               | 253                                                                               | 1232                                                                              | 370                                                                               | 316                                                                               | 832                                                                               | 278                                                                               | 400                                                                               | 863                                                                               | 261                                                                               |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Percent Heavy Veh, %         | 3                                                                                 | 3                                                                                 | 3                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 | 6                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 |
| Cap, veh/h                   | 778                                                                               | 2498                                                                              | 1065                                                                              | 297                                                                               | 1773                                                                              | 520                                                                               | 313                                                                               | 818                                                                               | 348                                                                               | 409                                                                               | 916                                                                               | 380                                                                               |
| Arrive On Green              | 0.44                                                                              | 0.71                                                                              | 0.71                                                                              | 0.17                                                                              | 0.69                                                                              | 0.69                                                                              | 0.19                                                                              | 0.48                                                                              | 0.48                                                                              | 0.12                                                                              | 0.26                                                                              | 0.26                                                                              |
| Sat Flow, veh/h              | 1767                                                                              | 3526                                                                              | 1504                                                                              | 3456                                                                              | 5106                                                                              | 1499                                                                              | 3346                                                                              | 3441                                                                              | 1465                                                                              | 3428                                                                              | 3526                                                                              | 1461                                                                              |
| Grp Volume(v), veh/h         | 412                                                                               | 1010                                                                              | 182                                                                               | 253                                                                               | 1232                                                                              | 370                                                                               | 316                                                                               | 832                                                                               | 278                                                                               | 400                                                                               | 863                                                                               | 261                                                                               |
| Grp Sat Flow(s),veh/h/ln     | 1767                                                                              | 3526                                                                              | 1504                                                                              | 3456                                                                              | 5106                                                                              | 1499                                                                              | 3346                                                                              | 3441                                                                              | 1465                                                                              | 3428                                                                              | 3526                                                                              | 1461                                                                              |
| Q Serve(g_s), s              | 23.8                                                                              | 16.4                                                                              | 7.9                                                                               | 9.9                                                                               | 20.0                                                                              | 24.0                                                                              | 13.1                                                                              | 33.3                                                                              | 22.5                                                                              | 16.3                                                                              | 33.6                                                                              | 22.5                                                                              |
| Cycle Q Clear(g_c), s        | 23.8                                                                              | 16.4                                                                              | 7.9                                                                               | 9.9                                                                               | 20.0                                                                              | 24.0                                                                              | 13.1                                                                              | 33.3                                                                              | 22.5                                                                              | 16.3                                                                              | 33.6                                                                              | 22.5                                                                              |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |
| Lane Grp Cap(c), veh/h       | 778                                                                               | 2498                                                                              | 1065                                                                              | 297                                                                               | 1773                                                                              | 520                                                                               | 313                                                                               | 818                                                                               | 348                                                                               | 409                                                                               | 916                                                                               | 380                                                                               |
| V/C Ratio(X)                 | 0.53                                                                              | 0.40                                                                              | 0.17                                                                              | 0.85                                                                              | 0.70                                                                              | 0.71                                                                              | 1.01                                                                              | 1.02                                                                              | 0.80                                                                              | 0.98                                                                              | 0.94                                                                              | 0.69                                                                              |
| Avail Cap(c_a), veh/h        | 778                                                                               | 2498                                                                              | 1065                                                                              | 328                                                                               | 1773                                                                              | 520                                                                               | 313                                                                               | 818                                                                               | 348                                                                               | 409                                                                               | 922                                                                               | 382                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.67                                                                              | 0.67                                                                              | 0.67                                                                              | 0.42                                                                              | 0.42                                                                              | 0.42                                                                              | 0.31                                                                              | 0.31                                                                              | 0.31                                                                              |
| Uniform Delay (d), s/veh     | 28.6                                                                              | 8.3                                                                               | 13.5                                                                              | 57.1                                                                              | 17.0                                                                              | 22.7                                                                              | 56.9                                                                              | 36.7                                                                              | 33.9                                                                              | 61.5                                                                              | 50.8                                                                              | 46.7                                                                              |
| Incr Delay (d2), s/veh       | 0.4                                                                               | 0.5                                                                               | 0.3                                                                               | 11.6                                                                              | 1.5                                                                               | 5.5                                                                               | 35.3                                                                              | 24.8                                                                              | 6.1                                                                               | 19.6                                                                              | 7.1                                                                               | 1.9                                                                               |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 0.8                                                                               | 5.7                                                                               | 2.8                                                                               | 4.4                                                                               | 5.0                                                                               | 6.2                                                                               | 6.5                                                                               | 13.9                                                                              | 6.9                                                                               | 8.2                                                                               | 15.6                                                                              | 8.4                                                                               |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d), s/veh        | 29.0                                                                              | 8.8                                                                               | 13.9                                                                              | 68.7                                                                              | 18.6                                                                              | 28.2                                                                              | 92.2                                                                              | 61.5                                                                              | 39.9                                                                              | 81.1                                                                              | 57.9                                                                              | 48.6                                                                              |
| LnGrp LOS                    | C                                                                                 | A                                                                                 | B                                                                                 | E                                                                                 | B                                                                                 | C                                                                                 | F                                                                                 | F                                                                                 | D                                                                                 | F                                                                                 | E                                                                                 | D                                                                                 |
| Approach Vol, veh/h          | 1604                                                                              |                                                                                   |                                                                                   | 1855                                                                              |                                                                                   |                                                                                   | 1426                                                                              |                                                                                   |                                                                                   | 1524                                                                              |                                                                                   |                                                                                   |
| Approach Delay, s/veh        | 14.6                                                                              |                                                                                   |                                                                                   | 27.3                                                                              |                                                                                   |                                                                                   | 64.1                                                                              |                                                                                   |                                                                                   | 62.4                                                                              |                                                                                   |                                                                                   |
| Approach LOS                 | B                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 66.4                                                                              | 105.7                                                                             | 18.0                                                                              | 41.3                                                                              | 68.1                                                                              | 54.0                                                                              | 21.1                                                                              | 38.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Change Period (Y+Rc), s      | 4.4                                                                               | 5.3                                                                               | 4.9                                                                               | * 4.9                                                                             | 5.3                                                                               | * 5.4                                                                             | 4.4                                                                               | 4.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Max Green Setting (Gmax), s  | 13.3                                                                              | 58.0                                                                              | 13.1                                                                              | * 37                                                                              | 22.6                                                                              | * 49                                                                              | 16.7                                                                              | 33.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Max Q Clear Time (g_c+I1), s | 11.9                                                                              | 18.4                                                                              | 15.1                                                                              | 35.6                                                                              | 25.8                                                                              | 26.0                                                                              | 18.3                                                                              | 35.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Green Ext Time (p_c), s      | 0.1                                                                               | 10.2                                                                              | 0.0                                                                               | 0.8                                                                               | 0.0                                                                               | 9.9                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Intersection Summary

HCM 7th Control Delay, s/veh 40.6  
HCM 7th LOS D

## Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary  
19: Genesee Ave. & Mt. Alifan Dr.

Proposed Plan Conditions  
PM Peak Hour



| Movement                     | EBL  | EBT   | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|-------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |       |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 200  | 240   | 100  | 320  | 340  | 120  | 200  | 1160 | 210  | 90   | 940  | 200  |
| Future Volume (veh/h)        | 200  | 240   | 100  | 320  | 340  | 120  | 200  | 1160 | 210  | 90   | 940  | 200  |
| Initial Q (Qb), veh          | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |       | 0.98 | 1.00 |      | 0.98 | 1.00 |      | 0.97 | 1.00 |      | 0.99 |
| Parking Bus, Adj             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |       |      | No   |      |      | No   |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1804  | 1804 | 1870 | 1870 | 1766 | 1811 | 1811 | 1775 | 1811 | 1811 | 1756 |
| Adj Flow Rate, veh/h         | 211  | 253   | 105  | 333  | 354  | 125  | 211  | 1221 | 177  | 95   | 989  | 169  |
| Peak Hour Factor             | 0.95 | 0.95  | 0.95 | 0.96 | 0.96 | 0.96 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2     | 2    | 2    | 2    | 2    | 6    | 6    | 6    | 6    | 6    | 6    |
| Cap, veh/h                   | 381  | 266   | 110  | 359  | 391  | 308  | 234  | 1241 | 525  | 124  | 1048 | 450  |
| Arrive On Green              | 0.21 | 0.22  | 0.22 | 0.07 | 0.07 | 0.07 | 0.14 | 0.36 | 0.36 | 0.14 | 0.61 | 0.61 |
| Sat Flow, veh/h              | 1781 | 1202  | 499  | 1781 | 1870 | 1473 | 1725 | 3441 | 1455 | 1725 | 3441 | 1478 |
| Grp Volume(v), veh/h         | 211  | 0     | 358  | 333  | 354  | 125  | 211  | 1221 | 177  | 95   | 989  | 169  |
| Grp Sat Flow(s),veh/h/ln     | 1781 | 0     | 1701 | 1781 | 1870 | 1473 | 1725 | 1721 | 1455 | 1725 | 1721 | 1478 |
| Q Serve(g_s), s              | 14.8 | 0.0   | 29.1 | 26.0 | 26.3 | 11.4 | 16.9 | 49.2 | 7.0  | 7.4  | 37.0 | 4.8  |
| Cycle Q Clear(g_c), s        | 14.8 | 0.0   | 29.1 | 26.0 | 26.3 | 11.4 | 16.9 | 49.2 | 7.0  | 7.4  | 37.0 | 4.8  |
| Prop In Lane                 | 1.00 |       | 0.29 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 381  | 0     | 377  | 359  | 391  | 308  | 234  | 1241 | 525  | 124  | 1048 | 450  |
| V/C Ratio(X)                 | 0.55 | 0.00  | 0.95 | 0.93 | 0.91 | 0.41 | 0.90 | 0.98 | 0.34 | 0.76 | 0.94 | 0.38 |
| Avail Cap(c_a), veh/h        | 394  | 0     | 377  | 394  | 414  | 326  | 328  | 1241 | 525  | 124  | 1048 | 450  |
| HCM Platoon Ratio            | 1.00 | 1.00  | 1.00 | 0.33 | 0.33 | 0.33 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(I)           | 1.00 | 0.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.47 | 0.47 | 0.47 |
| Uniform Delay (d), s/veh     | 49.0 | 0.0   | 53.7 | 64.3 | 63.8 | 56.9 | 59.6 | 44.3 | 10.5 | 58.8 | 26.2 | 7.2  |
| Incr Delay (d2), s/veh       | 0.8  | 0.0   | 33.4 | 25.6 | 21.6 | 0.3  | 17.2 | 21.9 | 1.7  | 11.3 | 9.7  | 1.1  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 6.7  | 0.0   | 15.9 | 15.1 | 15.7 | 4.6  | 8.3  | 23.9 | 2.5  | 3.4  | 11.8 | 2.5  |
| Unsig. Movement Delay, s/veh |      |       |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 49.9 | 0.0   | 87.2 | 90.0 | 85.4 | 57.2 | 76.8 | 66.3 | 12.3 | 70.1 | 35.9 | 8.3  |
| LnGrp LOS                    | D    |       | F    | F    | F    | E    | E    | E    | B    | E    | D    | A    |
| Approach Vol, veh/h          | 569  |       |      |      |      | 812  |      | 1609 |      | 1253 |      |      |
| Approach Delay, s/veh        | 73.3 |       |      |      |      | 82.9 |      | 61.7 |      | 34.8 |      |      |
| Approach LOS                 | E    |       |      |      |      | F    |      | E    |      | C    |      |      |
| Timer - Assigned Phs         | 1    | 2     | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 5.0  | 56.0  | 33.1 | 35.9 | 23.4 | 47.6 | 34.9 | 34.1 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.9  | * 5.5 | 4.9  | 4.9  | 4.4  | 4.9  | 4.9  | 4.9  |      |      |      |      |
| Max Green Setting (Gmax), s  | 7.8  | * 51  | 31.0 | 31.0 | 26.6 | 32.3 | 31.0 | 31.0 |      |      |      |      |
| Max Q Clear Time (g_c+I), s  | 19.4 | 51.2  | 28.0 | 31.1 | 18.9 | 39.0 | 16.8 | 28.3 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 0.0   | 0.2  | 0.0  | 0.2  | 0.0  | 0.2  | 0.5  |      |      |      |      |

Intersection Summary

|                              |      |
|------------------------------|------|
| HCM 7th Control Delay, s/veh | 59.4 |
| HCM 7th LOS                  | E    |

Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 4.7  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↔    |      |      | ↔    |      | ↔    | ↔    |      | ↔    | ↔    |      |
| Traffic Vol, veh/h       | 10   | 10   | 10   | 50   | 10   | 160  | 10   | 340  | 100  | 90   | 670  | 50   |
| Future Vol, veh/h        | 10   | 10   | 10   | 50   | 10   | 160  | 10   | 340  | 100  | 90   | 670  | 50   |
| Conflicting Peds, #/hr   | 0    | 0    | 3    | 3    | 0    | 0    | 0    | 0    | 11   | 11   | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 80   | -    | -    | 30   | -    | -    |
| Veh in Median Storage, # | -    | 1    | -    | -    | 1    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 11   | 11   | 11   | 53   | 11   | 168  | 11   | 358  | 105  | 95   | 705  | 53   |

| Major/Minor          | Minor2 |       | Minor1 |       | Major1 |       | Major2 |   |   |       |   |   |
|----------------------|--------|-------|--------|-------|--------|-------|--------|---|---|-------|---|---|
| Conflicting Flow All | 1305   | 1416  | 735    | 1346  | 1390   | 422   | 758    | 0 | 0 | 474   | 0 | 0 |
| Stage 1              | 921    | 921   | -      | 443   | 443    | -     | -      | - | - | -     | - | - |
| Stage 2              | 384    | 495   | -      | 903   | 947    | -     | -      | - | - | -     | - | - |
| Critical Hdwy        | 7.12   | 6.52  | 6.22   | 7.12  | 6.52   | 6.22  | 4.12   | - | - | 4.12  | - | - |
| Critical Hdwy Stg 1  | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | - | - | -     | - | - |
| Critical Hdwy Stg 2  | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | - | - | -     | - | - |
| Follow-up Hdwy       | 3.518  | 4.018 | 3.318  | 3.518 | 4.018  | 3.318 | 2.218  | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver   | 132    | 131   | 464    | 123   | 136    | 632   | 781    | - | - | 1088  | - | - |
| Stage 1              | 313    | 316   | -      | 594   | 576    | -     | -      | - | - | -     | - | - |
| Stage 2              | 639    | 546   | -      | 324   | 303    | -     | -      | - | - | -     | - | - |
| Platoon blocked, %   | 0      | 0     | 0      | 0     | 0      | 0     | 0      | - | - | -     | - | - |
| Mov Cap-1 Maneuver   | 83     | 116   | 462    | 102   | 121    | 625   | 781    | - | - | 1076  | - | - |
| Mov Cap-2 Maneuver   | 182    | 208   | -      | 205   | 210    | -     | -      | - | - | -     | - | - |
| Stage 1              | 285    | 288   | -      | 580   | 562    | -     | -      | - | - | -     | - | - |
| Stage 2              | 452    | 533   | -      | 277   | 276    | -     | -      | - | - | -     | - | - |

| Approach          | EB    |  | WB    |  | NB   |  | SB   |  |
|-------------------|-------|--|-------|--|------|--|------|--|
| HCM Ctrl Dly, s/v | 22.19 |  | 25.45 |  | 0.21 |  | 0.96 |  |
| HCM LOS           | C     |  | D     |  |      |  |      |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1  | SBL   | SBT | SBR |
|-----------------------|-------|-----|-----|-------------|-------|-----|-----|
| Capacity (veh/h)      | 781   | -   | -   | 241 402     | 1076  | -   | -   |
| HCM Lane V/C Ratio    | 0.013 | -   | -   | 0.131 0.576 | 0.088 | -   | -   |
| HCM Ctrl Dly (s/v)    | 9.7   | -   | -   | 22.2 25.4   | 8.7   | -   | -   |
| HCM Lane LOS          | A     | -   | -   | C D         | A     | -   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | -   | 0.4 3.5     | 0.3   | -   | -   |

HCM 7th Signalized Intersection Summary  
21: Mt. Alifan Dr./Mt. Abernathy Ave. & Balboa Ave.

Proposed Plan Conditions  
PM Peak Hour

|                              |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |   |                                                                                       |  |  |                                                                                      |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                                | NBL                                                                                                                                                                     | NBT                                                                                 | NBR                                                                                 | SBL                                                                                                                                                                     | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |    |  |  |    |  |   |  |  |   |  |  |
| Traffic Volume (veh/h)       | 220                                                                               | 1540                                                                                                                                                                                                                                                  | 90                                                                                | 310                                                                               | 1760                                                                                                                                                                                                                                                  | 210                                                                                | 130                                                                                                                                                                     | 150                                                                                 | 230                                                                                 | 240                                                                                                                                                                     | 350                                                                                 | 190                                                                                 |
| Future Volume (veh/h)        | 220                                                                               | 1540                                                                                                                                                                                                                                                  | 90                                                                                | 310                                                                               | 1760                                                                                                                                                                                                                                                  | 210                                                                                | 130                                                                                                                                                                     | 150                                                                                 | 230                                                                                 | 240                                                                                                                                                                     | 350                                                                                 | 190                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                  | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                                                                                                       | 0.97                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 0.97                                                                               | 1.00                                                                                                                                                                    |                                                                                     | 0.97                                                                                | 1.00                                                                                                                                                                    |                                                                                     | 0.97                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                    | No                                                                                                                                                                      |                                                                                     |                                                                                     | No                                                                                                                                                                      |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                                                                                                                                                                                                  | 1756                                                                              | 1870                                                                              | 1870                                                                                                                                                                                                                                                  | 1813                                                                               | 1870                                                                                                                                                                    | 1870                                                                                | 1775                                                                                | 1870                                                                                                                                                                    | 1870                                                                                | 1766                                                                                |
| Adj Flow Rate, veh/h         | 232                                                                               | 1621                                                                                                                                                                                                                                                  | 76                                                                                | 326                                                                               | 1853                                                                                                                                                                                                                                                  | 177                                                                                | 137                                                                                                                                                                     | 158                                                                                 | 194                                                                                 | 253                                                                                                                                                                     | 368                                                                                 | 160                                                                                 |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                                                                                                                                                                                                  | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                                                                                                  | 0.95                                                                               | 0.95                                                                                                                                                                    | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                                                                                                    | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                                                                                                     | 2                                                                                  | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 295                                                                               | 2048                                                                                                                                                                                                                                                  | 581                                                                               | 326                                                                               | 2101                                                                                                                                                                                                                                                  | 615                                                                                | 183                                                                                                                                                                     | 360                                                                                 | 557                                                                                 | 303                                                                                                                                                                     | 419                                                                                 | 325                                                                                 |
| Arrive On Green              | 0.17                                                                              | 0.40                                                                                                                                                                                                                                                  | 0.40                                                                              | 0.24                                                                              | 0.55                                                                                                                                                                                                                                                  | 0.55                                                                               | 0.09                                                                                                                                                                    | 0.32                                                                                | 0.32                                                                                | 0.09                                                                                                                                                                    | 0.22                                                                                | 0.22                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 5106                                                                                                                                                                                                                                                  | 1448                                                                              | 1781                                                                              | 5106                                                                                                                                                                                                                                                  | 1495                                                                               | 3456                                                                                                                                                                    | 1870                                                                                | 1464                                                                                | 3456                                                                                                                                                                    | 1870                                                                                | 1452                                                                                |
| Grp Volume(v), veh/h         | 232                                                                               | 1621                                                                                                                                                                                                                                                  | 76                                                                                | 326                                                                               | 1853                                                                                                                                                                                                                                                  | 177                                                                                | 137                                                                                                                                                                     | 158                                                                                 | 194                                                                                 | 253                                                                                                                                                                     | 368                                                                                 | 160                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1702                                                                                                                                                                                                                                                  | 1448                                                                              | 1781                                                                              | 1702                                                                                                                                                                                                                                                  | 1495                                                                               | 1728                                                                                                                                                                    | 1870                                                                                | 1464                                                                                | 1728                                                                                                                                                                    | 1870                                                                                | 1452                                                                                |
| Q Serve(g_s), s              | 17.5                                                                              | 39.0                                                                                                                                                                                                                                                  | 3.7                                                                               | 25.6                                                                              | 44.5                                                                                                                                                                                                                                                  | 6.5                                                                                | 5.4                                                                                                                                                                     | 9.3                                                                                 | 12.5                                                                                | 10.1                                                                                                                                                                    | 26.6                                                                                | 13.5                                                                                |
| Cycle Q Clear(g_c), s        | 17.5                                                                              | 39.0                                                                                                                                                                                                                                                  | 3.7                                                                               | 25.6                                                                              | 44.5                                                                                                                                                                                                                                                  | 6.5                                                                                | 5.4                                                                                                                                                                     | 9.3                                                                                 | 12.5                                                                                | 10.1                                                                                                                                                                    | 26.6                                                                                | 13.5                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                                                                                                       | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 1.00                                                                               | 1.00                                                                                                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                                                                                                    |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 295                                                                               | 2048                                                                                                                                                                                                                                                  | 581                                                                               | 326                                                                               | 2101                                                                                                                                                                                                                                                  | 615                                                                                | 183                                                                                                                                                                     | 360                                                                                 | 557                                                                                 | 303                                                                                                                                                                     | 419                                                                                 | 325                                                                                 |
| V/C Ratio(X)                 | 0.79                                                                              | 0.79                                                                                                                                                                                                                                                  | 0.13                                                                              | 1.00                                                                              | 0.88                                                                                                                                                                                                                                                  | 0.29                                                                               | 0.75                                                                                                                                                                    | 0.44                                                                                | 0.35                                                                                | 0.83                                                                                                                                                                    | 0.88                                                                                | 0.49                                                                                |
| Avail Cap(c_a), veh/h        | 295                                                                               | 2048                                                                                                                                                                                                                                                  | 581                                                                               | 326                                                                               | 2101                                                                                                                                                                                                                                                  | 615                                                                                | 197                                                                                                                                                                     | 521                                                                                 | 683                                                                                 | 410                                                                                                                                                                     | 636                                                                                 | 494                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.33                                                                              | 1.33                                                                                                                                                                                                                                                  | 1.33                                                                               | 1.67                                                                                                                                                                    | 1.67                                                                                | 1.67                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 0.55                                                                              | 0.55                                                                                                                                                                                                                                                  | 0.55                                                                              | 0.48                                                                              | 0.48                                                                                                                                                                                                                                                  | 0.48                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 56.1                                                                              | 36.8                                                                                                                                                                                                                                                  | 16.5                                                                              | 53.0                                                                              | 28.7                                                                                                                                                                                                                                                  | 11.1                                                                               | 62.9                                                                                                                                                                    | 41.5                                                                                | 26.2                                                                                | 62.8                                                                                                                                                                    | 52.5                                                                                | 47.4                                                                                |
| Incr Delay (d2), s/veh       | 7.1                                                                               | 1.8                                                                                                                                                                                                                                                   | 0.3                                                                               | 34.8                                                                              | 2.9                                                                                                                                                                                                                                                   | 0.6                                                                                | 11.7                                                                                                                                                                    | 0.3                                                                                 | 0.1                                                                                 | 8.0                                                                                                                                                                     | 6.3                                                                                 | 0.4                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                                | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 8.3                                                                               | 16.0                                                                                                                                                                                                                                                  | 1.7                                                                               | 13.8                                                                              | 15.9                                                                                                                                                                                                                                                  | 3.0                                                                                | 2.6                                                                                                                                                                     | 4.1                                                                                 | 3.9                                                                                 | 4.8                                                                                                                                                                     | 13.2                                                                                | 4.9                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 63.1                                                                              | 38.6                                                                                                                                                                                                                                                  | 16.8                                                                              | 87.7                                                                              | 31.6                                                                                                                                                                                                                                                  | 11.6                                                                               | 74.6                                                                                                                                                                    | 41.8                                                                                | 26.4                                                                                | 70.8                                                                                                                                                                    | 58.8                                                                                | 47.8                                                                                |
| LnGrp LOS                    | E                                                                                 | D                                                                                                                                                                                                                                                     | B                                                                                 | F                                                                                 | C                                                                                                                                                                                                                                                     | B                                                                                  | E                                                                                                                                                                       | D                                                                                   | C                                                                                   | E                                                                                                                                                                       | E                                                                                   | D                                                                                   |
| Approach Vol, veh/h          | 1929                                                                              |                                                                                                                                                                                                                                                       |                                                                                   | 2356                                                                              |                                                                                                                                                                                                                                                       |                                                                                    | 489                                                                                                                                                                     |                                                                                     |                                                                                     | 781                                                                                                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 40.7                                                                              |                                                                                                                                                                                                                                                       |                                                                                   | 37.9                                                                              |                                                                                                                                                                                                                                                       |                                                                                    | 44.9                                                                                                                                                                    |                                                                                     |                                                                                     | 60.4                                                                                                                                                                    |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                                                                                                                                                                                       |                                                                                   | D                                                                                 |                                                                                                                                                                                                                                                       |                                                                                    | D                                                                                                                                                                       |                                                                                     |                                                                                     | E                                                                                                                                                                       |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                                                                                                                                                                                     | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                  | 7                                                                                                                                                                       | 8                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 30.0                                                                              | 61.5                                                                                                                                                                                                                                                  | 12.3                                                                              | 36.2                                                                              | 28.5                                                                                                                                                                                                                                                  | 63.0                                                                               | 16.7                                                                                                                                                                    | 31.9                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.4                                                                               | 5.3                                                                                                                                                                                                                                                   | 4.9                                                                               | * 4.9                                                                             | 5.3                                                                                                                                                                                                                                                   | * 5.4                                                                              | 4.4                                                                                                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 25.6                                                                              | 39.8                                                                                                                                                                                                                                                  | 8.0                                                                               | * 48                                                                              | 7.7                                                                                                                                                                                                                                                   | * 58                                                                               | 16.6                                                                                                                                                                    | 39.0                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 27.6                                                                              | 41.0                                                                                                                                                                                                                                                  | 7.4                                                                               | 28.6                                                                              | 19.5                                                                                                                                                                                                                                                  | 46.5                                                                               | 12.1                                                                                                                                                                    | 14.5                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 1.7                                                                               | 0.0                                                                                                                                                                                                                                                   | 10.6                                                                               | 0.2                                                                                                                                                                     | 0.9                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |

Intersection Summary

HCM 7th Control Delay, s/veh 42.6  
HCM 7th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Intersection

Intersection Delay, s/veh 29.9

Intersection LOS D

| Movement            | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
|---------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations |  |  |  |  |  |  |
| Traffic Vol, veh/h  | 140                                                                               | 200                                                                               | 260                                                                               | 320                                                                               | 580                                                                               | 200                                                                               |
| Future Vol, veh/h   | 140                                                                               | 200                                                                               | 260                                                                               | 320                                                                               | 580                                                                               | 200                                                                               |
| Peak Hour Factor    | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Heavy Vehicles, %   | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Mvmt Flow           | 147                                                                               | 211                                                                               | 274                                                                               | 337                                                                               | 611                                                                               | 211                                                                               |
| Number of Lanes     | 1                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 2                                                                                 | 0                                                                                 |

| Approach                      | EB   | NB   | SB   |
|-------------------------------|------|------|------|
| Opposing Approach             |      | SB   | NB   |
| Opposing Lanes                | 0    | 2    | 3    |
| Conflicting Approach Left SB  |      | EB   |      |
| Conflicting Lanes Left        | 2    | 2    | 0    |
| Conflicting Approach Right NB |      |      | EB   |
| Conflicting Lanes Right       | 3    | 0    | 2    |
| HCM Control Delay, s/veh      | 18.1 | 19.5 | 42.7 |
| HCM LOS                       | C    | C    | E    |

| Lane                     | NBLn1 | NBLn2 | NBLn3 | EBLn1 | EBLn2 | SBLn1 | SBLn2 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, %              | 100%  | 0%    | 0%    | 100%  | 0%    | 0%    | 0%    |
| Vol Thru, %              | 0%    | 100%  | 100%  | 0%    | 0%    | 100%  | 49%   |
| Vol Right, %             | 0%    | 0%    | 0%    | 0%    | 100%  | 0%    | 51%   |
| Sign Control             | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane      | 260   | 160   | 160   | 140   | 200   | 387   | 393   |
| LT Vol                   | 260   | 0     | 0     | 140   | 0     | 0     | 0     |
| Through Vol              | 0     | 160   | 160   | 0     | 0     | 387   | 193   |
| RT Vol                   | 0     | 0     | 0     | 0     | 200   | 0     | 200   |
| Lane Flow Rate           | 274   | 168   | 168   | 147   | 211   | 407   | 414   |
| Geometry Grp             | 6     | 6     | 6     | 6     | 6     | 6     | 6     |
| Degree of Util (X)       | 0.657 | 0.38  | 0.297 | 0.383 | 0.476 | 0.879 | 0.853 |
| Departure Headway (Hd)   | 8.645 | 8.132 | 6.352 | 9.361 | 8.133 | 7.778 | 7.413 |
| Convergence, Y/N         | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Cap                      | 416   | 441   | 563   | 383   | 442   | 464   | 489   |
| Service Time             | 6.413 | 5.899 | 4.119 | 7.141 | 5.913 | 5.545 | 5.18  |
| HCM Lane V/C Ratio       | 0.659 | 0.381 | 0.298 | 0.384 | 0.477 | 0.877 | 0.847 |
| HCM Control Delay, s/veh | 26.6  | 15.8  | 11.8  | 17.9  | 18.2  | 45.3  | 40.1  |
| HCM Lane LOS             | D     | C     | B     | C     | C     | E     | E     |
| HCM 95th-tile Q          | 4.6   | 1.7   | 1.2   | 1.8   | 2.5   | 9.3   | 8.8   |

HCM 7th Signalized Intersection Summary  
23: Mt. Albertine Ave./Cannington Dr. & Balboa Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                       | EBL  | EBT  | EBR  | WBL   | WBT  | WBR   | NBL  | NBT  | NBR  | SBL   | SBT  | SBR  |
|--------------------------------|------|------|------|-------|------|-------|------|------|------|-------|------|------|
| Lane Configurations            |      |      |      |       |      |       |      |      |      |       |      |      |
| Traffic Volume (veh/h)         | 150  | 1980 | 170  | 160   | 2250 | 170   | 40   | 30   | 110  | 60    | 40   | 80   |
| Future Volume (veh/h)          | 150  | 1980 | 170  | 160   | 2250 | 170   | 40   | 30   | 110  | 60    | 40   | 80   |
| Initial Q (Qb), veh            | 0    | 0    | 0    | 0     | 0    | 0     | 0    | 0    | 0    | 0     | 0    | 0    |
| Lane Width Adj.                | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)            | 1.00 |      | 0.98 | 1.00  |      | 0.97  | 1.00 |      | 0.96 | 1.00  |      | 0.99 |
| Parking Bus, Adj               | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Work Zone On Approach          | No   |      |      | No    |      |       | No   |      |      | No    |      |      |
| Adj Sat Flow, veh/h/ln         | 1870 | 1870 | 1813 | 1870  | 1870 | 1847  | 1823 | 1823 | 1823 | 1870  | 1870 | 1870 |
| Adj Flow Rate, veh/h           | 158  | 2084 | 143  | 167   | 2344 | 142   | 42   | 32   | 104  | 63    | 42   | 76   |
| Peak Hour Factor               | 0.95 | 0.95 | 0.95 | 0.96  | 0.96 | 0.96  | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 |
| Percent Heavy Veh, %           | 2    | 2    | 2    | 2     | 2    | 2     | 2    | 2    | 2    | 2     | 2    | 2    |
| Cap, veh/h                     | 268  | 2763 | 811  | 165   | 2433 | 726   | 55   | 42   | 137  | 47    | 31   | 57   |
| Arrive On Green                | 0.15 | 0.54 | 0.54 | 0.12  | 0.63 | 0.63  | 0.15 | 0.15 | 0.15 | 0.08  | 0.08 | 0.08 |
| Sat Flow, veh/h                | 1781 | 5106 | 1499 | 1781  | 5106 | 1523  | 375  | 286  | 929  | 592   | 394  | 714  |
| Grp Volume(v), veh/h           | 158  | 2084 | 143  | 167   | 2344 | 142   | 178  | 0    | 0    | 181   | 0    | 0    |
| Grp Sat Flow(s), veh/h/ln      | 1781 | 1702 | 1499 | 1781  | 1702 | 1523  | 1590 | 0    | 0    | 1700  | 0    | 0    |
| Q Serve(g_s), s                | 11.6 | 44.3 | 6.8  | 13.0  | 60.5 | 5.5   | 15.0 | 0.0  | 0.0  | 11.1  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s          | 11.6 | 44.3 | 6.8  | 13.0  | 60.5 | 5.5   | 15.0 | 0.0  | 0.0  | 11.1  | 0.0  | 0.0  |
| Prop In Lane                   | 1.00 |      | 1.00 | 1.00  |      | 1.00  | 0.24 |      | 0.58 | 0.35  |      | 0.42 |
| Lane Grp Cap(c), veh/h         | 268  | 2763 | 811  | 165   | 2433 | 726   | 234  | 0    | 0    | 135   | 0    | 0    |
| V/C Ratio(X)                   | 0.59 | 0.75 | 0.18 | 1.01  | 0.96 | 0.20  | 0.76 | 0.00 | 0.00 | 1.34  | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h          | 268  | 2763 | 811  | 165   | 2433 | 726   | 352  | 0    | 0    | 135   | 0    | 0    |
| HCM Platoon Ratio              | 1.00 | 1.00 | 1.00 | 1.33  | 1.33 | 1.33  | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 |
| Upstream Filter(I)             | 0.55 | 0.55 | 0.55 | 0.46  | 0.46 | 0.46  | 1.00 | 0.00 | 0.00 | 1.00  | 0.00 | 0.00 |
| Uniform Delay (d), s/veh       | 55.4 | 24.9 | 16.3 | 61.4  | 24.5 | 14.4  | 57.3 | 0.0  | 0.0  | 64.5  | 0.0  | 0.0  |
| Incr Delay (d2), s/veh         | 1.3  | 1.1  | 0.3  | 49.9  | 6.5  | 0.3   | 2.1  | 0.0  | 0.0  | 195.7 | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh     | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln       | 5.2  | 17.1 | 2.3  | 7.9   | 20.5 | 1.8   | 6.2  | 0.0  | 0.0  | 12.1  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh   |      |      |      |       |      |       |      |      |      |       |      |      |
| LnGrp Delay(d), s/veh          | 56.7 | 26.0 | 16.5 | 111.3 | 31.0 | 14.7  | 59.4 | 0.0  | 0.0  | 260.1 | 0.0  | 0.0  |
| LnGrp LOS                      | E    | C    | B    | F     | C    | B     | E    |      |      | F     |      |      |
| Approach Vol, veh/h            | 2385 |      |      | 2653  |      |       | 178  |      |      | 181   |      |      |
| Approach Delay, s/veh          | 27.5 |      |      | 35.1  |      |       | 59.4 |      |      | 260.1 |      |      |
| Approach LOS                   | C    |      |      | D     |      |       | E    |      |      | F     |      |      |
| Timer - Assigned Phs           | 1    | 2    |      | 4     | 5    | 6     |      | 8    |      |       |      |      |
| Phs Duration (G+Y+Rc), s       | 7.4  | 81.1 |      | 25.5  | 26.4 | 72.1  |      | 16.0 |      |       |      |      |
| Change Period (Y+Rc), s        | 4.4  | 5.3  |      | 4.9   | 5.3  | * 5.4 |      | 4.9  |      |       |      |      |
| Max Green Setting (Gmax), s    | 13.0 | 65.4 |      | 31.0  | 11.6 | * 67  |      | 11.1 |      |       |      |      |
| Max Q Clear Time (g_c+11.5), s | 11.5 | 46.3 |      | 17.0  | 13.6 | 62.5  |      | 13.1 |      |       |      |      |
| Green Ext Time (p_c), s        | 0.0  | 17.7 |      | 0.6   | 0.0  | 4.1   |      | 0.0  |      |       |      |      |

Intersection Summary

HCM 7th Control Delay, s/veh 40.1  
HCM 7th LOS D

Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 24: Eckstrom Ave./Charger Blvd. & Balboa Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                       | EBL   | EBT  | EBR  | WBL   | WBT  | WBR   | NBL   | NBT   | NBR  | SBL  | SBT  | SBR  |
|--------------------------------|-------|------|------|-------|------|-------|-------|-------|------|------|------|------|
| Lane Configurations            | ↩ ↑↑↑ |      |      | ↩ ↑↑↑ |      | ↩     | ↩     | ↩     | ↩↑↑  | ↩    | ↩    |      |
| Traffic Volume (veh/h)         | 50    | 1940 | 160  | 380   | 2320 | 290   | 140   | 60    | 250  | 230  | 160  | 60   |
| Future Volume (veh/h)          | 50    | 1940 | 160  | 380   | 2320 | 290   | 140   | 60    | 250  | 230  | 160  | 60   |
| Initial Q (Qb), veh            | 0     | 0    | 0    | 0     | 0    | 0     | 0     | 0     | 0    | 0    | 0    | 0    |
| Lane Width Adj.                | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)            | 1.00  |      | 1.00 | 1.00  |      | 0.97  | 1.00  |       | 1.00 | 1.00 |      | 0.96 |
| Parking Bus, Adj               | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach          | No    |      |      | No    |      |       | No    |       |      | No   |      |      |
| Adj Sat Flow, veh/h/ln         | 1870  | 1870 | 1870 | 1856  | 1856 | 1856  | 1870  | 1870  | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h           | 53    | 2042 | 157  | 400   | 2442 | 244   | 105   | 122   | 184  | 242  | 168  | 57   |
| Peak Hour Factor               | 0.95  | 0.95 | 0.95 | 0.95  | 0.95 | 0.95  | 0.95  | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %           | 2     | 2    | 2    | 3     | 3    | 3     | 2     | 2     | 2    | 2    | 2    | 2    |
| Cap, veh/h                     | 149   | 2123 | 162  | 311   | 2754 | 833   | 103   | 108   | 740  | 301  | 223  | 76   |
| Arrive On Green                | 0.17  | 0.92 | 0.92 | 0.18  | 0.54 | 0.54  | 0.06  | 0.06  | 0.06 | 0.17 | 0.17 | 0.17 |
| Sat Flow, veh/h                | 1781  | 4632 | 354  | 1767  | 5066 | 1533  | 1781  | 1870  | 3170 | 1781 | 1319 | 448  |
| Grp Volume(v), veh/h           | 53    | 1398 | 801  | 400   | 2442 | 244   | 105   | 122   | 184  | 242  | 0    | 225  |
| Grp Sat Flow(s),veh/h/ln       | 1781  | 1590 | 1806 | 1767  | 1689 | 1533  | 1781  | 1870  | 1585 | 1781 | 0    | 1767 |
| Q Serve(g_s), s                | 3.7   | 42.4 | 45.7 | 24.6  | 59.5 | 12.1  | 8.1   | 8.1   | 6.6  | 18.3 | 0.0  | 17.0 |
| Cycle Q Clear(g_c), s          | 3.7   | 42.4 | 45.7 | 24.6  | 59.5 | 12.1  | 8.1   | 8.1   | 6.6  | 18.3 | 0.0  | 17.0 |
| Prop In Lane                   | 1.00  |      | 0.20 | 1.00  |      | 1.00  | 1.00  |       | 1.00 | 1.00 |      | 0.25 |
| Lane Grp Cap(c), veh/h         | 149   | 1458 | 828  | 311   | 2754 | 833   | 103   | 108   | 740  | 301  | 0    | 298  |
| V/C Ratio(X)                   | 0.36  | 0.96 | 0.97 | 1.29  | 0.89 | 0.29  | 1.02  | 1.13  | 0.25 | 0.81 | 0.00 | 0.75 |
| Avail Cap(c_a), veh/h          | 149   | 1458 | 828  | 311   | 2754 | 833   | 103   | 108   | 740  | 394  | 0    | 391  |
| HCM Platoon Ratio              | 2.00  | 2.00 | 2.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)             | 0.61  | 0.61 | 0.61 | 0.36  | 0.36 | 0.36  | 1.00  | 1.00  | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh       | 55.0  | 4.9  | 5.1  | 57.7  | 28.2 | 17.3  | 65.9  | 65.9  | 43.7 | 56.0 | 0.0  | 55.4 |
| Incr Delay (d2), s/veh         | 0.3   | 11.0 | 17.8 | 138.4 | 1.8  | 0.3   | 93.8  | 124.9 | 0.1  | 6.7  | 0.0  | 3.9  |
| Initial Q Delay(d3), s/veh     | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln       | 1.6   | 4.2  | 6.4  | 22.7  | 22.7 | 4.2   | 6.4   | 7.6   | 2.6  | 8.8  | 0.0  | 7.9  |
| Unsig. Movement Delay, s/veh   |       |      |      |       |      |       |       |       |      |      |      |      |
| LnGrp Delay(d), s/veh          | 55.3  | 15.9 | 22.9 | 196.1 | 29.9 | 17.7  | 159.8 | 190.8 | 43.8 | 62.6 | 0.0  | 59.4 |
| LnGrp LOS                      | E     | B    | C    | F     | C    | B     | F     | F     | D    | E    |      | E    |
| Approach Vol, veh/h            | 2252  |      |      | 3086  |      |       | 411   |       |      | 467  |      |      |
| Approach Delay, s/veh          | 19.3  |      |      | 50.5  |      |       | 117.1 |       |      | 61.1 |      |      |
| Approach LOS                   | B     |      |      | D     |      |       | F     |       |      | E    |      |      |
| Timer - Assigned Phs           | 1     | 2    |      | 4     | 5    | 6     |       | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s       | 29.0  | 69.5 |      | 28.5  | 17.0 | 81.5  |       | 13.0  |      |      |      |      |
| Change Period (Y+Rc), s        | 4.4   | 5.3  |      | 4.9   | 5.3  | * 5.4 |       | 4.9   |      |      |      |      |
| Max Green Setting (Gmax), s    | 24.6  | 56.8 |      | 31.0  | 5.2  | * 76  |       | 8.1   |      |      |      |      |
| Max Q Clear Time (g_c+20.6), s | 24.6  | 47.7 |      | 20.3  | 5.7  | 61.5  |       | 10.1  |      |      |      |      |
| Green Ext Time (p_c), s        | 0.0   | 8.7  |      | 1.0   | 0.0  | 13.8  |       | 0.0   |      |      |      |      |

## Intersection Summary

HCM 7th Control Delay, s/veh 44.4  
HCM 7th LOS D

## Notes

User approved pedestrian interval to be less than phase max green.  
User approved volume balancing among the lanes for turning movement.

# HCM 7th Signalized Intersection Summary 25: I-805 SB Ramps & Balboa Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                                                                                                           | EBL | EBT | EBR | WBL  | WBT  | WBR  | NBL | NBT | NBR | SBL  | SBT  | SBR  |
|--------------------------------------------------------------------------------------------------------------------|-----|-----|-----|------|------|------|-----|-----|-----|------|------|------|
| Lane Configurations                                                                                                |     |     |     |      | ↑↑↑↑ | ↑    |     |     |     |      | ↑    | ↑↑↑  |
| Traffic Volume (veh/h)                                                                                             | 0   | 0   | 0   | 0    | 2480 | 400  | 0   | 0   | 590 | 0    | 1    | 560  |
| Future Volume (veh/h)                                                                                              | 0   | 0   | 0   | 0    | 2480 | 400  | 0   | 0   | 590 | 0    | 1    | 560  |
| Initial Q (Qb), veh                                                                                                |     |     |     | 0    | 0    | 0    |     |     |     | 0    | 0    | 0    |
| Lane Width Adj.                                                                                                    |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)                                                                                                |     |     |     | 1.00 |      | 1.00 |     |     |     | 1.00 |      | 0.98 |
| Parking Bus, Adj                                                                                                   |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach                                                                                              |     |     |     | No   |      |      |     |     |     | No   |      |      |
| Adj Sat Flow, veh/h/ln                                                                                             |     |     |     | 0    | 1841 | 1841 |     |     |     | 0    | 1870 | 1870 |
| Adj Flow Rate, veh/h                                                                                               |     |     |     | 0    | 2583 | 0    |     |     |     | 0    | 1    | 561  |
| Peak Hour Factor                                                                                                   |     |     |     | 0.96 | 0.96 | 0.96 |     |     |     | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %                                                                                               |     |     |     | 0    | 4    | 4    |     |     |     | 0    | 2    | 2    |
| Cap, veh/h                                                                                                         |     |     |     | 0    | 2972 |      |     |     |     | 0    | 450  | 658  |
| Arrive On Green                                                                                                    |     |     |     | 0.00 | 0.59 | 0.00 |     |     |     | 0.00 | 0.24 | 0.24 |
| Sat Flow, veh/h                                                                                                    |     |     |     | 0    | 5191 | 1560 |     |     |     | 0    | 1870 | 2738 |
| Grp Volume(v), veh/h                                                                                               |     |     |     | 0    | 2583 | 0    |     |     |     | 0    | 1    | 561  |
| Grp Sat Flow(s),veh/h/ln                                                                                           |     |     |     | 0    | 1675 | 1560 |     |     |     | 0    | 1870 | 1369 |
| Q Serve(g_s), s                                                                                                    |     |     |     | 0.0  | 23.1 | 0.0  |     |     |     | 0.0  | 0.0  | 10.5 |
| Cycle Q Clear(g_c), s                                                                                              |     |     |     | 0.0  | 23.1 | 0.0  |     |     |     | 0.0  | 0.0  | 10.5 |
| Prop In Lane                                                                                                       |     |     |     | 0.00 |      | 1.00 |     |     |     | 0.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h                                                                                             |     |     |     | 0    | 2972 |      |     |     |     | 0    | 450  | 658  |
| V/C Ratio(X)                                                                                                       |     |     |     | 0.00 | 0.87 |      |     |     |     | 0.00 | 0.00 | 0.85 |
| Avail Cap(c_a), veh/h                                                                                              |     |     |     | 0    | 3098 |      |     |     |     | 0    | 629  | 921  |
| HCM Platoon Ratio                                                                                                  |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)                                                                                                 |     |     |     | 0.00 | 1.00 | 0.00 |     |     |     | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh                                                                                           |     |     |     | 0.0  | 9.2  | 0.0  |     |     |     | 0.0  | 15.4 | 19.4 |
| Incr Delay (d2), s/veh                                                                                             |     |     |     | 0.0  | 2.7  | 0.0  |     |     |     | 0.0  | 0.0  | 4.2  |
| Initial Q Delay(d3), s/veh                                                                                         |     |     |     | 0.0  | 0.0  | 0.0  |     |     |     | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln                                                                                           |     |     |     | 0.0  | 5.2  | 0.0  |     |     |     | 0.0  | 0.0  | 3.3  |
| Unsig. Movement Delay, s/veh                                                                                       |     |     |     |      |      |      |     |     |     |      |      |      |
| LnGrp Delay(d), s/veh                                                                                              |     |     |     | 0.0  | 11.9 | 0.0  |     |     |     | 0.0  | 15.5 | 23.6 |
| LnGrp LOS                                                                                                          |     |     |     |      | B    |      |     |     |     |      | B    | C    |
| Approach Vol, veh/h                                                                                                |     |     |     |      | 2583 |      |     |     |     |      | 562  |      |
| Approach Delay, s/veh                                                                                              |     |     |     |      | 11.9 |      |     |     |     |      | 23.6 |      |
| Approach LOS                                                                                                       |     |     |     |      | B    |      |     |     |     |      | C    |      |
| Timer - Assigned Phs                                                                                               |     |     |     | 4    |      | 6    |     |     |     |      |      |      |
| Phs Duration (G+Y+Rc), s                                                                                           |     |     |     | 17.4 |      | 36.2 |     |     |     |      |      |      |
| Change Period (Y+Rc), s                                                                                            |     |     |     | 4.5  |      | 4.5  |     |     |     |      |      |      |
| Max Green Setting (Gmax), s                                                                                        |     |     |     | 18.0 |      | 33.0 |     |     |     |      |      |      |
| Max Q Clear Time (g_c+I1), s                                                                                       |     |     |     | 12.5 |      | 25.1 |     |     |     |      |      |      |
| Green Ext Time (p_c), s                                                                                            |     |     |     | 0.4  |      | 6.5  |     |     |     |      |      |      |
| <b>Intersection Summary</b>                                                                                        |     |     |     |      |      |      |     |     |     |      |      |      |
| HCM 7th Control Delay, s/veh                                                                                       |     |     |     | 14.0 |      |      |     |     |     |      |      |      |
| HCM 7th LOS                                                                                                        |     |     |     | B    |      |      |     |     |     |      |      |      |
| <b>Notes</b>                                                                                                       |     |     |     |      |      |      |     |     |     |      |      |      |
| Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay. |     |     |     |      |      |      |     |     |     |      |      |      |

# HCM 7th Signalized Intersection Summary 26: I-805 NB Ramps & Balboa Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                                                                                                           | EBL  | EBT  | EBR  | WBL | WBT | WBR | NBL  | NBT  | NBR  | SBL | SBT | SBR |
|--------------------------------------------------------------------------------------------------------------------|------|------|------|-----|-----|-----|------|------|------|-----|-----|-----|
| Lane Configurations                                                                                                |      | ↑↑↑↑ | ↗    |     |     |     |      | ↑    | ↗↗   |     |     |     |
| Traffic Volume (veh/h)                                                                                             | 0    | 1790 | 450  | 0   | 0   | 0   | 0    | 1    | 890  | 0   | 0   | 620 |
| Future Volume (veh/h)                                                                                              | 0    | 1790 | 450  | 0   | 0   | 0   | 0    | 1    | 890  | 0   | 0   | 620 |
| Initial Q (Qb), veh                                                                                                | 0    | 0    | 0    |     |     |     | 0    | 0    | 0    |     |     |     |
| Lane Width Adj.                                                                                                    | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Ped-Bike Adj(A_pbT)                                                                                                | 1.00 |      | 1.00 |     |     |     | 1.00 |      | 1.00 |     |     |     |
| Parking Bus, Adj                                                                                                   | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Work Zone On Approach                                                                                              |      | No   |      |     |     |     |      | No   |      |     |     |     |
| Adj Sat Flow, veh/h/ln                                                                                             | 0    | 1841 | 1841 |     |     |     | 0    | 1870 | 1870 |     |     |     |
| Adj Flow Rate, veh/h                                                                                               | 0    | 1845 | 0    |     |     |     | 0    | 1    | 878  |     |     |     |
| Peak Hour Factor                                                                                                   | 0.97 | 0.97 | 0.97 |     |     |     | 0.95 | 0.95 | 0.95 |     |     |     |
| Percent Heavy Veh, %                                                                                               | 0    | 4    | 4    |     |     |     | 0    | 2    | 2    |     |     |     |
| Cap, veh/h                                                                                                         | 0    | 2198 |      |     |     |     | 0    | 657  | 980  |     |     |     |
| Arrive On Green                                                                                                    | 0.00 | 0.44 | 0.00 |     |     |     | 0.00 | 0.35 | 0.35 |     |     |     |
| Sat Flow, veh/h                                                                                                    | 0    | 5191 | 1560 |     |     |     | 0    | 1870 | 2790 |     |     |     |
| Grp Volume(v), veh/h                                                                                               | 0    | 1845 | 0    |     |     |     | 0    | 1    | 878  |     |     |     |
| Grp Sat Flow(s),veh/h/ln                                                                                           | 0    | 1675 | 1560 |     |     |     | 0    | 1870 | 1395 |     |     |     |
| Q Serve(g_s), s                                                                                                    | 0.0  | 16.8 | 0.0  |     |     |     | 0.0  | 0.0  | 15.4 |     |     |     |
| Cycle Q Clear(g_c), s                                                                                              | 0.0  | 16.8 | 0.0  |     |     |     | 0.0  | 0.0  | 15.4 |     |     |     |
| Prop In Lane                                                                                                       | 0.00 |      | 1.00 |     |     |     | 0.00 |      | 1.00 |     |     |     |
| Lane Grp Cap(c), veh/h                                                                                             | 0    | 2198 |      |     |     |     | 0    | 657  | 980  |     |     |     |
| V/C Ratio(X)                                                                                                       | 0.00 | 0.84 |      |     |     |     | 0.00 | 0.00 | 0.90 |     |     |     |
| Avail Cap(c_a), veh/h                                                                                              | 0    | 2357 |      |     |     |     | 0    | 721  | 1076 |     |     |     |
| HCM Platoon Ratio                                                                                                  | 1.00 | 1.00 | 1.00 |     |     |     | 1.00 | 1.00 | 1.00 |     |     |     |
| Upstream Filter(I)                                                                                                 | 0.00 | 1.00 | 0.00 |     |     |     | 0.00 | 1.00 | 1.00 |     |     |     |
| Uniform Delay (d), s/veh                                                                                           | 0.0  | 12.9 | 0.0  |     |     |     | 0.0  | 10.9 | 15.8 |     |     |     |
| Incr Delay (d2), s/veh                                                                                             | 0.0  | 2.5  | 0.0  |     |     |     | 0.0  | 0.0  | 8.8  |     |     |     |
| Initial Q Delay(d3), s/veh                                                                                         | 0.0  | 0.0  | 0.0  |     |     |     | 0.0  | 0.0  | 0.0  |     |     |     |
| %ile BackOfQ(50%),veh/ln                                                                                           | 0.0  | 4.9  | 0.0  |     |     |     | 0.0  | 0.0  | 5.3  |     |     |     |
| Unsig. Movement Delay, s/veh                                                                                       |      |      |      |     |     |     |      |      |      |     |     |     |
| LnGrp Delay(d), s/veh                                                                                              | 0.0  | 15.4 | 0.0  |     |     |     | 0.0  | 10.9 | 24.6 |     |     |     |
| LnGrp LOS                                                                                                          |      | B    |      |     |     |     |      | B    | C    |     |     |     |
| Approach Vol, veh/h                                                                                                | 1845 |      |      |     |     |     | 879  |      |      |     |     |     |
| Approach Delay, s/veh                                                                                              | 15.4 |      |      |     |     |     | 24.6 |      |      |     |     |     |
| Approach LOS                                                                                                       | B    |      |      |     |     |     | C    |      |      |     |     |     |
| Timer - Assigned Phs                                                                                               | 2    |      |      |     |     |     | 8    |      |      |     |     |     |
| Phs Duration (G+Y+Rc), s                                                                                           | 28.4 |      |      |     |     |     | 23.2 |      |      |     |     |     |
| Change Period (Y+Rc), s                                                                                            | 5.8  |      |      |     |     |     | 5.1  |      |      |     |     |     |
| Max Green Setting (Gmax), s                                                                                        | 24.2 |      |      |     |     |     | 19.9 |      |      |     |     |     |
| Max Q Clear Time (g_c+I1), s                                                                                       | 18.8 |      |      |     |     |     | 17.4 |      |      |     |     |     |
| Green Ext Time (p_c), s                                                                                            | 3.7  |      |      |     |     |     | 0.8  |      |      |     |     |     |
| Intersection Summary                                                                                               |      |      |      |     |     |     |      |      |      |     |     |     |
| HCM 7th Control Delay, s/veh                                                                                       |      |      | 18.4 |     |     |     |      |      |      |     |     |     |
| HCM 7th LOS                                                                                                        |      |      | B    |     |     |     |      |      |      |     |     |     |
| Notes                                                                                                              |      |      |      |     |     |     |      |      |      |     |     |     |
| Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay. |      |      |      |     |     |     |      |      |      |     |     |     |

# HCM 7th Signalized Intersection Summary 27: Clairemont Dr & Balboa Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                      | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               | SBR                                                                                |
|-------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Lane Configurations           |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)        | 480                                                                               | 1200                                                                              | 120                                                                               | 500                                                                               | 1250                                                                              | 200                                                                               | 150                                                                               | 400                                                                               | 450                                                                               | 340                                                                               | 650                                                                               | 350                                                                                |
| Future Volume (veh/h)         | 480                                                                               | 1200                                                                              | 120                                                                               | 500                                                                               | 1250                                                                              | 200                                                                               | 150                                                                               | 400                                                                               | 450                                                                               | 340                                                                               | 650                                                                               | 350                                                                                |
| Initial Q (Qb), veh           | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Lane Width Adj.               | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Ped-Bike Adj(A_pbT)           | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                               |
| Parking Bus, Adj              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Work Zone On Approach         | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    |
| Adj Sat Flow, veh/h/ln        | 1856                                                                              | 1856                                                                              | 1785                                                                              | 1856                                                                              | 1856                                                                              | 1785                                                                              | 1841                                                                              | 1841                                                                              | 1771                                                                              | 1870                                                                              | 1870                                                                              | 1799                                                                               |
| Adj Flow Rate, veh/h          | 500                                                                               | 1250                                                                              | 100                                                                               | 526                                                                               | 1316                                                                              | 169                                                                               | 158                                                                               | 421                                                                               | 379                                                                               | 358                                                                               | 684                                                                               | 294                                                                                |
| Peak Hour Factor              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               |
| Percent Heavy Veh, %          | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 4                                                                                 | 4                                                                                 | 4                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  |
| Cap, veh/h                    | 467                                                                               | 1249                                                                              | 523                                                                               | 535                                                                               | 1272                                                                              | 536                                                                               | 222                                                                               | 763                                                                               | 550                                                                               | 251                                                                               | 805                                                                               | 544                                                                                |
| Arrive On Green               | 0.14                                                                              | 0.35                                                                              | 0.35                                                                              | 0.16                                                                              | 0.36                                                                              | 0.36                                                                              | 0.13                                                                              | 0.22                                                                              | 0.22                                                                              | 0.14                                                                              | 0.23                                                                              | 0.23                                                                               |
| Sat Flow, veh/h               | 3428                                                                              | 3526                                                                              | 1477                                                                              | 3428                                                                              | 3526                                                                              | 1486                                                                              | 1753                                                                              | 3497                                                                              | 1447                                                                              | 1781                                                                              | 3554                                                                              | 1484                                                                               |
| Grp Volume(v), veh/h          | 500                                                                               | 1250                                                                              | 100                                                                               | 526                                                                               | 1316                                                                              | 169                                                                               | 158                                                                               | 421                                                                               | 379                                                                               | 358                                                                               | 684                                                                               | 294                                                                                |
| Grp Sat Flow(s),veh/h/ln      | 1714                                                                              | 1763                                                                              | 1477                                                                              | 1714                                                                              | 1763                                                                              | 1486                                                                              | 1753                                                                              | 1749                                                                              | 1447                                                                              | 1781                                                                              | 1777                                                                              | 1484                                                                               |
| Q Serve(g_s), s               | 20.6                                                                              | 53.6                                                                              | 4.9                                                                               | 23.1                                                                              | 54.6                                                                              | 8.3                                                                               | 13.1                                                                              | 16.2                                                                              | 33.0                                                                              | 21.3                                                                              | 27.9                                                                              | 2.5                                                                                |
| Cycle Q Clear(g_c), s         | 20.6                                                                              | 53.6                                                                              | 4.9                                                                               | 23.1                                                                              | 54.6                                                                              | 8.3                                                                               | 13.1                                                                              | 16.2                                                                              | 33.0                                                                              | 21.3                                                                              | 27.9                                                                              | 2.5                                                                                |
| Prop In Lane                  | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                               |
| Lane Grp Cap(c), veh/h        | 467                                                                               | 1249                                                                              | 523                                                                               | 535                                                                               | 1272                                                                              | 536                                                                               | 222                                                                               | 763                                                                               | 550                                                                               | 251                                                                               | 805                                                                               | 544                                                                                |
| V/C Ratio(X)                  | 1.07                                                                              | 1.00                                                                              | 0.19                                                                              | 0.98                                                                              | 1.03                                                                              | 0.32                                                                              | 0.71                                                                              | 0.55                                                                              | 0.69                                                                              | 1.43                                                                              | 0.85                                                                              | 0.54                                                                               |
| Avail Cap(c_a), veh/h         | 467                                                                               | 1249                                                                              | 523                                                                               | 535                                                                               | 1272                                                                              | 536                                                                               | 222                                                                               | 763                                                                               | 550                                                                               | 251                                                                               | 1073                                                                              | 656                                                                                |
| HCM Platoon Ratio             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Upstream Filter(I)            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Uniform Delay (d), s/veh      | 65.3                                                                              | 48.8                                                                              | 16.2                                                                              | 63.7                                                                              | 48.3                                                                              | 15.6                                                                              | 63.5                                                                              | 52.6                                                                              | 40.1                                                                              | 65.0                                                                              | 56.0                                                                              | 38.1                                                                               |
| Incr Delay (d2), s/veh        | 62.0                                                                              | 25.7                                                                              | 0.2                                                                               | 34.5                                                                              | 34.5                                                                              | 0.3                                                                               | 8.9                                                                               | 0.7                                                                               | 3.3                                                                               | 214.0                                                                             | 4.7                                                                               | 0.7                                                                                |
| Initial Q Delay(d3), s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                |
| %ile BackOfQ(50%),veh/ln      | 12.9                                                                              | 27.2                                                                              | 2.5                                                                               | 12.5                                                                              | 29.3                                                                              | 2.9                                                                               | 6.4                                                                               | 7.2                                                                               | 12.4                                                                              | 24.5                                                                              | 13.0                                                                              | 8.7                                                                                |
| Unsig. Movement Delay, s/veh  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| LnGrp Delay(d), s/veh         | 127.4                                                                             | 74.5                                                                              | 16.4                                                                              | 98.2                                                                              | 82.9                                                                              | 15.9                                                                              | 72.4                                                                              | 53.3                                                                              | 43.5                                                                              | 279.0                                                                             | 60.8                                                                              | 38.7                                                                               |
| LnGrp LOS                     | F                                                                                 | F                                                                                 | B                                                                                 | F                                                                                 | F                                                                                 | B                                                                                 | E                                                                                 | D                                                                                 | D                                                                                 | F                                                                                 | E                                                                                 | D                                                                                  |
| Approach Vol, veh/h           | 1850                                                                              |                                                                                   | 2011                                                                              |                                                                                   |                                                                                   | 958                                                                               |                                                                                   |                                                                                   | 1336                                                                              |                                                                                   |                                                                                   |                                                                                    |
| Approach Delay, s/veh         | 85.7                                                                              |                                                                                   | 81.3                                                                              |                                                                                   |                                                                                   | 52.5                                                                              |                                                                                   |                                                                                   | 114.4                                                                             |                                                                                   |                                                                                   |                                                                                    |
| Approach LOS                  | F                                                                                 |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                   |                                                                                    |
| Timer - Assigned Phs          | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Phs Duration (G+Y+Rc), s      | 38.0                                                                              | 59.3                                                                              | 24.4                                                                              | 39.6                                                                              | 26.3                                                                              | 61.0                                                                              | 25.7                                                                              | 38.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Change Period (Y+Rc), s       | 4.4                                                                               | 5.7                                                                               | 5.3                                                                               | * 5.3                                                                             | 5.7                                                                               | * 6.4                                                                             | 4.4                                                                               | 5.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Max Green Setting (Gmax), s   | 23.6                                                                              | 52.3                                                                              | 8.6                                                                               | * 46                                                                              | 20.6                                                                              | * 55                                                                              | 21.3                                                                              | 33.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Max Q Clear Time (g_c+2.5), s | 23.6                                                                              | 55.6                                                                              | 15.1                                                                              | 29.9                                                                              | 22.6                                                                              | 56.6                                                                              | 23.3                                                                              | 35.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Green Ext Time (p_c), s       | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 4.4                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    |

## Intersection Summary

HCM 7th Control Delay, s/veh 85.3  
HCM 7th LOS F

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



HCM 7th TWSC  
28: I-5 SB Ramps/I-5 SB Loop On Ramp & Clairemont Dr

Proposed Plan Conditions  
PM Peak Hour

| Intersection             |      |      |      |      |      |      |      |      |       |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| Int Delay, s/veh         | 9.7  |      |      |      |      |      |      |      |       |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR   | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↑↑   |      |      | ↑↑   | ↑    | ↑    |      | ↑     |      |      |      |
| Traffic Vol, veh/h       | 0    | 300  | 200  | 0    | 330  | 580  | 80   | 0    | 530   | 0    | 0    | 0    |
| Future Vol, veh/h        | 0    | 300  | 200  | 0    | 330  | 580  | 80   | 0    | 530   | 0    | 0    | 0    |
| Conflicting Peds, #/hr   | 0    | 0    | 5    | 5    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop  | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | Free | -    | -    | Yield | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | 90   | 0    | -    | 200   | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 1    | -     | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -     | -    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95    | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2     | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 316  | 211  | 0    | 347  | 611  | 84   | 0    | 558   | 0    | 0    | 0    |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |   |      |
|----------------------|--------|---|---|--------|---|---|--------|---|------|
| Conflicting Flow All | -      | 0 | 0 | -      | - | 0 | 600    | - | 268  |
| Stage 1              | -      | - | - | -      | - | - | 426    | - | -    |
| Stage 2              | -      | - | - | -      | - | - | 174    | - | -    |
| Critical Hdwy        | -      | - | - | -      | - | - | 6.84   | - | 6.94 |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 5.84   | - | -    |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 5.84   | - | -    |
| Follow-up Hdwy       | -      | - | - | -      | - | - | 3.52   | - | 3.32 |
| Pot Cap-1 Maneuver   | 0      | - | - | 0      | - | 0 | 433    | 0 | 730  |
| Stage 1              | 0      | - | - | 0      | - | 0 | 626    | 0 | -    |
| Stage 2              | 0      | - | - | 0      | - | 0 | 839    | 0 | -    |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | - | -    |
| Mov Cap-1 Maneuver   | -      | - | - | -      | - | - | 430    | 0 | 726  |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 513    | 0 | -    |
| Stage 1              | -      | - | - | -      | - | - | 624    | 0 | -    |
| Stage 2              | -      | - | - | -      | - | - | 839    | 0 | -    |

| Approach          | EB | WB | NB    |
|-------------------|----|----|-------|
| HCM Ctrl Dly, s/v | 0  | 0  | 22.93 |
| HCM LOS           |    |    | C     |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBT |
|-----------------------|-------|-------|-----|-----|-----|
| Capacity (veh/h)      | 513   | 726   | -   | -   | -   |
| HCM Lane V/C Ratio    | 0.164 | 0.768 | -   | -   | -   |
| HCM Ctrl Dly (s/v)    | 13.4  | 24.4  | -   | -   | -   |
| HCM Lane LOS          | B     | C     | -   | -   | -   |
| HCM 95th %tile Q(veh) | 0.6   | 7.4   | -   | -   | -   |

# HCM 7th Signalized Intersection Summary 29: I-5 NB Off Ramp/I-5 NB On Ramp & Clairemont Dr

Proposed Plan Conditions  
PM Peak Hour

|                                                                                                          |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                                 | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                      |  |  |                                                                                   |                                                                                   |  |  |                                                                                    |  |  |                                                                                     |                                                                                     |                                                                                     |
| Traffic Volume (veh/h)                                                                                   | 90                                                                                | 700                                                                               | 0                                                                                 | 0                                                                                 | 700                                                                               | 450                                                                               | 210                                                                                | 20                                                                                  | 900                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Future Volume (veh/h)                                                                                    | 90                                                                                | 700                                                                               | 0                                                                                 | 0                                                                                 | 700                                                                               | 450                                                                               | 210                                                                                | 20                                                                                  | 900                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Initial Q (Qb), veh                                                                                      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane Width Adj.                                                                                          | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Ped-Bike Adj(A_pbT)                                                                                      | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Parking Bus, Adj                                                                                         | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Work Zone On Approach                                                                                    | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                                   | 1870                                                                              | 1870                                                                              | 0                                                                                 | 0                                                                                 | 1841                                                                              | 1841                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Adj Flow Rate, veh/h                                                                                     | 95                                                                                | 737                                                                               | 0                                                                                 | 0                                                                                 | 722                                                                               | 0                                                                                 | 221                                                                                | 21                                                                                  | 947                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor                                                                                         | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Percent Heavy Veh, %                                                                                     | 2                                                                                 | 2                                                                                 | 0                                                                                 | 0                                                                                 | 4                                                                                 | 4                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Cap, veh/h                                                                                               | 100                                                                               | 1164                                                                              | 0                                                                                 | 0                                                                                 | 845                                                                               |                                                                                   | 944                                                                                | 90                                                                                  | 916                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Arrive On Green                                                                                          | 0.06                                                                              | 0.33                                                                              | 0.00                                                                              | 0.00                                                                              | 0.23                                                                              | 0.00                                                                              | 0.58                                                                               | 0.58                                                                                | 0.58                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Sat Flow, veh/h                                                                                          | 1781                                                                              | 3647                                                                              | 0                                                                                 | 0                                                                                 | 3681                                                                              | 1560                                                                              | 1633                                                                               | 155                                                                                 | 1585                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Grp Volume(v), veh/h                                                                                     | 95                                                                                | 737                                                                               | 0                                                                                 | 0                                                                                 | 722                                                                               | 0                                                                                 | 242                                                                                | 0                                                                                   | 947                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Grp Sat Flow(s),veh/h/ln                                                                                 | 1781                                                                              | 1777                                                                              | 0                                                                                 | 0                                                                                 | 1841                                                                              | 1560                                                                              | 1789                                                                               | 0                                                                                   | 1585                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Q Serve(g_s), s                                                                                          | 6.0                                                                               | 19.8                                                                              | 0.0                                                                               | 0.0                                                                               | 21.1                                                                              | 0.0                                                                               | 7.4                                                                                | 0.0                                                                                 | 64.9                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Cycle Q Clear(g_c), s                                                                                    | 6.0                                                                               | 19.8                                                                              | 0.0                                                                               | 0.0                                                                               | 21.1                                                                              | 0.0                                                                               | 7.4                                                                                | 0.0                                                                                 | 64.9                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Prop In Lane                                                                                             | 1.00                                                                              |                                                                                   | 0.00                                                                              | 0.00                                                                              |                                                                                   | 1.00                                                                              | 0.91                                                                               |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Lane Grp Cap(c), veh/h                                                                                   | 100                                                                               | 1164                                                                              | 0                                                                                 | 0                                                                                 | 845                                                                               |                                                                                   | 1034                                                                               | 0                                                                                   | 916                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| V/C Ratio(X)                                                                                             | 0.95                                                                              | 0.63                                                                              | 0.00                                                                              | 0.00                                                                              | 0.85                                                                              |                                                                                   | 0.23                                                                               | 0.00                                                                                | 1.03                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Avail Cap(c_a), veh/h                                                                                    | 100                                                                               | 1409                                                                              | 0                                                                                 | 0                                                                                 | 1099                                                                              |                                                                                   | 1034                                                                               | 0                                                                                   | 916                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| HCM Platoon Ratio                                                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Upstream Filter(I)                                                                                       | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Uniform Delay (d), s/veh                                                                                 | 52.8                                                                              | 32.0                                                                              | 0.0                                                                               | 0.0                                                                               | 41.5                                                                              | 0.0                                                                               | 11.6                                                                               | 0.0                                                                                 | 23.7                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Incr Delay (d2), s/veh                                                                                   | 73.2                                                                              | 0.3                                                                               | 0.0                                                                               | 0.0                                                                               | 4.3                                                                               | 0.0                                                                               | 0.1                                                                                | 0.0                                                                                 | 38.7                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Initial Q Delay(d3), s/veh                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| %ile BackOfQ(50%),veh/ln                                                                                 | 4.7                                                                               | 8.4                                                                               | 0.0                                                                               | 0.0                                                                               | 9.9                                                                               | 0.0                                                                               | 2.9                                                                                | 0.0                                                                                 | 50.5                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Unsig. Movement Delay, s/veh                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                                                    | 126.1                                                                             | 32.4                                                                              | 0.0                                                                               | 0.0                                                                               | 45.8                                                                              | 0.0                                                                               | 11.7                                                                               | 0.0                                                                                 | 62.4                                                                                |                                                                                     |                                                                                     |                                                                                     |
| LnGrp LOS                                                                                                | F                                                                                 | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | B                                                                                  |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Vol, veh/h                                                                                      | 832                                                                               |                                                                                   |                                                                                   | 722                                                                               |                                                                                   |                                                                                   | 1189                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh                                                                                    | 43.1                                                                              |                                                                                   |                                                                                   | 45.8                                                                              |                                                                                   |                                                                                   | 52.1                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                                                                                             | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs                                                                                     | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   | 5                                                                                 | 6                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                                 | 42.3                                                                              |                                                                                   |                                                                                   | 70.0                                                                              |                                                                                   | 11.0                                                                              | 31.3                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                                  | 5.5                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   | 4.7                                                                               | 5.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                              | 44.5                                                                              |                                                                                   |                                                                                   | 64.9                                                                              |                                                                                   | 6.3                                                                               | 33.5                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                             | 21.8                                                                              |                                                                                   |                                                                                   | 66.9                                                                              |                                                                                   | 8.0                                                                               | 23.1                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                                  | 3.3                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                               | 2.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                                                             | 47.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                                                                                              | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| User approved volume balancing among the lanes for turning movement.                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 7th Signalized Intersection Summary

## 30: Denver St. & Clairemont Dr

Proposed Plan Conditions  
PM Peak Hour



| Movement                      | EBL  | EBT   | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|------|-------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations           |      |       |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)        | 180  | 1100  | 330  | 200  | 700  | 100  | 240  | 90   | 200  | 100  | 40   | 180  |
| Future Volume (veh/h)         | 180  | 1100  | 330  | 200  | 700  | 100  | 240  | 90   | 200  | 100  | 40   | 180  |
| Initial Q (Qb), veh           | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.               | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)           | 1.00 |       | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.98 | 1.00 |      | 0.99 |
| Parking Bus, Adj              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach         | No   |       |      |      | No   |      |      |      | No   |      | Yes  |      |
| Adj Sat Flow, veh/h/ln        | 1841 | 1841  | 1804 | 1826 | 1789 | 1789 | 1870 | 1836 | 1836 | 1723 | 1686 | 1686 |
| Adj Flow Rate, veh/h          | 188  | 1146  | 311  | 206  | 722  | 82   | 253  | 95   | 190  | 105  | 42   | 170  |
| Peak Hour Factor              | 0.96 | 0.96  | 0.96 | 0.97 | 0.97 | 0.97 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %          | 4    | 4     | 4    | 5    | 5    | 5    | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                    | 219  | 1174  | 512  | 237  | 1088 | 123  | 284  | 140  | 280  | 129  | 52   | 210  |
| Arrive On Green               | 0.13 | 0.34  | 0.34 | 0.14 | 0.35 | 0.35 | 0.16 | 0.26 | 0.26 | 0.08 | 0.18 | 0.18 |
| Sat Flow, veh/h               | 1753 | 3497  | 1524 | 1739 | 3077 | 349  | 1781 | 540  | 1081 | 1641 | 290  | 1172 |
| Grp Volume(v), veh/h          | 188  | 1146  | 311  | 206  | 399  | 405  | 253  | 0    | 285  | 105  | 0    | 212  |
| Grp Sat Flow(s),veh/h/ln      | 1753 | 1749  | 1524 | 1739 | 1700 | 1726 | 1781 | 0    | 1621 | 1641 | 0    | 1461 |
| Q Serve(g_s), s               | 11.2 | 34.6  | 11.4 | 12.4 | 21.2 | 21.2 | 14.9 | 0.0  | 16.9 | 6.7  | 0.0  | 14.9 |
| Cycle Q Clear(g_c), s         | 11.2 | 34.6  | 11.4 | 12.4 | 21.2 | 21.2 | 14.9 | 0.0  | 16.9 | 6.7  | 0.0  | 14.9 |
| Prop In Lane                  | 1.00 |       | 1.00 | 1.00 |      | 0.20 | 1.00 |      | 0.67 | 1.00 |      | 0.80 |
| Lane Grp Cap(c), veh/h        | 219  | 1174  | 512  | 237  | 601  | 610  | 284  | 0    | 421  | 129  | 0    | 262  |
| V/C Ratio(X)                  | 0.86 | 0.98  | 0.61 | 0.87 | 0.66 | 0.66 | 0.89 | 0.00 | 0.68 | 0.81 | 0.00 | 0.81 |
| Avail Cap(c_a), veh/h         | 387  | 1174  | 512  | 400  | 601  | 610  | 345  | 0    | 562  | 285  | 0    | 478  |
| HCM Platoon Ratio             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)            | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh      | 45.9 | 35.1  | 11.7 | 45.3 | 29.2 | 29.2 | 44.1 | 0.0  | 35.6 | 48.5 | 0.0  | 42.2 |
| Incr Delay (d2), s/veh        | 3.8  | 20.8  | 2.6  | 5.0  | 3.1  | 3.0  | 19.2 | 0.0  | 0.8  | 4.6  | 0.0  | 2.3  |
| Initial Q Delay(d3), s/veh    | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 5.1  | 17.6  | 4.1  | 5.6  | 8.9  | 9.0  | 8.0  | 0.0  | 6.7  | 2.9  | 0.0  | 5.5  |
| Unsig. Movement Delay, s/veh  |      |       |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh         | 49.6 | 55.9  | 14.3 | 50.3 | 32.3 | 32.2 | 63.3 | 0.0  | 36.4 | 53.1 | 0.0  | 44.4 |
| LnGrp LOS                     | D    | E     | B    | D    | C    | C    | E    |      | D    | D    |      | D    |
| Approach Vol, veh/h           | 1645 |       |      |      | 1010 |      |      |      | 538  |      | 317  |      |
| Approach Delay, s/veh         | 47.3 |       |      |      | 35.9 |      |      |      | 49.1 |      | 47.3 |      |
| Approach LOS                  | D    |       |      |      | D    |      |      |      | D    |      | D    |      |
| Timer - Assigned Phs          | 1    | 2     | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 30.5 | 41.0  | 21.4 | 24.1 | 17.8 | 43.7 | 12.8 | 32.7 |      |      |      |      |
| Change Period (Y+Rc), s       | 5.9  | * 5.1 | 4.4  | 4.9  | 4.4  | 5.9  | 4.4  | 4.9  |      |      |      |      |
| Max Green Setting (Gmax), s   | 24.6 | * 36  | 20.7 | 35.0 | 23.6 | 36.1 | 18.6 | 37.1 |      |      |      |      |
| Max Q Clear Time (g_c+1/4), s | 14.4 | 36.6  | 16.9 | 16.9 | 13.2 | 23.2 | 8.7  | 18.9 |      |      |      |      |
| Green Ext Time (p_c), s       | 0.2  | 0.0   | 0.1  | 0.8  | 0.2  | 5.3  | 0.1  | 1.1  |      |      |      |      |

### Intersection Summary

HCM 7th Control Delay, s/veh 44.3  
HCM 7th LOS D

### Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 31: Burgener Blvd. & Clairemont Dr

Proposed Plan Conditions  
PM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |       |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 30   | 850  | 420  | 150   | 600  | 40   | 380  | 10   | 200  | 20   | 10   | 20   |
| Future Volume (veh/h)        | 30   | 850  | 420  | 150   | 600  | 40   | 380  | 10   | 200  | 20   | 10   | 20   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.99 | 1.00  |      | 1.00 | 1.00 |      | 0.99 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No    |      |      | No   |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln       | 1826 | 1826 | 1793 | 1826  | 1826 | 1793 | 1870 | 1835 | 1835 | 1844 | 1844 | 1844 |
| Adj Flow Rate, veh/h         | 32   | 895  | 354  | 158   | 632  | 34   | 300  | 150  | 190  | 21   | 11   | 19   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 5    | 5    | 5    | 5     | 5    | 5    | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 40   | 916  | 1089 | 164   | 1061 | 879  | 394  | 161  | 205  | 27   | 14   | 25   |
| Arrive On Green              | 0.02 | 0.50 | 0.50 | 0.09  | 0.58 | 0.58 | 0.22 | 0.22 | 0.22 | 0.04 | 0.04 | 0.04 |
| Sat Flow, veh/h              | 1739 | 1826 | 1502 | 1739  | 1826 | 1513 | 1781 | 731  | 926  | 698  | 366  | 632  |
| Grp Volume(v), veh/h         | 32   | 895  | 354  | 158   | 632  | 34   | 300  | 0    | 340  | 51   | 0    | 0    |
| Grp Sat Flow(s), veh/h/ln    | 1739 | 1826 | 1502 | 1739  | 1826 | 1513 | 1781 | 0    | 1656 | 1695 | 0    | 0    |
| Q Serve(g_s), s              | 2.3  | 60.9 | 10.9 | 11.5  | 28.2 | 1.2  | 20.0 | 0.0  | 25.6 | 3.8  | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 2.3  | 60.9 | 10.9 | 11.5  | 28.2 | 1.2  | 20.0 | 0.0  | 25.6 | 3.8  | 0.0  | 0.0  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00  |      | 1.00 | 1.00 |      | 0.56 | 0.41 |      | 0.37 |
| Lane Grp Cap(c), veh/h       | 40   | 916  | 1089 | 164   | 1061 | 879  | 394  | 0    | 366  | 66   | 0    | 0    |
| V/C Ratio(X)                 | 0.80 | 0.98 | 0.33 | 0.96  | 0.60 | 0.04 | 0.76 | 0.00 | 0.93 | 0.77 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 151  | 920  | 1093 | 164   | 1061 | 879  | 407  | 0    | 378  | 374  | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 61.7 | 30.9 | 6.4  | 57.3  | 17.1 | 11.4 | 46.3 | 0.0  | 48.5 | 60.5 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 12.4 | 24.1 | 0.2  | 58.3  | 1.1  | 0.0  | 7.1  | 0.0  | 27.9 | 7.0  | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 1.2  | 31.5 | 6.8  | 7.7   | 11.6 | 0.4  | 9.7  | 0.0  | 13.4 | 1.8  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 74.1 | 55.1 | 6.6  | 115.5 | 18.2 | 11.4 | 53.4 | 0.0  | 76.4 | 67.5 | 0.0  | 0.0  |
| LnGrp LOS                    | E    | E    | A    | F     | B    | B    | D    |      | E    | E    |      |      |
| Approach Vol, veh/h          | 1281 |      |      | 824   |      |      | 640  |      |      | 51   |      |      |
| Approach Delay, s/veh        | 42.1 |      |      | 36.6  |      |      | 65.6 |      |      | 67.5 |      |      |
| Approach LOS                 | D    |      |      | D     |      |      | E    |      |      | E    |      |      |
| Timer - Assigned Phs         | 1    | 2    |      | 4     | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 7.3  | 68.7 |      | 32.1  | 6.9  | 79.1 |      | 8.9  |      |      |      |      |
| Change Period (Y+Rc), s      | 5.3  | * 5  |      | 4.0   | 4.0  | 5.3  |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s  | 12.0 | * 64 |      | 29.0  | 11.0 | 64.7 |      | 28.0 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 11.5 | 62.9 |      | 27.6  | 4.3  | 30.2 |      | 5.8  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 0.8  |      | 0.4   | 0.0  | 7.4  |      | 0.1  |      |      |      |      |

## Intersection Summary

HCM 7th Control Delay, s/veh 46.3  
HCM 7th LOS D

## Notes

User approved volume balancing among the lanes for turning movement.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 27

Intersection LOS D

| Movement            | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations |      | ↔    |      |      | ↔    | ↔    |      | ↔    | ↔    | ↔    | ↔    |      |
| Traffic Vol, veh/h  | 60   | 50   | 20   | 130  | 60   | 360  | 10   | 160  | 80   | 380  | 180  | 120  |
| Future Vol, veh/h   | 60   | 50   | 20   | 130  | 60   | 360  | 10   | 160  | 80   | 380  | 180  | 120  |
| Peak Hour Factor    | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles, %   | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow           | 63   | 53   | 21   | 137  | 63   | 379  | 11   | 168  | 84   | 392  | 186  | 124  |
| Number of Lanes     | 0    | 1    | 0    | 0    | 1    | 1    | 0    | 1    | 1    | 1    | 1    | 0    |

| Approach                      | EB   | WB   | NB   | SB   |
|-------------------------------|------|------|------|------|
| Opposing Approach             | WB   | EB   | SB   | NB   |
| Opposing Lanes                | 2    | 1    | 2    | 2    |
| Conflicting Approach Left SB  |      | NB   | EB   | WB   |
| Conflicting Lanes Left        | 2    | 2    | 1    | 2    |
| Conflicting Approach Right NB |      | SB   | WB   | EB   |
| Conflicting Lanes Right       | 2    | 2    | 2    | 1    |
| HCM Control Delay, s/veh      | 16.1 | 24.5 | 15.5 | 35.5 |
| HCM LOS                       | C    | C    | C    | E    |

| Lane                     | NBLn1 | NBLn2 | EBLn1 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, %              | 6%    | 0%    | 46%   | 68%   | 0%    | 100%  | 0%    |
| Vol Thru, %              | 94%   | 0%    | 38%   | 32%   | 0%    | 0%    | 60%   |
| Vol Right, %             | 0%    | 100%  | 15%   | 0%    | 100%  | 0%    | 40%   |
| Sign Control             | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane      | 170   | 80    | 130   | 190   | 360   | 380   | 300   |
| LT Vol                   | 10    | 0     | 60    | 130   | 0     | 380   | 0     |
| Through Vol              | 160   | 0     | 50    | 60    | 0     | 0     | 180   |
| RT Vol                   | 0     | 80    | 20    | 0     | 360   | 0     | 120   |
| Lane Flow Rate           | 179   | 84    | 137   | 200   | 379   | 392   | 309   |
| Geometry Grp             | 5     | 5     | 4b    | 5     | 5     | 5     | 5     |
| Degree of Util (X)       | 0.417 | 0.179 | 0.331 | 0.454 | 0.748 | 0.879 | 0.625 |
| Departure Headway (Hd)   | 8.391 | 7.634 | 8.715 | 8.177 | 7.108 | 8.074 | 7.272 |
| Convergence, Y/N         | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Cap                      | 428   | 469   | 412   | 440   | 508   | 451   | 495   |
| Service Time             | 6.157 | 5.4   | 6.784 | 5.93  | 4.86  | 5.83  | 5.027 |
| HCM Lane V/C Ratio       | 0.418 | 0.179 | 0.333 | 0.455 | 0.746 | 0.869 | 0.624 |
| HCM Control Delay, s/veh | 17.1  | 12.1  | 16.1  | 17.6  | 28.2  | 46.5  | 21.5  |
| HCM Lane LOS             | C     | B     | C     | C     | D     | E     | C     |
| HCM 95th-tile Q          | 2     | 0.6   | 1.4   | 2.3   | 6.4   | 9.2   | 4.2   |

# HCM 7th Signalized Intersection Summary 33: Clairemont Dr & Iroquois Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                     | EBL  | EBT                                                                               | EBR  | WBL  | WBT                                                                               | WBR  | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
|------------------------------|------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations          |      |  |      |      |  |      |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 70   | 30                                                                                | 70   | 110  | 10                                                                                | 190  | 170                                                                               | 790                                                                               | 170                                                                                | 180                                                                                 | 820                                                                                 | 60                                                                                  |
| Future Volume (veh/h)        | 70   | 30                                                                                | 70   | 110  | 10                                                                                | 190  | 170                                                                               | 790                                                                               | 170                                                                                | 180                                                                                 | 820                                                                                 | 60                                                                                  |
| Initial Q (Qb), veh          | 0    | 0                                                                                 | 0    | 0    | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00 | 1.00                                                                              | 1.00 | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 0.99 |                                                                                   | 0.95 | 0.98 |                                                                                   | 0.98 | 1.00                                                                              |                                                                                   | 0.98                                                                               | 1.00                                                                                |                                                                                     | 0.96                                                                                |
| Parking Bus, Adj             | 1.00 | 1.00                                                                              | 1.00 | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No   |                                                                                   |      | No   |                                                                                   |      | No                                                                                |                                                                                   |                                                                                    | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1799 | 1799                                                                              | 1799 | 1791 | 1791                                                                              | 1791 | 1826                                                                              | 1826                                                                              | 1617                                                                               | 1841                                                                                | 1841                                                                                | 1667                                                                                |
| Adj Flow Rate, veh/h         | 74   | 32                                                                                | 67   | 116  | 11                                                                                | 180  | 179                                                                               | 832                                                                               | 143                                                                                | 189                                                                                 | 863                                                                                 | 50                                                                                  |
| Peak Hour Factor             | 0.95 | 0.95                                                                              | 0.95 | 0.95 | 0.95                                                                              | 0.95 | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2    | 2                                                                                 | 2    | 2    | 2                                                                                 | 2    | 5                                                                                 | 5                                                                                 | 5                                                                                  | 4                                                                                   | 4                                                                                   | 4                                                                                   |
| Cap, veh/h                   | 177  | 83                                                                                | 120  | 182  | 29                                                                                | 203  | 275                                                                               | 1145                                                                              | 839                                                                                | 276                                                                                 | 1154                                                                                | 847                                                                                 |
| Arrive On Green              | 0.24 | 0.24                                                                              | 0.24 | 0.24 | 0.24                                                                              | 0.24 | 0.63                                                                              | 0.63                                                                              | 0.63                                                                               | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                |
| Sat Flow, veh/h              | 449  | 347                                                                               | 503  | 481  | 121                                                                               | 853  | 596                                                                               | 1826                                                                              | 1339                                                                               | 566                                                                                 | 1841                                                                                | 1352                                                                                |
| Grp Volume(v), veh/h         | 173  | 0                                                                                 | 0    | 307  | 0                                                                                 | 0    | 179                                                                               | 832                                                                               | 143                                                                                | 189                                                                                 | 863                                                                                 | 50                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1299 | 0                                                                                 | 0    | 1455 | 0                                                                                 | 0    | 596                                                                               | 1826                                                                              | 1339                                                                               | 566                                                                                 | 1841                                                                                | 1352                                                                                |
| Q Serve(g_s), s              | 0.0  | 0.0                                                                               | 0.0  | 6.6  | 0.0                                                                               | 0.0  | 21.9                                                                              | 23.0                                                                              | 3.3                                                                                | 23.1                                                                                | 24.2                                                                                | 1.1                                                                                 |
| Cycle Q Clear(g_c), s        | 8.2  | 0.0                                                                               | 0.0  | 14.8 | 0.0                                                                               | 0.0  | 46.1                                                                              | 23.0                                                                              | 3.3                                                                                | 46.1                                                                                | 24.2                                                                                | 1.1                                                                                 |
| Prop In Lane                 | 0.43 |                                                                                   | 0.39 | 0.38 |                                                                                   | 0.59 | 1.00                                                                              |                                                                                   | 1.00                                                                               | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 380  | 0                                                                                 | 0    | 415  | 0                                                                                 | 0    | 275                                                                               | 1145                                                                              | 839                                                                                | 276                                                                                 | 1154                                                                                | 847                                                                                 |
| V/C Ratio(X)                 | 0.46 | 0.00                                                                              | 0.00 | 0.74 | 0.00                                                                              | 0.00 | 0.65                                                                              | 0.73                                                                              | 0.17                                                                               | 0.68                                                                                | 0.75                                                                                | 0.06                                                                                |
| Avail Cap(c_a), veh/h        | 406  | 0                                                                                 | 0    | 442  | 0                                                                                 | 0    | 275                                                                               | 1145                                                                              | 839                                                                                | 276                                                                                 | 1154                                                                                | 847                                                                                 |
| HCM Platoon Ratio            | 1.00 | 1.00                                                                              | 1.00 | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00 | 0.00                                                                              | 0.00 | 1.00 | 0.00                                                                              | 0.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 24.2 | 0.0                                                                               | 0.0  | 26.7 | 0.0                                                                               | 0.0  | 25.9                                                                              | 9.4                                                                               | 5.7                                                                                | 25.9                                                                                | 9.6                                                                                 | 5.3                                                                                 |
| Incr Delay (d2), s/veh       | 1.2  | 0.0                                                                               | 0.0  | 6.7  | 0.0                                                                               | 0.0  | 4.2                                                                               | 2.0                                                                               | 0.0                                                                                | 5.7                                                                                 | 2.4                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0                                                                               | 0.0  | 0.0  | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.6  | 0.0                                                                               | 0.0  | 5.7  | 0.0                                                                               | 0.0  | 3.2                                                                               | 7.6                                                                               | 0.7                                                                                | 3.5                                                                                 | 8.1                                                                                 | 0.2                                                                                 |
| Unsig. Movement Delay, s/veh |      |                                                                                   |      |      |                                                                                   |      |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 25.4 | 0.0                                                                               | 0.0  | 33.4 | 0.0                                                                               | 0.0  | 30.2                                                                              | 11.5                                                                              | 5.8                                                                                | 31.6                                                                                | 12.1                                                                                | 5.3                                                                                 |
| LnGrp LOS                    | C    |                                                                                   |      | C    |                                                                                   |      | C                                                                                 | B                                                                                 | A                                                                                  | C                                                                                   | B                                                                                   | A                                                                                   |
| Approach Vol, veh/h          |      | 173                                                                               |      |      | 307                                                                               |      |                                                                                   | 1154                                                                              |                                                                                    |                                                                                     | 1102                                                                                |                                                                                     |
| Approach Delay, s/veh        |      | 25.4                                                                              |      |      | 33.4                                                                              |      |                                                                                   | 13.7                                                                              |                                                                                    |                                                                                     | 15.1                                                                                |                                                                                     |
| Approach LOS                 |      | C                                                                                 |      |      | C                                                                                 |      |                                                                                   | B                                                                                 |                                                                                    |                                                                                     | B                                                                                   |                                                                                     |
| Timer - Assigned Phs         |      | 2                                                                                 |      | 4    |                                                                                   | 6    |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     |      | 51.0                                                                              |      | 22.5 |                                                                                   | 51.0 |                                                                                   | 22.5                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      |      | 4.9                                                                               |      | 5.0  |                                                                                   | 4.9  |                                                                                   | 5.0                                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  |      | 46.1                                                                              |      | 19.0 |                                                                                   | 46.1 |                                                                                   | 19.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s |      | 48.1                                                                              |      | 10.2 |                                                                                   | 48.1 |                                                                                   | 16.8                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      |      | 0.0                                                                               |      | 0.8  |                                                                                   | 0.0  |                                                                                   | 0.5                                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |      |                                                                                   |      |      |                                                                                   |      |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh |      |                                                                                   | 17.2 |      |                                                                                   |      |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  |      |                                                                                   | B    |      |                                                                                   |      |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |



HCM 7th TWSC  
34: Morena Blvd. & Napier St.

Proposed Plan Conditions  
PM Peak Hour

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.5  |      |      |      |      |      |
| Movement                 | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
| Lane Configurations      | W    |      | T    |      | T    | T    |
| Traffic Vol, veh/h       | 40   | 80   | 830  | 130  | 80   | 1630 |
| Future Vol, veh/h        | 40   | 80   | 830  | 130  | 80   | 1630 |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 0    | -    | -    | -    | 210  | -    |
| Veh in Median Storage, # | 1    | -    | 0    | -    | -    | 0    |
| Grade, %                 | 0    | -    | 0    | -    | -    | 0    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 5    | 5    | 5    | 5    |
| Mvmt Flow                | 42   | 84   | 874  | 137  | 84   | 1716 |

| Major/Minor          | Minor1 | Major1 | Major2 |   |      |
|----------------------|--------|--------|--------|---|------|
| Conflicting Flow All | 1968   | 505    | 0      | 0 | 1011 |
| Stage 1              | 942    | -      | -      | - | -    |
| Stage 2              | 1026   | -      | -      | - | -    |
| Critical Hdwy        | 6.84   | 6.94   | -      | - | 4.2  |
| Critical Hdwy Stg 1  | 5.84   | -      | -      | - | -    |
| Critical Hdwy Stg 2  | 5.84   | -      | -      | - | -    |
| Follow-up Hdwy       | 3.52   | 3.32   | -      | - | 2.25 |
| Pot Cap-1 Maneuver   | 55     | 512    | -      | - | 664  |
| Stage 1              | 339    | -      | -      | - | -    |
| Stage 2              | 307    | -      | -      | - | -    |
| Platoon blocked, %   |        |        | -      | - | -    |
| Mov Cap-1 Maneuver   | 48     | 512    | -      | - | 664  |
| Mov Cap-2 Maneuver   | 158    | -      | -      | - | -    |
| Stage 1              | 339    | -      | -      | - | -    |
| Stage 2              | 268    | -      | -      | - | -    |

| Approach          | WB    | NB | SB   |
|-------------------|-------|----|------|
| HCM Ctrl Dly, s/v | 26.26 | 0  | 0.52 |
| HCM LOS           | D     |    |      |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 293   | 664   |
| HCM Lane V/C Ratio    | -   | -        | 0.431 | 0.127 |
| HCM Ctrl Dly (s/v)    | -   | -        | 26.3  | 11.2  |
| HCM Lane LOS          | -   | -        | D     | B     |
| HCM 95th %tile Q(veh) | -   | -        | 2.1   | 0.4   |

HCM 7th Signalized Intersection Summary  
35: Morena Blvd. & Ashton St.

Proposed Plan Conditions  
PM Peak Hour

|                                                                                                    |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                                                                                           | WBL                                                                               | WBR                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               |
| Lane Configurations                                                                                |  |                                                                                   |  |                                                                                   |  |  |
| Traffic Volume (veh/h)                                                                             | 240                                                                               | 130                                                                               | 830                                                                               | 220                                                                               | 260                                                                               | 1410                                                                              |
| Future Volume (veh/h)                                                                              | 240                                                                               | 130                                                                               | 830                                                                               | 220                                                                               | 260                                                                               | 1410                                                                              |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Width Adj.                                                                                    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              | 0.98                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |
| Parking Bus, Adj                                                                                   | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach                                                                              | No                                                                                |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |
| Adj Sat Flow, veh/h/ln                                                                             | 1870                                                                              | 1870                                                                              | 1776                                                                              | 1776                                                                              | 1826                                                                              | 1826                                                                              |
| Adj Flow Rate, veh/h                                                                               | 253                                                                               | 123                                                                               | 874                                                                               | 209                                                                               | 274                                                                               | 1484                                                                              |
| Peak Hour Factor                                                                                   | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Percent Heavy Veh, %                                                                               | 2                                                                                 | 2                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                 |
| Cap, veh/h                                                                                         | 305                                                                               | 148                                                                               | 991                                                                               | 237                                                                               | 312                                                                               | 2088                                                                              |
| Arrive On Green                                                                                    | 0.27                                                                              | 0.27                                                                              | 0.37                                                                              | 0.37                                                                              | 0.18                                                                              | 0.60                                                                              |
| Sat Flow, veh/h                                                                                    | 1140                                                                              | 554                                                                               | 2790                                                                              | 646                                                                               | 1739                                                                              | 3561                                                                              |
| Grp Volume(v), veh/h                                                                               | 377                                                                               | 0                                                                                 | 546                                                                               | 537                                                                               | 274                                                                               | 1484                                                                              |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1699                                                                              | 0                                                                                 | 1687                                                                              | 1660                                                                              | 1739                                                                              | 1735                                                                              |
| Q Serve(g_s), s                                                                                    | 16.5                                                                              | 0.0                                                                               | 23.9                                                                              | 23.9                                                                              | 12.1                                                                              | 23.5                                                                              |
| Cycle Q Clear(g_c), s                                                                              | 16.5                                                                              | 0.0                                                                               | 23.9                                                                              | 23.9                                                                              | 12.1                                                                              | 23.5                                                                              |
| Prop In Lane                                                                                       | 0.67                                                                              | 0.33                                                                              |                                                                                   | 0.39                                                                              | 1.00                                                                              |                                                                                   |
| Lane Grp Cap(c), veh/h                                                                             | 454                                                                               | 0                                                                                 | 619                                                                               | 609                                                                               | 312                                                                               | 2088                                                                              |
| V/C Ratio(X)                                                                                       | 0.83                                                                              | 0.00                                                                              | 0.88                                                                              | 0.88                                                                              | 0.88                                                                              | 0.71                                                                              |
| Avail Cap(c_a), veh/h                                                                              | 647                                                                               | 0                                                                                 | 642                                                                               | 632                                                                               | 340                                                                               | 2187                                                                              |
| HCM Platoon Ratio                                                                                  | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)                                                                                 | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh                                                                           | 27.2                                                                              | 0.0                                                                               | 23.4                                                                              | 23.4                                                                              | 31.5                                                                              | 10.9                                                                              |
| Incr Delay (d2), s/veh                                                                             | 4.3                                                                               | 0.0                                                                               | 13.8                                                                              | 14.1                                                                              | 19.8                                                                              | 1.2                                                                               |
| Initial Q Delay(d3), s/veh                                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln                                                                           | 6.9                                                                               | 0.0                                                                               | 11.2                                                                              | 11.1                                                                              | 6.6                                                                               | 7.9                                                                               |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d), s/veh                                                                              | 31.4                                                                              | 0.0                                                                               | 37.2                                                                              | 37.5                                                                              | 51.3                                                                              | 12.1                                                                              |
| LnGrp LOS                                                                                          | C                                                                                 |                                                                                   | D                                                                                 | D                                                                                 | D                                                                                 | B                                                                                 |
| Approach Vol, veh/h                                                                                | 377                                                                               |                                                                                   | 1083                                                                              |                                                                                   |                                                                                   | 1758                                                                              |
| Approach Delay, s/veh                                                                              | 31.4                                                                              |                                                                                   | 37.3                                                                              |                                                                                   |                                                                                   | 18.2                                                                              |
| Approach LOS                                                                                       | C                                                                                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 | 8                                                                                 |
| Phs Duration (G+Y+Rc), s                                                                           | 18.5                                                                              | 34.3                                                                              |                                                                                   |                                                                                   | 52.9                                                                              | 26.0                                                                              |
| Change Period (Y+Rc), s                                                                            | 4.4                                                                               | * 5.4                                                                             |                                                                                   |                                                                                   | 5.4                                                                               | 4.9                                                                               |
| Max Green Setting (Gmax), s                                                                        | 15.4                                                                              | * 30                                                                              |                                                                                   |                                                                                   | 49.7                                                                              | 30.0                                                                              |
| Max Q Clear Time (g_c+I1), s                                                                       | 14.1                                                                              | 25.9                                                                              |                                                                                   |                                                                                   | 25.5                                                                              | 18.5                                                                              |
| Green Ext Time (p_c), s                                                                            | 0.1                                                                               | 3.0                                                                               |                                                                                   |                                                                                   | 16.4                                                                              | 0.5                                                                               |
| <b>Intersection Summary</b>                                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 7th Control Delay, s/veh                                                                       |                                                                                   |                                                                                   | 26.2                                                                              |                                                                                   |                                                                                   |                                                                                   |
| HCM 7th LOS                                                                                        |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| <b>Notes</b>                                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| User approved volume balancing among the lanes for turning movement.                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| * HCM 7th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM 7th Signalized Intersection Summary 36: W Morena Blvd. & Morena Blvd.

Proposed Plan Conditions  
PM Peak Hour



| Movement                       | WBL  | WBR   | NBT  | NBR  | SBL  | SBT  |
|--------------------------------|------|-------|------|------|------|------|
| Lane Configurations            |      |       |      |      |      |      |
| Traffic Volume (veh/h)         | 200  | 490   | 640  | 150  | 440  | 1270 |
| Future Volume (veh/h)          | 200  | 490   | 640  | 150  | 440  | 1270 |
| Initial Q (Qb), veh            | 0    | 0     | 0    | 0    | 0    | 0    |
| Lane Width Adj.                | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)            | 1.00 | 1.00  |      | 1.00 | 1.00 |      |
| Parking Bus, Adj               | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach          | No   |       | No   |      | No   |      |
| Adj Sat Flow, veh/h/ln         | 1841 | 1783  | 1782 | 1782 | 1826 | 1826 |
| Adj Flow Rate, veh/h           | 211  | 434   | 674  | 142  | 463  | 1337 |
| Peak Hour Factor               | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %           | 4    | 4     | 2    | 2    | 5    | 5    |
| Cap, veh/h                     | 428  | 739   | 876  | 184  | 426  | 2143 |
| Arrive On Green                | 0.24 | 0.24  | 0.31 | 0.31 | 0.24 | 0.62 |
| Sat Flow, veh/h                | 1753 | 1511  | 2872 | 586  | 1739 | 3561 |
| Grp Volume(v), veh/h           | 211  | 434   | 410  | 406  | 463  | 1337 |
| Grp Sat Flow(s), veh/h/ln      | 1753 | 1511  | 1693 | 1676 | 1739 | 1735 |
| Q Serve(g_s), s                | 7.9  | 15.6  | 16.6 | 16.6 | 18.6 | 18.2 |
| Cycle Q Clear(g_c), s          | 7.9  | 15.6  | 16.6 | 16.6 | 18.6 | 18.2 |
| Prop In Lane                   | 1.00 | 1.00  |      | 0.35 | 1.00 |      |
| Lane Grp Cap(c), veh/h         | 428  | 739   | 533  | 528  | 426  | 2143 |
| V/C Ratio(X)                   | 0.49 | 0.59  | 0.77 | 0.77 | 1.09 | 0.62 |
| Avail Cap(c_a), veh/h          | 600  | 887   | 682  | 675  | 426  | 2444 |
| HCM Platoon Ratio              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh       | 24.7 | 13.9  | 23.5 | 23.5 | 28.7 | 9.0  |
| Incr Delay (d2), s/veh         | 0.3  | 0.3   | 4.7  | 4.8  | 69.1 | 0.4  |
| Initial Q Delay(d3), s/veh     | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln       | 8.2  | 4.9   | 7.0  | 6.9  | 15.5 | 5.8  |
| Unsig. Movement Delay, s/veh   |      |       |      |      |      |      |
| LnGrp Delay(d), s/veh          | 25.0 | 14.2  | 28.2 | 28.3 | 97.8 | 9.4  |
| LnGrp LOS                      | C    | B     | C    | C    | F    | A    |
| Approach Vol, veh/h            | 645  |       | 816  |      |      | 1800 |
| Approach Delay, s/veh          | 17.7 |       | 28.3 |      |      | 32.2 |
| Approach LOS                   | B    |       | C    |      |      | C    |
| Timer - Assigned Phs           | 1    | 2     |      |      | 6    | 8    |
| Phs Duration (G+Y+Rc), s       | 33.0 | 29.5  |      |      | 52.5 | 23.4 |
| Change Period (Y+Rc), s        | 4.4  | * 5.6 |      |      | 5.6  | 4.9  |
| Max Green Setting (Gmax), s    | 18.6 | * 31  |      |      | 53.5 | 26.0 |
| Max Q Clear Time (g_c+20.6), s | 20.6 | 18.6  |      |      | 20.2 | 17.6 |
| Green Ext Time (p_c), s        | 0.0  | 5.3   |      |      | 13.7 | 0.9  |
| Intersection Summary           |      |       |      |      |      |      |
| HCM 7th Control Delay, s/veh   |      |       | 28.3 |      |      |      |
| HCM 7th LOS                    |      |       | C    |      |      |      |

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 37: Knoxville St. & Morena Blvd.

Proposed Plan Conditions  
PM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      | 🛑    |      |      | 🛑    | 🛑    |      | 🛑    |      |      | 🛑    |      |
| Traffic Volume (veh/h)       | 50   | 390  | 70   | 90   | 450  | 450  | 60   | 30   | 150  | 280  | 60   | 80   |
| Future Volume (veh/h)        | 50   | 390  | 70   | 90   | 450  | 450  | 60   | 30   | 150  | 280  | 60   | 80   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 0.99 | 1.00 |      | 0.99 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1786 | 1786 | 1786 | 1856 | 1856 | 1801 | 1803 | 1803 | 1803 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h         | 53   | 411  | 67   | 95   | 474  | 379  | 63   | 32   | 142  | 295  | 63   | 76   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 4    | 4    | 4    | 3    | 3    | 3    | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 81   | 402  | 60   | 141  | 557  | 733  | 187  | 114  | 338  | 410  | 67   | 80   |
| Arrive On Green              | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 |
| Sat Flow, veh/h              | 32   | 828  | 124  | 146  | 1147 | 1512 | 317  | 325  | 960  | 878  | 189  | 227  |
| Grp Volume(v), veh/h         | 531  | 0    | 0    | 569  | 0    | 379  | 237  | 0    | 0    | 434  | 0    | 0    |
| Grp Sat Flow(s),veh/h/ln     | 984  | 0    | 0    | 1294 | 0    | 1512 | 1602 | 0    | 0    | 1294 | 0    | 0    |
| Q Serve(g_s), s              | 6.2  | 0.0  | 0.0  | 0.0  | 0.0  | 10.3 | 0.0  | 0.0  | 0.0  | 13.0 | 0.0  | 0.0  |
| Cycle Q Clear(g_c), s        | 29.1 | 0.0  | 0.0  | 22.9 | 0.0  | 10.3 | 6.7  | 0.0  | 0.0  | 19.6 | 0.0  | 0.0  |
| Prop In Lane                 | 0.10 |      | 0.13 | 0.17 |      | 1.00 | 0.27 |      | 0.60 | 0.68 |      | 0.18 |
| Lane Grp Cap(c), veh/h       | 543  | 0    | 0    | 698  | 0    | 733  | 639  | 0    | 0    | 556  | 0    | 0    |
| V/C Ratio(X)                 | 0.98 | 0.00 | 0.00 | 0.82 | 0.00 | 0.52 | 0.37 | 0.00 | 0.00 | 0.78 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h        | 543  | 0    | 0    | 698  | 0    | 733  | 639  | 0    | 0    | 556  | 0    | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh     | 14.8 | 0.0  | 0.0  | 12.7 | 0.0  | 10.6 | 14.8 | 0.0  | 0.0  | 19.0 | 0.0  | 0.0  |
| Incr Delay (d2), s/veh       | 32.7 | 0.0  | 0.0  | 7.0  | 0.0  | 0.3  | 0.6  | 0.0  | 0.0  | 7.1  | 0.0  | 0.0  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.3  | 0.0  | 0.0  | 6.5  | 0.0  | 2.9  | 2.3  | 0.0  | 0.0  | 6.3  | 0.0  | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 47.5 | 0.0  | 0.0  | 19.7 | 0.0  | 10.9 | 15.3 | 0.0  | 0.0  | 26.2 | 0.0  | 0.0  |
| LnGrp LOS                    | D    |      |      | B    |      | B    | B    |      |      | C    |      |      |
| Approach Vol, veh/h          | 531  |      |      |      | 948  |      | 237  |      |      |      | 434  |      |
| Approach Delay, s/veh        | 47.5 |      |      |      | 16.2 |      | 15.3 |      |      |      | 26.2 |      |
| Approach LOS                 | D    |      |      |      | B    |      | B    |      |      |      | C    |      |
| Timer - Assigned Phs         | 2    |      | 4    |      | 6    |      | 8    |      |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 34.0 |      | 26.0 |      | 34.0 |      | 26.0 |      |      |      |      |      |
| Change Period (Y+Rc), s      | 4.9  |      | 4.9  |      | 4.9  |      | 4.9  |      |      |      |      |      |
| Max Green Setting (Gmax), s  | 29.1 |      | 21.1 |      | 29.1 |      | 21.1 |      |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 31.1 |      | 21.6 |      | 24.9 |      | 8.7  |      |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  |      | 0.0  |      | 1.6  |      | 1.6  |      |      |      |      |      |
| Intersection Summary         |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh |      | 25.8 |      |      |      |      |      |      |      |      |      |      |
| HCM 7th LOS                  |      | C    |      |      |      |      |      |      |      |      |      |      |

# HCM 7th Signalized Intersection Summary 38: Tecolote Rd. & Morena Blvd.

Proposed Plan Conditions  
PM Peak Hour



| Movement                                                             | EBL  | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR  | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                                | SBT                                                                                 | SBR                                                                                 |
|----------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations                                                  |      |  |  |  |  |      |  |  |  |  |  |  |
| Traffic Volume (veh/h)                                               | 90   | 290                                                                               | 510                                                                               | 490                                                                               | 400                                                                               | 50   | 590                                                                               | 100                                                                               | 560                                                                               | 50                                                                                 | 70                                                                                  | 60                                                                                  |
| Future Volume (veh/h)                                                | 90   | 290                                                                               | 510                                                                               | 490                                                                               | 400                                                                               | 50   | 590                                                                               | 100                                                                               | 560                                                                               | 50                                                                                 | 70                                                                                  | 60                                                                                  |
| Initial Q (Qb), veh                                                  | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.                                                      | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)                                                  | 1.00 |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 1.00 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.98                                                                                |
| Parking Bus, Adj                                                     | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach                                                | No   |                                                                                   |                                                                                   |                                                                                   | No                                                                                |      |                                                                                   |                                                                                   | No                                                                                |                                                                                    |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln                                               | 1856 | 1856                                                                              | 1856                                                                              | 1841                                                                              | 1841                                                                              | 1841 | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h                                                 | 92   | 317                                                                               | 402                                                                               | 318                                                                               | 663                                                                               | 46   | 602                                                                               | 102                                                                               | 457                                                                               | 51                                                                                 | 71                                                                                  | 55                                                                                  |
| Peak Hour Factor                                                     | 0.98 | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98 | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                               | 0.98                                                                                | 0.98                                                                                |
| Percent Heavy Veh, %                                                 | 3    | 3                                                                                 | 3                                                                                 | 4                                                                                 | 4                                                                                 | 4    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                                                           | 114  | 393                                                                               | 422                                                                               | 391                                                                               | 760                                                                               | 53   | 889                                                                               | 481                                                                               | 761                                                                               | 123                                                                                | 137                                                                                 | 95                                                                                  |
| Arrive On Green                                                      | 0.28 | 0.28                                                                              | 0.28                                                                              | 0.22                                                                              | 0.22                                                                              | 0.22 | 0.26                                                                              | 0.26                                                                              | 0.26                                                                              | 0.07                                                                               | 0.07                                                                                | 0.07                                                                                |
| Sat Flow, veh/h                                                      | 413  | 1422                                                                              | 1526                                                                              | 1753                                                                              | 3403                                                                              | 236  | 3456                                                                              | 1870                                                                              | 1582                                                                              | 1781                                                                               | 1984                                                                                | 1379                                                                                |
| Grp Volume(v), veh/h                                                 | 409  | 0                                                                                 | 402                                                                               | 318                                                                               | 358                                                                               | 351  | 602                                                                               | 102                                                                               | 457                                                                               | 51                                                                                 | 63                                                                                  | 63                                                                                  |
| Grp Sat Flow(s),veh/h/ln                                             | 1835 | 0                                                                                 | 1526                                                                              | 1753                                                                              | 1841                                                                              | 1798 | 1728                                                                              | 1870                                                                              | 1582                                                                              | 1781                                                                               | 1777                                                                                | 1586                                                                                |
| Q Serve(g_s), s                                                      | 23.3 | 0.0                                                                               | 29.1                                                                              | 19.4                                                                              | 21.1                                                                              | 21.2 | 17.6                                                                              | 4.8                                                                               | 23.7                                                                              | 3.1                                                                                | 3.8                                                                                 | 4.4                                                                                 |
| Cycle Q Clear(g_c), s                                                | 23.3 | 0.0                                                                               | 29.1                                                                              | 19.4                                                                              | 21.1                                                                              | 21.2 | 17.6                                                                              | 4.8                                                                               | 23.7                                                                              | 3.1                                                                                | 3.8                                                                                 | 4.4                                                                                 |
| Prop In Lane                                                         | 0.22 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.13 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.87                                                                                |
| Lane Grp Cap(c), veh/h                                               | 507  | 0                                                                                 | 422                                                                               | 391                                                                               | 411                                                                               | 402  | 889                                                                               | 481                                                                               | 761                                                                               | 123                                                                                | 122                                                                                 | 109                                                                                 |
| V/C Ratio(X)                                                         | 0.81 | 0.00                                                                              | 0.95                                                                              | 0.81                                                                              | 0.87                                                                              | 0.87 | 0.68                                                                              | 0.21                                                                              | 0.60                                                                              | 0.42                                                                               | 0.51                                                                                | 0.58                                                                                |
| Avail Cap(c_a), veh/h                                                | 507  | 0                                                                                 | 422                                                                               | 421                                                                               | 442                                                                               | 432  | 931                                                                               | 504                                                                               | 780                                                                               | 269                                                                                | 268                                                                                 | 240                                                                                 |
| HCM Platoon Ratio                                                    | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)                                                   | 1.00 | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                             | 37.9 | 0.0                                                                               | 40.0                                                                              | 41.5                                                                              | 42.1                                                                              | 42.2 | 37.6                                                                              | 32.8                                                                              | 21.3                                                                              | 50.2                                                                               | 50.6                                                                                | 50.8                                                                                |
| Incr Delay (d2), s/veh                                               | 9.3  | 0.0                                                                               | 31.9                                                                              | 10.9                                                                              | 16.3                                                                              | 16.8 | 2.6                                                                               | 0.5                                                                               | 2.0                                                                               | 2.2                                                                                | 3.3                                                                                 | 4.8                                                                                 |
| Initial Q Delay(d3), s/veh                                           | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                             | 1.7  | 0.0                                                                               | 14.5                                                                              | 9.5                                                                               | 11.4                                                                              | 11.2 | 7.7                                                                               | 2.3                                                                               | 13.4                                                                              | 1.5                                                                                | 1.8                                                                                 | 1.9                                                                                 |
| Unsig. Movement Delay, s/veh                                         |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh                                                | 47.2 | 0.0                                                                               | 71.9                                                                              | 52.3                                                                              | 58.5                                                                              | 59.0 | 40.2                                                                              | 33.3                                                                              | 23.3                                                                              | 52.5                                                                               | 53.9                                                                                | 55.6                                                                                |
| LnGrp LOS                                                            | D    |                                                                                   | E                                                                                 | D                                                                                 | E                                                                                 | E    | D                                                                                 | C                                                                                 | C                                                                                 | D                                                                                  | D                                                                                   | E                                                                                   |
| Approach Vol, veh/h                                                  | 811  |                                                                                   |                                                                                   |                                                                                   | 1027                                                                              |      |                                                                                   |                                                                                   | 1161                                                                              |                                                                                    | 177                                                                                 |                                                                                     |
| Approach Delay, s/veh                                                | 59.4 |                                                                                   |                                                                                   |                                                                                   | 56.7                                                                              |      |                                                                                   |                                                                                   | 32.9                                                                              |                                                                                    | 54.1                                                                                |                                                                                     |
| Approach LOS                                                         | E    |                                                                                   |                                                                                   |                                                                                   | E                                                                                 |      |                                                                                   |                                                                                   | C                                                                                 |                                                                                    | D                                                                                   |                                                                                     |
| Timer - Assigned Phs                                                 | 2    |                                                                                   | 4                                                                                 |                                                                                   | 6                                                                                 |      | 8                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                             | 33.8 |                                                                                   | 36.0                                                                              |                                                                                   | 12.6                                                                              |      | 30.0                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                              | 4.9  |                                                                                   | 4.9                                                                               |                                                                                   | 4.9                                                                               |      | 4.9                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                          | 30.3 |                                                                                   | 31.1                                                                              |                                                                                   | 17.0                                                                              |      | 27.0                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+l1), s                                         | 25.7 |                                                                                   | 31.1                                                                              |                                                                                   | 6.4                                                                               |      | 23.2                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                              | 3.2  |                                                                                   | 0.0                                                                               |                                                                                   | 0.5                                                                               |      | 2.0                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Intersection Summary                                                 |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh                                         |      |                                                                                   | 48.6                                                                              |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| HCM 7th LOS                                                          |      |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Notes                                                                |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| User approved volume balancing among the lanes for turning movement. |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |

HCM 7th Signalized Intersection Summary  
39: Genesee Ave. & Marlesta Dr.

Proposed Plan Conditions  
PM Peak Hour



| Movement                       | WBL  | WBR   | NBT  | NBR  | SBL   | SBT  |
|--------------------------------|------|-------|------|------|-------|------|
| Lane Configurations            |      |       |      |      |       |      |
| Traffic Volume (veh/h)         | 240  | 310   | 890  | 160  | 340   | 1280 |
| Future Volume (veh/h)          | 240  | 310   | 890  | 160  | 340   | 1280 |
| Initial Q (Qb), veh            | 0    | 0     | 0    | 0    | 0     | 0    |
| Lane Width Adj.                | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Ped-Bike Adj(A_pbT)            | 1.00 | 1.00  |      | 1.00 | 1.00  |      |
| Parking Bus, Adj               | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Work Zone On Approach          | No   |       | No   |      | No    |      |
| Adj Sat Flow, veh/h/ln         | 1870 | 1870  | 1870 | 1870 | 1811  | 1811 |
| Adj Flow Rate, veh/h           | 253  | 261   | 918  | 132  | 358   | 1347 |
| Peak Hour Factor               | 0.95 | 0.95  | 0.97 | 0.97 | 0.95  | 0.95 |
| Percent Heavy Veh, %           | 2    | 2     | 2    | 2    | 6     | 6    |
| Cap, veh/h                     | 281  | 597   | 949  | 1054 | 377   | 1374 |
| Arrive On Green                | 0.16 | 0.16  | 0.51 | 0.51 | 0.22  | 0.76 |
| Sat Flow, veh/h                | 1781 | 1585  | 1870 | 1585 | 1725  | 1811 |
| Grp Volume(v), veh/h           | 253  | 261   | 918  | 132  | 358   | 1347 |
| Grp Sat Flow(s), veh/h/ln      | 1781 | 1585  | 1870 | 1585 | 1725  | 1811 |
| Q Serve(g_s), s                | 18.9 | 16.6  | 64.3 | 4.1  | 27.7  | 94.8 |
| Cycle Q Clear(g_c), s          | 18.9 | 16.6  | 64.3 | 4.1  | 27.7  | 94.8 |
| Prop In Lane                   | 1.00 | 1.00  |      | 1.00 | 1.00  |      |
| Lane Grp Cap(c), veh/h         | 281  | 597   | 949  | 1054 | 377   | 1374 |
| V/C Ratio(X)                   | 0.90 | 0.44  | 0.97 | 0.13 | 0.95  | 0.98 |
| Avail Cap(c_a), veh/h          | 342  | 651   | 959  | 1063 | 377   | 1374 |
| HCM Platoon Ratio              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Upstream Filter(I)             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 |
| Uniform Delay (d), s/veh       | 55.9 | 31.5  | 32.2 | 8.3  | 52.1  | 15.4 |
| Incr Delay (d2), s/veh         | 20.5 | 0.2   | 21.6 | 0.1  | 33.0  | 19.7 |
| Initial Q Delay(d3), s/veh     | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  |
| %ile BackOfQ(50%),veh/ln       | 10.1 | 6.4   | 32.6 | 2.2  | 15.1  | 36.5 |
| Unsig. Movement Delay, s/veh   |      |       |      |      |       |      |
| LnGrp Delay(d), s/veh          | 76.5 | 31.7  | 53.8 | 8.4  | 85.1  | 35.1 |
| LnGrp LOS                      | E    | C     | D    | A    | F     | D    |
| Approach Vol, veh/h            | 514  |       | 1050 |      |       | 1705 |
| Approach Delay, s/veh          | 53.7 |       | 48.1 |      |       | 45.6 |
| Approach LOS                   | D    |       | D    |      |       | D    |
| Timer - Assigned Phs           | 1    | 2     |      |      | 6     | 8    |
| Phs Duration (G+Y+Rc), s       | 34.0 | 75.1  |      |      | 109.1 | 26.3 |
| Change Period (Y+Rc), s        | 4.4  | * 6.4 |      |      | 6.4   | 4.9  |
| Max Green Setting (Gmax), s    | 29.6 | * 69  |      |      | 102.7 | 26.0 |
| Max Q Clear Time (g_c+29.7), s | 29.7 | 66.3  |      |      | 96.8  | 20.9 |
| Green Ext Time (p_c), s        | 0.0  | 2.4   |      |      | 5.0   | 0.5  |
| <b>Intersection Summary</b>    |      |       |      |      |       |      |
| HCM 7th Control Delay, s/veh   |      |       | 47.7 |      |       |      |
| HCM 7th LOS                    |      |       | D    |      |       |      |

Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



# HCM 7th Signalized Intersection Summary 40: Linda Vista Rd. & Genesee Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               | SBR                                                                               |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 160                                                                               | 540                                                                               | 490                                                                               | 600                                                                               | 550                                                                               | 250                                                                               | 200                                                                               | 850                                                                               | 190                                                                               | 270                                                                               | 520                                                                               | 460                                                                               |
| Future Volume (veh/h)        | 160                                                                               | 540                                                                               | 490                                                                               | 600                                                                               | 550                                                                               | 250                                                                               | 200                                                                               | 850                                                                               | 190                                                                               | 270                                                                               | 520                                                                               | 460                                                                               |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              |
| Adj Flow Rate, veh/h         | 168                                                                               | 568                                                                               | 442                                                                               | 632                                                                               | 579                                                                               | 210                                                                               | 211                                                                               | 895                                                                               | 160                                                                               | 284                                                                               | 547                                                                               | 436                                                                               |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                   | 196                                                                               | 948                                                                               | 541                                                                               | 602                                                                               | 1176                                                                              | 521                                                                               | 266                                                                               | 1424                                                                              | 608                                                                               | 285                                                                               | 758                                                                               | 604                                                                               |
| Arrive On Green              | 0.11                                                                              | 0.27                                                                              | 0.27                                                                              | 0.17                                                                              | 0.33                                                                              | 0.33                                                                              | 0.08                                                                              | 0.40                                                                              | 0.40                                                                              | 0.08                                                                              | 0.41                                                                              | 0.41                                                                              |
| Sat Flow, veh/h              | 1781                                                                              | 3554                                                                              | 1569                                                                              | 3456                                                                              | 3554                                                                              | 1574                                                                              | 3456                                                                              | 3554                                                                              | 1517                                                                              | 3456                                                                              | 1867                                                                              | 1488                                                                              |
| Grp Volume(v), veh/h         | 168                                                                               | 568                                                                               | 442                                                                               | 632                                                                               | 579                                                                               | 210                                                                               | 211                                                                               | 895                                                                               | 160                                                                               | 284                                                                               | 521                                                                               | 462                                                                               |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1569                                                                              | 1728                                                                              | 1777                                                                              | 1574                                                                              | 1728                                                                              | 1777                                                                              | 1517                                                                              | 1728                                                                              | 1777                                                                              | 1578                                                                              |
| Q Serve(g_s), s              | 11.1                                                                              | 16.7                                                                              | 30.9                                                                              | 20.9                                                                              | 15.6                                                                              | 12.4                                                                              | 7.2                                                                               | 24.2                                                                              | 8.5                                                                               | 9.9                                                                               | 29.5                                                                              | 29.5                                                                              |
| Cycle Q Clear(g_c), s        | 11.1                                                                              | 16.7                                                                              | 30.9                                                                              | 20.9                                                                              | 15.6                                                                              | 12.4                                                                              | 7.2                                                                               | 24.2                                                                              | 8.5                                                                               | 9.9                                                                               | 29.5                                                                              | 29.5                                                                              |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.94                                                                              |
| Lane Grp Cap(c), veh/h       | 196                                                                               | 948                                                                               | 541                                                                               | 602                                                                               | 1176                                                                              | 521                                                                               | 266                                                                               | 1424                                                                              | 608                                                                               | 285                                                                               | 722                                                                               | 641                                                                               |
| V/C Ratio(X)                 | 0.86                                                                              | 0.60                                                                              | 0.82                                                                              | 1.05                                                                              | 0.49                                                                              | 0.40                                                                              | 0.79                                                                              | 0.63                                                                              | 0.26                                                                              | 1.00                                                                              | 0.72                                                                              | 0.72                                                                              |
| Avail Cap(c_a), veh/h        | 306                                                                               | 948                                                                               | 541                                                                               | 602                                                                               | 1176                                                                              | 521                                                                               | 305                                                                               | 1424                                                                              | 608                                                                               | 285                                                                               | 722                                                                               | 641                                                                               |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.52                                                                              | 0.52                                                                              | 0.52                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh     | 52.5                                                                              | 38.4                                                                              | 36.0                                                                              | 49.5                                                                              | 32.1                                                                              | 31.0                                                                              | 54.4                                                                              | 28.8                                                                              | 24.1                                                                              | 55.0                                                                              | 29.9                                                                              | 29.9                                                                              |
| Incr Delay (d2), s/veh       | 8.4                                                                               | 1.3                                                                               | 10.0                                                                              | 40.6                                                                              | 0.3                                                                               | 0.4                                                                               | 10.0                                                                              | 2.1                                                                               | 1.1                                                                               | 52.2                                                                              | 6.2                                                                               | 6.9                                                                               |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln     | 5.3                                                                               | 7.2                                                                               | 13.2                                                                              | 12.2                                                                              | 6.6                                                                               | 4.8                                                                               | 3.5                                                                               | 10.6                                                                              | 3.2                                                                               | 6.3                                                                               | 13.7                                                                              | 12.3                                                                              |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d), s/veh        | 60.9                                                                              | 39.7                                                                              | 46.0                                                                              | 90.2                                                                              | 32.4                                                                              | 31.4                                                                              | 64.5                                                                              | 30.9                                                                              | 25.1                                                                              | 107.2                                                                             | 36.1                                                                              | 36.8                                                                              |
| LnGrp LOS                    | E                                                                                 | D                                                                                 | D                                                                                 | F                                                                                 | C                                                                                 | C                                                                                 | E                                                                                 | C                                                                                 | C                                                                                 | F                                                                                 | D                                                                                 | D                                                                                 |
| Approach Vol, veh/h          | 1178                                                                              |                                                                                   |                                                                                   | 1421                                                                              |                                                                                   |                                                                                   | 1266                                                                              |                                                                                   |                                                                                   | 1267                                                                              |                                                                                   |                                                                                   |
| Approach Delay, s/veh        | 45.1                                                                              |                                                                                   |                                                                                   | 57.9                                                                              |                                                                                   |                                                                                   | 35.8                                                                              |                                                                                   |                                                                                   | 52.3                                                                              |                                                                                   |                                                                                   |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Phs Duration (G+Y+Rc), s     | 25.3                                                                              | 37.3                                                                              | 13.7                                                                              | 54.2                                                                              | 17.6                                                                              | 45.0                                                                              | 14.3                                                                              | 53.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Change Period (Y+Rc), s      | 4.4                                                                               | 5.3                                                                               | 4.4                                                                               | 5.2                                                                               | 4.4                                                                               | 5.3                                                                               | 4.4                                                                               | * 5.2                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Max Green Setting (Gmax), s  | 20.9                                                                              | 32.0                                                                              | 10.6                                                                              | 37.2                                                                              | 20.6                                                                              | 32.3                                                                              | 9.9                                                                               | * 38                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Max Q Clear Time (g_c+Y), s  | 22.9                                                                              | 32.9                                                                              | 9.2                                                                               | 31.5                                                                              | 13.1                                                                              | 17.6                                                                              | 11.9                                                                              | 26.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                               | 0.1                                                                               | 3.6                                                                               | 0.1                                                                               | 5.9                                                                               | 0.0                                                                               | 8.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Intersection Summary

HCM 7th Control Delay, s/veh 48.1  
HCM 7th LOS D

## Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary  
41: SR-163 SB On Ramp/SR-163 SB Ramps & Genesee Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT | NBR | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|-----|-----|------|------|------|
| Lane Configurations          |      | ↑↑   | ↑    |      | ↑↑   |      |      |     |     | ↑    | ↑↑   | ↑    |
| Traffic Volume (veh/h)       | 0    | 680  | 520  | 0    | 750  | 630  | 0    | 0   | 0   | 390  | 0    | 730  |
| Future Volume (veh/h)        | 0    | 680  | 520  | 0    | 750  | 630  | 0    | 0   | 0   | 390  | 0    | 730  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |      |     |     | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |      |     |     | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 |      |     |     | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |      |     |     | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   |      |      |      |     |     | No   |      |      |
| Adj Sat Flow, veh/h/ln       | 0    | 1870 | 1870 | 0    | 1870 | 1870 |      |     |     | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 0    | 694  | 0    | 0    | 765  | 0    |      |     |     | 265  | 0    | 774  |
| Peak Hour Factor             | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |      |     |     | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, %         | 0    | 2    | 2    | 0    | 2    | 2    |      |     |     | 2    | 2    | 2    |
| Cap, veh/h                   | 0    | 1327 |      | 0    | 1327 |      |      |     |     | 558  | 0    | 994  |
| Arrive On Green              | 0.00 | 0.37 | 0.00 | 0.00 | 0.37 | 0.00 |      |     |     | 0.31 | 0.00 | 0.31 |
| Sat Flow, veh/h              | 0    | 3647 | 1585 | 0    | 3741 | 0    |      |     |     | 1781 | 0    | 3170 |
| Grp Volume(v), veh/h         | 0    | 694  | 0    | 0    | 765  | 0    |      |     |     | 265  | 0    | 774  |
| Grp Sat Flow(s),veh/h/ln     | 0    | 1777 | 1585 | 0    | 1777 | 0    |      |     |     | 1781 | 0    | 1585 |
| Q Serve(g_s), s              | 0.0  | 5.3  | 0.0  | 0.0  | 6.0  | 0.0  |      |     |     | 4.2  | 0.0  | 7.7  |
| Cycle Q Clear(g_c), s        | 0.0  | 5.3  | 0.0  | 0.0  | 6.0  | 0.0  |      |     |     | 4.2  | 0.0  | 7.7  |
| Prop In Lane                 | 0.00 |      | 1.00 | 0.00 |      | 0.00 |      |     |     | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 0    | 1327 |      | 0    | 1327 |      |      |     |     | 558  | 0    | 994  |
| V/C Ratio(X)                 | 0.00 | 0.52 |      | 0.00 | 0.58 |      |      |     |     | 0.47 | 0.00 | 0.78 |
| Avail Cap(c_a), veh/h        | 0    | 2266 |      | 0    | 2266 |      |      |     |     | 865  | 0    | 1539 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |      |     |     | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 |      |     |     | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh     | 0.0  | 8.5  | 0.0  | 0.0  | 8.7  | 0.0  |      |     |     | 9.6  | 0.0  | 10.9 |
| Incr Delay (d2), s/veh       | 0.0  | 0.1  | 0.0  | 0.0  | 0.1  | 0.0  |      |     |     | 0.2  | 0.0  | 0.5  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |      |     |     | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.0  | 1.2  | 0.0  | 0.0  | 1.4  | 0.0  |      |     |     | 1.2  | 0.0  | 2.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |     |     |      |      |      |
| LnGrp Delay(d), s/veh        | 0.0  | 8.6  | 0.0  | 0.0  | 8.9  | 0.0  |      |     |     | 9.9  | 0.0  | 11.4 |
| LnGrp LOS                    |      | A    |      |      | A    |      |      |     |     | A    |      | B    |
| Approach Vol, veh/h          | 694  |      |      | 765  |      |      | 1039 |     |     |      |      |      |
| Approach Delay, s/veh        | 8.6  |      |      | 8.9  |      |      | 11.0 |     |     |      |      |      |
| Approach LOS                 | A    |      |      | A    |      |      | B    |     |     |      |      |      |
| Timer - Assigned Phs         | 2    |      |      | 4    |      |      | 6    |     |     |      |      |      |
| Phs Duration (G+Y+Rc), s     | 18.8 |      |      | 16.0 |      |      | 18.8 |     |     |      |      |      |
| Change Period (Y+Rc), s      | 5.8  |      |      | 5.1  |      |      | 5.8  |     |     |      |      |      |
| Max Green Setting (Gmax), s  | 22.2 |      |      | 16.9 |      |      | 22.2 |     |     |      |      |      |
| Max Q Clear Time (g_c+l1), s | 7.3  |      |      | 9.7  |      |      | 8.0  |     |     |      |      |      |
| Green Ext Time (p_c), s      | 2.6  |      |      | 1.2  |      |      | 2.9  |     |     |      |      |      |

Intersection Summary

|                              |     |
|------------------------------|-----|
| HCM 7th Control Delay, s/veh | 9.7 |
| HCM 7th LOS                  | A   |

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM 7th Signalized Intersection Summary 42: Cardinal Rd./SR-163 NB Ramps & Genesee Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|-------|------|------|------|------|------|------|
| Lane Configurations          | ←←   | ↑↑   |      | ←    | ↑↑   | ↑     |      | ↑↑   |      |      | ↑    | ↑↑   |
| Traffic Volume (veh/h)       | 590  | 400  | 340  | 50   | 700  | 690   | 260  | 190  | 30   | 0    | 1    | 420  |
| Future Volume (veh/h)        | 590  | 400  | 340  | 50   | 700  | 690   | 260  | 190  | 30   | 0    | 1    | 420  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00  | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   |      |       | No   |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870 | 1870 | 1841 | 1841 | 1841  | 1870 | 1870 | 1870 | 0    | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 621  | 421  | 322  | 53   | 903  | 424   | 274  | 200  | 29   | 0    | 1    | 309  |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 4    | 4    | 4     | 2    | 2    | 2    | 0    | 2    | 2    |
| Cap, veh/h                   | 692  | 857  | 651  | 207  | 1338 | 565   | 354  | 317  | 46   | 0    | 58   | 646  |
| Arrive On Green              | 0.20 | 0.45 | 0.45 | 0.12 | 0.36 | 0.36  | 0.20 | 0.20 | 0.20 | 0.00 | 0.03 | 0.03 |
| Sat Flow, veh/h              | 3456 | 1924 | 1461 | 1753 | 3681 | 1553  | 1781 | 1597 | 232  | 0    | 1870 | 2790 |
| Grp Volume(v), veh/h         | 621  | 389  | 354  | 53   | 903  | 424   | 274  | 0    | 229  | 0    | 1    | 309  |
| Grp Sat Flow(s),veh/h/ln     | 1728 | 1777 | 1607 | 1753 | 1841 | 1553  | 1781 | 0    | 1829 | 0    | 1870 | 1395 |
| Q Serve(g_s), s              | 16.8 | 14.9 | 15.1 | 2.6  | 19.9 | 22.9  | 14.0 | 0.0  | 11.0 | 0.0  | 0.0  | 3.0  |
| Cycle Q Clear(g_c), s        | 16.8 | 14.9 | 15.1 | 2.6  | 19.9 | 22.9  | 14.0 | 0.0  | 11.0 | 0.0  | 0.0  | 3.0  |
| Prop In Lane                 | 1.00 |      | 0.91 | 1.00 |      | 1.00  | 1.00 |      | 0.13 | 0.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 692  | 792  | 716  | 207  | 1338 | 565   | 354  | 0    | 363  | 0    | 58   | 646  |
| V/C Ratio(X)                 | 0.90 | 0.49 | 0.49 | 0.26 | 0.67 | 0.75  | 0.77 | 0.00 | 0.63 | 0.00 | 0.02 | 0.48 |
| Avail Cap(c_a), veh/h        | 731  | 792  | 716  | 274  | 1338 | 565   | 705  | 0    | 724  | 0    | 58   | 646  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 37.4 | 18.9 | 18.9 | 38.5 | 25.8 | 26.7  | 36.4 | 0.0  | 35.2 | 0.0  | 45.1 | 31.9 |
| Incr Delay (d2), s/veh       | 13.4 | 2.2  | 2.4  | 0.6  | 2.7  | 8.9   | 3.6  | 0.0  | 1.8  | 0.0  | 0.1  | 0.6  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 8.1  | 6.2  | 5.7  | 1.1  | 8.7  | 9.3   | 6.3  | 0.0  | 5.0  | 0.0  | 0.0  | 3.1  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |       |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 50.8 | 21.1 | 21.4 | 39.1 | 28.5 | 35.6  | 40.1 | 0.0  | 37.0 | 0.0  | 45.2 | 32.4 |
| LnGrp LOS                    | D    | C    | C    | D    | C    | D     | D    |      | D    |      | D    | C    |
| Approach Vol, veh/h          | 1364 |      |      | 1380 |      |       | 503  |      |      | 310  |      |      |
| Approach Delay, s/veh        | 34.7 |      |      | 31.1 |      |       | 38.7 |      |      | 32.5 |      |      |
| Approach LOS                 | C    |      |      | C    |      |       | D    |      |      | C    |      |      |
| Timer - Assigned Phs         | 1    | 2    |      | 4    | 5    | 6     |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 46.1 | 49.3 |      | 6.5  | 23.9 | 41.4  |      | 24.2 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.7  | 6.5  |      | 3.5  | 4.7  | * 6.5 |      | 5.1  |      |      |      |      |
| Max Green Setting (Gmax), s  | 45.6 | 39.2 |      | 3.0  | 20.3 | * 35  |      | 38.0 |      |      |      |      |
| Max Q Clear Time (g_c+I), s  | 14.6 | 17.1 |      | 5.0  | 18.8 | 24.9  |      | 16.0 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.1  | 4.6  |      | 0.0  | 0.4  | 5.2   |      | 3.1  |      |      |      |      |

## Intersection Summary

|                              |      |
|------------------------------|------|
| HCM 7th Control Delay, s/veh | 33.7 |
| HCM 7th LOS                  | C    |

## Notes

User approved volume balancing among the lanes for turning movement.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 43: Linda Vista Rd. & Mesa College Dr.

Proposed Plan Conditions  
PM Peak Hour



| Movement                      | EBL                                                                               | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               | SBR                                                                               |
|-------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations           |  |  |      |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)        | 200                                                                               | 630                                                                               | 190  | 220                                                                               | 750                                                                               | 320                                                                               | 200                                                                               | 390                                                                               | 110                                                                               | 340                                                                               | 680                                                                               | 180                                                                               |
| Future Volume (veh/h)         | 200                                                                               | 630                                                                               | 190  | 220                                                                               | 750                                                                               | 320                                                                               | 200                                                                               | 390                                                                               | 110                                                                               | 340                                                                               | 680                                                                               | 180                                                                               |
| Initial Q (Qb), veh           | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Lane Width Adj.               | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Ped-Bike Adj(A_pbT)           | 1.00                                                                              |                                                                                   | 0.97 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              |
| Parking Bus, Adj              | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Work Zone On Approach         | No                                                                                |                                                                                   |      |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   |
| Adj Sat Flow, veh/h/ln        | 1870                                                                              | 1736                                                                              | 1736 | 1841                                                                              | 1841                                                                              | 1797                                                                              | 1856                                                                              | 1856                                                                              | 1656                                                                              | 1870                                                                              | 1870                                                                              | 1715                                                                              |
| Adj Flow Rate, veh/h          | 208                                                                               | 656                                                                               | 178  | 229                                                                               | 781                                                                               | 266                                                                               | 208                                                                               | 406                                                                               | 92                                                                                | 354                                                                               | 708                                                                               | 151                                                                               |
| Peak Hour Factor              | 0.96                                                                              | 0.96                                                                              | 0.96 | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              |
| Percent Heavy Veh, %          | 2                                                                                 | 2                                                                                 | 2    | 4                                                                                 | 4                                                                                 | 4                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Cap, veh/h                    | 215                                                                               | 1333                                                                              | 361  | 286                                                                               | 1994                                                                              | 867                                                                               | 246                                                                               | 616                                                                               | 447                                                                               | 413                                                                               | 695                                                                               | 528                                                                               |
| Arrive On Green               | 0.12                                                                              | 0.52                                                                              | 0.52 | 0.16                                                                              | 0.57                                                                              | 0.57                                                                              | 0.07                                                                              | 0.33                                                                              | 0.33                                                                              | 0.12                                                                              | 0.37                                                                              | 0.37                                                                              |
| Sat Flow, veh/h               | 1781                                                                              | 2544                                                                              | 690  | 1753                                                                              | 3497                                                                              | 1520                                                                              | 3428                                                                              | 1856                                                                              | 1347                                                                              | 3456                                                                              | 1870                                                                              | 1420                                                                              |
| Grp Volume(v), veh/h          | 208                                                                               | 425                                                                               | 409  | 229                                                                               | 781                                                                               | 266                                                                               | 208                                                                               | 406                                                                               | 92                                                                                | 354                                                                               | 708                                                                               | 151                                                                               |
| Grp Sat Flow(s),veh/h/ln      | 1781                                                                              | 1650                                                                              | 1584 | 1753                                                                              | 1749                                                                              | 1520                                                                              | 1714                                                                              | 1856                                                                              | 1347                                                                              | 1728                                                                              | 1870                                                                              | 1420                                                                              |
| Q Serve(g_s), s               | 13.9                                                                              | 19.8                                                                              | 19.9 | 15.1                                                                              | 14.8                                                                              | 10.9                                                                              | 7.2                                                                               | 22.4                                                                              | 6.3                                                                               | 12.1                                                                              | 44.6                                                                              | 10.5                                                                              |
| Cycle Q Clear(g_c), s         | 13.9                                                                              | 19.8                                                                              | 19.9 | 15.1                                                                              | 14.8                                                                              | 10.9                                                                              | 7.2                                                                               | 22.4                                                                              | 6.3                                                                               | 12.1                                                                              | 44.6                                                                              | 10.5                                                                              |
| Prop In Lane                  | 1.00                                                                              |                                                                                   | 0.44 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |
| Lane Grp Cap(c), veh/h        | 215                                                                               | 864                                                                               | 830  | 286                                                                               | 1994                                                                              | 867                                                                               | 246                                                                               | 616                                                                               | 447                                                                               | 413                                                                               | 695                                                                               | 528                                                                               |
| V/C Ratio(X)                  | 0.97                                                                              | 0.49                                                                              | 0.49 | 0.80                                                                              | 0.39                                                                              | 0.31                                                                              | 0.85                                                                              | 0.66                                                                              | 0.21                                                                              | 0.86                                                                              | 1.02                                                                              | 0.29                                                                              |
| Avail Cap(c_a), veh/h         | 215                                                                               | 864                                                                               | 830  | 286                                                                               | 1994                                                                              | 867                                                                               | 246                                                                               | 616                                                                               | 447                                                                               | 507                                                                               | 695                                                                               | 528                                                                               |
| HCM Platoon Ratio             | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Upstream Filter(I)            | 1.00                                                                              | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |
| Uniform Delay (d), s/veh      | 52.5                                                                              | 18.3                                                                              | 18.3 | 48.3                                                                              | 14.3                                                                              | 13.4                                                                              | 55.0                                                                              | 34.2                                                                              | 33.5                                                                              | 51.8                                                                              | 37.7                                                                              | 36.1                                                                              |
| Incr Delay (d2), s/veh        | 51.3                                                                              | 0.4                                                                               | 0.4  | 14.0                                                                              | 0.6                                                                               | 0.9                                                                               | 22.0                                                                              | 3.0                                                                               | 0.3                                                                               | 10.1                                                                              | 38.9                                                                              | 1.1                                                                               |
| Initial Q Delay(d3), s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| %ile BackOfQ(50%),veh/ln      | 0.3                                                                               | 7.5                                                                               | 7.3  | 7.7                                                                               | 5.9                                                                               | 3.9                                                                               | 3.9                                                                               | 10.6                                                                              | 2.1                                                                               | 5.8                                                                               | 27.5                                                                              | 3.8                                                                               |
| Unsig. Movement Delay, s/veh  |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| LnGrp Delay(d), s/veh         | 103.8                                                                             | 18.7                                                                              | 18.7 | 62.3                                                                              | 14.8                                                                              | 14.3                                                                              | 77.1                                                                              | 37.2                                                                              | 33.8                                                                              | 61.9                                                                              | 76.6                                                                              | 37.2                                                                              |
| LnGrp LOS                     | F                                                                                 | B                                                                                 | B    | E                                                                                 | B                                                                                 | B                                                                                 | E                                                                                 | D                                                                                 | C                                                                                 | E                                                                                 | F                                                                                 | D                                                                                 |
| Approach Vol, veh/h           | 1042                                                                              |                                                                                   |      |                                                                                   | 1276                                                                              |                                                                                   |                                                                                   |                                                                                   | 706                                                                               |                                                                                   | 1213                                                                              |                                                                                   |
| Approach Delay, s/veh         | 35.7                                                                              |                                                                                   |      |                                                                                   | 23.3                                                                              |                                                                                   |                                                                                   |                                                                                   | 48.5                                                                              |                                                                                   | 67.4                                                                              |                                                                                   |
| Approach LOS                  | D                                                                                 |                                                                                   |      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | E                                                                                 |                                                                                   |
| Timer - Assigned Phs          | 1                                                                                 | 2                                                                                 | 3    | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Phs Duration (G+Y+Rc), s      | 45.1                                                                              | 25.5                                                                              | 68.5 | 13.8                                                                              | 50.0                                                                              | 18.9                                                                              | 75.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Change Period (Y+Rc), s       | 4.4                                                                               | 5.2                                                                               | 5.8  | * 4.9                                                                             | 5.2                                                                               | * 5.4                                                                             | 4.4                                                                               | 5.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Max Green Setting (Gmax), s   | 35.8                                                                              | 17.0                                                                              | * 31 | 8.6                                                                               | * 45                                                                              | 14.5                                                                              | 32.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Max Q Clear Time (g_c+1/4), s | 24.4                                                                              | 17.1                                                                              | 21.9 | 9.2                                                                               | 46.6                                                                              | 15.9                                                                              | 16.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Green Ext Time (p_c), s       | 0.3                                                                               | 3.1                                                                               | 0.0  | 3.3                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 12.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Intersection Summary

HCM 7th Control Delay, s/veh 43.2  
HCM 7th LOS D

## Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC  
44: Linda Vista Rd. & Kearny High School Dwy./Dwy.

Proposed Plan Conditions  
PM Peak Hour

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.7  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↗    | ↕    |      | ↗    | ↕    |      |
| Traffic Vol, veh/h       | 10   | 0    | 30   | 5    | 0    | 10   | 50   | 680  | 10   | 10   | 1060 | 10   |
| Future Vol, veh/h        | 10   | 0    | 30   | 5    | 0    | 10   | 50   | 680  | 10   | 10   | 1060 | 10   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 7    | 0    | 1    | 1    | 0    | 7    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 300  | -    | -    | 150  | -    | -    |
| Veh in Median Storage, # | -    | 1    | -    | -    | 1    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 97   | 97   | 97   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 3    | 3    | 3    | 3    | 3    | 3    |
| Mvmt Flow                | 10   | 0    | 31   | 5    | 0    | 11   | 53   | 716  | 11   | 11   | 1116 | 11   |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |      | Major2 |   |   |      |   |   |
|----------------------|--------|------|--------|------|--------|------|--------|---|---|------|---|---|
| Conflicting Flow All | 1612   | 1982 | 570    | 1406 | 1982   | 364  | 1133   | 0 | 0 | 727  | 0 | 0 |
| Stage 1              | 1149   | 1149 | -      | 827  | 827    | -    | -      | - | - | -    | - | - |
| Stage 2              | 463    | 833  | -      | 579  | 1154   | -    | -      | - | - | -    | - | - |
| Critical Hdwy        | 7.54   | 6.54 | 6.94   | 7.54 | 6.54   | 6.94 | 4.16   | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1  | 6.54   | 5.54 | -      | 6.54 | 5.54   | -    | -      | - | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.54   | 5.54 | -      | 6.54 | 5.54   | -    | -      | - | - | -    | - | - |
| Follow-up Hdwy       | 3.52   | 4.02 | 3.32   | 3.52 | 4.02   | 3.32 | 2.23   | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver   | 127    | 78   | *777   | *206 | 78     | 633  | 826    | - | - | 865  | - | - |
| Stage 1              | 419    | 423  | -      | *332 | 384    | -    | -      | - | - | -    | - | - |
| Stage 2              | 548    | 382  | -      | *733 | 419    | -    | -      | - | - | -    | - | - |
| Platoon blocked, %   | 0      | 0    | 0      | 0    | 0      | 0    | 0      | - | - | -    | - | - |
| Mov Cap-1 Maneuver   | 115    | 71   | *772   | *183 | 71     | 632  | 821    | - | - | 864  | - | - |
| Mov Cap-2 Maneuver   | 257    | 204  | -      | *258 | 196    | -    | -      | - | - | -    | - | - |
| Stage 1              | 411    | 415  | -      | *310 | 359    | -    | -      | - | - | -    | - | - |
| Stage 2              | 505    | 357  | -      | *695 | 412    | -    | -      | - | - | -    | - | - |

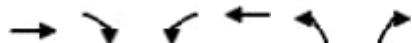
| Approach          | EB    |  | WB    |  | NB   |  | SB   |  |
|-------------------|-------|--|-------|--|------|--|------|--|
| HCM Ctrl Dly, s/v | 12.62 |  | 13.78 |  | 0.65 |  | 0.09 |  |
| HCM LOS           | B     |  | B     |  |      |  |      |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1 | WBLn1 | SBL   | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|-------|-----|-----|
| Capacity (veh/h)      | 821   | -   | -   | 514   | 426   | 864   | -   | -   |
| HCM Lane V/C Ratio    | 0.064 | -   | -   | 0.08  | 0.037 | 0.012 | -   | -   |
| HCM Ctrl Dly (s/v)    | 9.7   | -   | -   | 12.6  | 13.8  | 9.2   | -   | -   |
| HCM Lane LOS          | A     | -   | -   | B     | B     | A     | -   | -   |
| HCM 95th %tile Q(veh) | 0.2   | -   | -   | 0.3   | 0.1   | 0     | -   | -   |

| Notes                      |                                |
|----------------------------|--------------------------------|
| ~: Volume exceeds capacity | \$. Delay exceeds 300s         |
| +: Computation Not Defined | *: All major volume in platoon |

# HCM 7th Signalized Intersection Summary 46: SR-163 NB Off Ramp & Mesa College Dr.

Proposed Plan Conditions  
PM Peak Hour



| Movement                                                             | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
|----------------------------------------------------------------------|------|------|------|------|------|------|
| Lane Configurations                                                  | ↑↑   |      |      | ↑↑   | ↔↔   | ↔    |
| Traffic Volume (veh/h)                                               | 560  | 0    | 0    | 1310 | 260  | 380  |
| Future Volume (veh/h)                                                | 560  | 0    | 0    | 1310 | 260  | 380  |
| Initial Q (Qb), veh                                                  | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.                                                      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)                                                  |      | 1.00 | 1.00 |      | 1.00 | 1.00 |
| Parking Bus, Adj                                                     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach                                                | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln                                               | 1870 | 0    | 0    | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h                                                 | 583  | 0    | 0    | 1365 | 368  | 187  |
| Peak Hour Factor                                                     | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, %                                                 | 2    | 0    | 0    | 2    | 2    | 2    |
| Cap, veh/h                                                           | 1603 | 0    | 0    | 1833 | 598  | 266  |
| Arrive On Green                                                      | 0.61 | 0.00 | 0.00 | 0.61 | 0.17 | 0.17 |
| Sat Flow, veh/h                                                      | 3741 | 0    | 0    | 3741 | 3563 | 1585 |
| Grp Volume(v), veh/h                                                 | 583  | 0    | 0    | 1365 | 368  | 187  |
| Grp Sat Flow(s), veh/h/ln                                            | 1309 | 0    | 0    | 1496 | 1781 | 1585 |
| Q Serve(g_s), s                                                      | 5.1  | 0.0  | 0.0  | 15.1 | 4.4  | 5.2  |
| Cycle Q Clear(g_c), s                                                | 5.1  | 0.0  | 0.0  | 15.1 | 4.4  | 5.2  |
| Prop In Lane                                                         |      | 0.00 | 0.00 |      | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h                                               | 1603 | 0    | 0    | 1833 | 598  | 266  |
| V/C Ratio(X)                                                         | 0.36 | 0.00 | 0.00 | 0.74 | 0.62 | 0.70 |
| Avail Cap(c_a), veh/h                                                | 2252 | 0    | 0    | 2574 | 760  | 338  |
| HCM Platoon Ratio                                                    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)                                                   | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh                                             | 4.5  | 0.0  | 0.0  | 6.4  | 17.9 | 18.2 |
| Incr Delay (d2), s/veh                                               | 0.1  | 0.0  | 0.0  | 0.8  | 1.0  | 4.6  |
| Initial Q Delay(d3), s/veh                                           | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln                                             | 0.8  | 0.0  | 0.0  | 2.8  | 1.7  | 2.0  |
| Unsig. Movement Delay, s/veh                                         |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh                                                | 4.6  | 0.0  | 0.0  | 7.2  | 19.0 | 22.8 |
| LnGrp LOS                                                            | A    |      |      | A    | B    | C    |
| Approach Vol, veh/h                                                  | 583  |      |      | 1365 | 555  |      |
| Approach Delay, s/veh                                                | 4.6  |      |      | 7.2  | 20.3 |      |
| Approach LOS                                                         | A    |      |      | A    | C    |      |
| Timer - Assigned Phs                                                 | 2    |      |      | 4    |      | 6    |
| Phs Duration (G+Y+Rc), s                                             | 33.5 |      |      | 12.9 |      | 33.5 |
| Change Period (Y+Rc), s                                              | 5.1  |      |      | 5.1  |      | 5.1  |
| Max Green Setting (Gmax), s                                          | 39.9 |      |      | 9.9  |      | 39.9 |
| Max Q Clear Time (g_c+l1), s                                         | 7.1  |      |      | 7.2  |      | 17.1 |
| Green Ext Time (p_c), s                                              | 4.4  |      |      | 0.6  |      | 11.3 |
| <b>Intersection Summary</b>                                          |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh                                         |      |      | 9.5  |      |      |      |
| HCM 7th LOS                                                          |      |      | A    |      |      |      |
| <b>Notes</b>                                                         |      |      |      |      |      |      |
| User approved volume balancing among the lanes for turning movement. |      |      |      |      |      |      |



# HCM 7th Signalized Intersection Summary 47: Mission Bay Dr. & Garnet Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               | SBR                                                                                |
|--------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Lane Configurations            |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)         | 580                                                                               | 1100                                                                              | 520                                                                               | 350                                                                               | 1020                                                                              | 500                                                                               | 620                                                                               | 410                                                                               | 350                                                                               | 300                                                                               | 380                                                                               | 900                                                                                |
| Future Volume (veh/h)          | 580                                                                               | 1100                                                                              | 520                                                                               | 350                                                                               | 1020                                                                              | 500                                                                               | 620                                                                               | 410                                                                               | 350                                                                               | 300                                                                               | 380                                                                               | 900                                                                                |
| Initial Q (Qb), veh            | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Lane Width Adj.                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Ped-Bike Adj(A_pbT)            | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              | 1.00                                                                              |                                                                                   | 0.94                                                                              | 1.00                                                                              |                                                                                   | 0.96                                                                               |
| Parking Bus, Adj               | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Work Zone On Approach          | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                    |
| Adj Sat Flow, veh/h/ln         | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1856                                                                              | 1856                                                                              | 1856                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               |
| Adj Flow Rate, veh/h           | 586                                                                               | 1111                                                                              | 426                                                                               | 354                                                                               | 1030                                                                              | 426                                                                               | 626                                                                               | 414                                                                               | 283                                                                               | 303                                                                               | 384                                                                               | 860                                                                                |
| Peak Hour Factor               | 0.99                                                                              | 0.99                                                                              | 0.99                                                                              | 0.99                                                                              | 0.99                                                                              | 0.99                                                                              | 0.99                                                                              | 0.99                                                                              | 0.99                                                                              | 0.99                                                                              | 0.99                                                                              | 0.99                                                                               |
| Percent Heavy Veh, %           | 2                                                                                 | 2                                                                                 | 2                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  |
| Cap, veh/h                     | 641                                                                               | 1405                                                                              | 895                                                                               | 360                                                                               | 1459                                                                              | 798                                                                               | 593                                                                               | 1024                                                                              | 751                                                                               | 353                                                                               | 398                                                                               | 1089                                                                               |
| Arrive On Green                | 0.19                                                                              | 0.40                                                                              | 0.40                                                                              | 0.20                                                                              | 0.41                                                                              | 0.41                                                                              | 0.17                                                                              | 0.29                                                                              | 0.29                                                                              | 0.10                                                                              | 0.21                                                                              | 0.21                                                                               |
| Sat Flow, veh/h                | 3456                                                                              | 3554                                                                              | 1574                                                                              | 1767                                                                              | 3526                                                                              | 1541                                                                              | 3456                                                                              | 3554                                                                              | 1486                                                                              | 3456                                                                              | 1870                                                                              | 2684                                                                               |
| Grp Volume(v), veh/h           | 586                                                                               | 1111                                                                              | 426                                                                               | 354                                                                               | 1030                                                                              | 426                                                                               | 626                                                                               | 414                                                                               | 283                                                                               | 303                                                                               | 384                                                                               | 860                                                                                |
| Grp Sat Flow(s),veh/h/ln       | 1728                                                                              | 1777                                                                              | 1574                                                                              | 1767                                                                              | 1763                                                                              | 1541                                                                              | 1728                                                                              | 1777                                                                              | 1486                                                                              | 1728                                                                              | 1870                                                                              | 1342                                                                               |
| Q Serve(g_s), s                | 25.8                                                                              | 42.6                                                                              | 13.4                                                                              | 30.9                                                                              | 37.5                                                                              | 28.7                                                                              | 26.6                                                                              | 14.5                                                                              | 18.5                                                                              | 13.4                                                                              | 31.5                                                                              | 32.5                                                                               |
| Cycle Q Clear(g_c), s          | 25.8                                                                              | 42.6                                                                              | 13.4                                                                              | 30.9                                                                              | 37.5                                                                              | 28.7                                                                              | 26.6                                                                              | 14.5                                                                              | 18.5                                                                              | 13.4                                                                              | 31.5                                                                              | 32.5                                                                               |
| Prop In Lane                   | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                               |
| Lane Grp Cap(c), veh/h         | 641                                                                               | 1405                                                                              | 895                                                                               | 360                                                                               | 1459                                                                              | 798                                                                               | 593                                                                               | 1024                                                                              | 751                                                                               | 353                                                                               | 398                                                                               | 1089                                                                               |
| V/C Ratio(X)                   | 0.91                                                                              | 0.79                                                                              | 0.48                                                                              | 0.98                                                                              | 0.71                                                                              | 0.53                                                                              | 1.06                                                                              | 0.40                                                                              | 0.38                                                                              | 0.86                                                                              | 0.96                                                                              | 0.79                                                                               |
| Avail Cap(c_a), veh/h          | 927                                                                               | 1405                                                                              | 895                                                                               | 360                                                                               | 1459                                                                              | 798                                                                               | 593                                                                               | 1024                                                                              | 751                                                                               | 611                                                                               | 398                                                                               | 1089                                                                               |
| HCM Platoon Ratio              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Upstream Filter(I)             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.51                                                                              | 0.51                                                                              | 0.51                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               |
| Uniform Delay (d), s/veh       | 61.9                                                                              | 41.2                                                                              | 12.2                                                                              | 61.4                                                                              | 37.6                                                                              | 25.1                                                                              | 64.2                                                                              | 44.5                                                                              | 24.7                                                                              | 68.5                                                                              | 60.4                                                                              | 27.3                                                                               |
| Incr Delay (d2), s/veh         | 8.0                                                                               | 4.6                                                                               | 1.8                                                                               | 29.3                                                                              | 1.5                                                                               | 1.3                                                                               | 52.5                                                                              | 0.4                                                                               | 0.5                                                                               | 2.4                                                                               | 35.8                                                                              | 4.1                                                                                |
| Initial Q Delay(d3), s/veh     | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                |
| %ile BackOfQ(50%),veh/ln       | 11.8                                                                              | 19.1                                                                              | 4.6                                                                               | 16.5                                                                              | 16.1                                                                              | 10.5                                                                              | 16.1                                                                              | 6.6                                                                               | 6.5                                                                               | 6.1                                                                               | 18.9                                                                              | 10.5                                                                               |
| Unsig. Movement Delay, s/veh   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| LnGrp Delay(d), s/veh          | 69.9                                                                              | 45.8                                                                              | 14.0                                                                              | 90.8                                                                              | 39.1                                                                              | 26.4                                                                              | 116.7                                                                             | 44.9                                                                              | 25.2                                                                              | 70.9                                                                              | 96.2                                                                              | 31.3                                                                               |
| LnGrp LOS                      | E                                                                                 | D                                                                                 | B                                                                                 | F                                                                                 | D                                                                                 | C                                                                                 | F                                                                                 | D                                                                                 | C                                                                                 | E                                                                                 | F                                                                                 | C                                                                                  |
| Approach Vol, veh/h            | 2123                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 1810                                                                              |                                                                                   | 1323                                                                              |                                                                                   | 1547                                                                              |                                                                                   |                                                                                    |
| Approach Delay, s/veh          | 46.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 46.2                                                                              |                                                                                   | 74.7                                                                              |                                                                                   | 55.2                                                                              |                                                                                   |                                                                                    |
| Approach LOS                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | E                                                                                 |                                                                                   | E                                                                                 |                                                                                   |                                                                                    |
| Timer - Assigned Phs           | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                 | 8                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Phs Duration (G+Y+Rc), s       | 31.5                                                                              | 38.3                                                                              | 33.2                                                                              | 69.5                                                                              | 20.2                                                                              | 49.6                                                                              | 36.0                                                                              | 66.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Change Period (Y+Rc), s        | 4.9                                                                               | * 5.3                                                                             | 4.4                                                                               | 4.9                                                                               | 4.4                                                                               | 4.9                                                                               | 4.4                                                                               | 4.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Max Green Setting (Gmax), s    | 26.6                                                                              | * 33                                                                              | 41.6                                                                              | 34.8                                                                              | 27.4                                                                              | 32.6                                                                              | 31.6                                                                              | 44.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Max Q Clear Time (g_c+20.6), s | 26.6                                                                              | 34.5                                                                              | 27.8                                                                              | 39.5                                                                              | 15.4                                                                              | 20.5                                                                              | 32.9                                                                              | 44.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Green Ext Time (p_c), s        | 0.0                                                                               | 0.0                                                                               | 1.0                                                                               | 0.0                                                                               | 0.5                                                                               | 4.7                                                                               | 0.0                                                                               | 0.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    |

## Intersection Summary

HCM 7th Control Delay, s/veh 53.7  
HCM 7th LOS D

## Notes

User approved pedestrian interval to be less than phase max green.

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 7th Signalized Intersection Summary 48: Morena Blvd. SB Ramps

Proposed Plan Conditions  
PM Peak Hour



| Movement                     | EBL   | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|-------|------|------|------|------|------|
| Lane Configurations          |       |      |      |      |      |      |
| Traffic Volume (veh/h)       | 180   | 350  | 370  | 890  | 970  | 470  |
| Future Volume (veh/h)        | 180   | 350  | 370  | 890  | 970  | 470  |
| Initial Q (Qb), veh          | 0     | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.              | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00  | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No    |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1870  | 1870 | 1870 | 1870 | 1949 | 1671 |
| Adj Flow Rate, veh/h         | 189   | 368  | 389  | 937  | 1021 | 495  |
| Peak Hour Factor             | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2     | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 236   | 587  | 423  | 1501 | 1038 | 942  |
| Arrive On Green              | 0.13  | 0.13 | 0.24 | 0.80 | 0.53 | 0.53 |
| Sat Flow, veh/h              | 1781  | 1585 | 1781 | 1870 | 1949 | 1416 |
| Grp Volume(v), veh/h         | 189   | 368  | 389  | 937  | 1021 | 495  |
| Grp Sat Flow(s), veh/h/ln    | 1781  | 1585 | 1781 | 1870 | 1949 | 1416 |
| Q Serve(g_s), s              | 12.7  | 0.0  | 26.4 | 24.5 | 63.7 | 22.3 |
| Cycle Q Clear(g_c), s        | 12.7  | 0.0  | 26.4 | 24.5 | 63.7 | 22.3 |
| Prop In Lane                 | 1.00  | 1.00 | 1.00 |      |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 236   | 587  | 423  | 1501 | 1038 | 942  |
| V/C Ratio(X)                 | 0.80  | 0.63 | 0.92 | 0.62 | 0.98 | 0.53 |
| Avail Cap(c_a), veh/h        | 417   | 748  | 619  | 1707 | 1039 | 943  |
| HCM Platoon Ratio            | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 52.1  | 32.0 | 46.0 | 4.8  | 28.4 | 10.7 |
| Incr Delay (d2), s/veh       | 6.1   | 1.1  | 14.4 | 0.6  | 23.9 | 0.5  |
| Initial Q Delay(d3), s/veh   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 6.1   | 0.2  | 13.3 | 7.6  | 35.2 | 10.2 |
| Unsig. Movement Delay, s/veh |       |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 58.2  | 33.1 | 60.4 | 5.4  | 52.3 | 11.2 |
| LnGrp LOS                    | E     | C    | E    | A    | D    | B    |
| Approach Vol, veh/h          | 557   |      |      | 1326 | 1516 |      |
| Approach Delay, s/veh        | 41.6  |      |      | 21.5 | 38.9 |      |
| Approach LOS                 | D     |      |      | C    | D    |      |
| Timer - Assigned Phs         | 2     |      |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     | 103.4 |      |      | 20.4 | 33.4 | 69.9 |
| Change Period (Y+Rc), s      | 4.0   |      |      | 4.0  | 4.0  | 4.0  |
| Max Green Setting (Gmax), s  | 113.0 |      |      | 29.0 | 43.0 | 66.0 |
| Max Q Clear Time (g_c+l1), s | 26.5  |      |      | 14.7 | 28.4 | 65.7 |
| Green Ext Time (p_c), s      | 10.3  |      |      | 1.7  | 1.1  | 0.3  |
| <b>Intersection Summary</b>  |       |      |      |      |      |      |
| HCM 7th Control Delay, s/veh |       |      | 32.6 |      |      |      |
| HCM 7th LOS                  |       |      | C    |      |      |      |

# HCM 7th Signalized Intersection Summary 49: Morena Blvd. SB On Ramp/Morena Blvd. SB Ramps

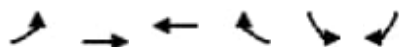
Proposed Plan Conditions  
PM Peak Hour



| Movement                      | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations           |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)        | 80   | 50   | 10   | 300  | 30   | 500  | 10   | 650  | 280  | 250  | 950  | 60   |
| Future Volume (veh/h)         | 80   | 50   | 10   | 300  | 30   | 500  | 10   | 650  | 280  | 250  | 950  | 60   |
| Initial Q (Qb), veh           | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Lane Width Adj.               | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)           | 1.00 |      | 0.95 | 1.00 |      | 0.98 | 1.00 |      | 0.96 | 1.00 |      | 0.98 |
| Parking Bus, Adj              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach         | No   |      |      | No   |      |      | No   |      |      | No   |      |      |
| Adj Sat Flow, veh/h/ln        | 1870 | 1844 | 1844 | 1870 | 1870 | 1835 | 1870 | 1826 | 1796 | 1826 | 1792 | 1836 |
| Adj Flow Rate, veh/h          | 84   | 53   | 10   | 316  | 32   | 421  | 11   | 684  | 266  | 263  | 1000 | 57   |
| Peak Hour Factor              | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %          | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 5    | 5    | 5    | 5    | 2    |
| Cap, veh/h                    | 222  | 187  | 35   | 440  | 45   | 680  | 24   | 905  | 382  | 299  | 1372 | 78   |
| Arrive On Green               | 0.12 | 0.12 | 0.12 | 0.27 | 0.27 | 0.27 | 0.01 | 0.26 | 0.26 | 0.17 | 0.42 | 0.42 |
| Sat Flow, veh/h               | 1781 | 1494 | 282  | 1625 | 165  | 1521 | 1781 | 3469 | 1464 | 1739 | 3270 | 186  |
| Grp Volume(v), veh/h          | 84   | 0    | 63   | 348  | 0    | 421  | 11   | 684  | 266  | 263  | 521  | 536  |
| Grp Sat Flow(s), veh/h/ln     | 1781 | 0    | 1776 | 1789 | 0    | 1521 | 1781 | 1735 | 1464 | 1739 | 1703 | 1753 |
| Q Serve(g_s), s               | 4.0  | 0.0  | 3.0  | 16.4 | 0.0  | 19.9 | 0.6  | 17.0 | 15.3 | 13.8 | 23.9 | 23.9 |
| Cycle Q Clear(g_c), s         | 4.0  | 0.0  | 3.0  | 16.4 | 0.0  | 19.9 | 0.6  | 17.0 | 15.3 | 13.8 | 23.9 | 23.9 |
| Prop In Lane                  | 1.00 |      | 0.16 | 0.91 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.11 |
| Lane Grp Cap(c), veh/h        | 222  | 0    | 222  | 485  | 0    | 680  | 24   | 905  | 382  | 299  | 714  | 736  |
| V/C Ratio(X)                  | 0.38 | 0.00 | 0.28 | 0.72 | 0.00 | 0.62 | 0.46 | 0.76 | 0.70 | 0.88 | 0.73 | 0.73 |
| Avail Cap(c_a), veh/h         | 553  | 0    | 551  | 555  | 0    | 739  | 95   | 1337 | 564  | 372  | 929  | 957  |
| HCM Platoon Ratio             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)            | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh      | 37.5 | 0.0  | 37.1 | 30.8 | 0.0  | 20.0 | 45.8 | 31.8 | 31.2 | 37.7 | 22.7 | 22.7 |
| Incr Delay (d2), s/veh        | 1.1  | 0.0  | 0.7  | 3.8  | 0.0  | 1.4  | 13.5 | 1.4  | 2.3  | 17.8 | 2.1  | 2.0  |
| Initial Q Delay(d3), s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln      | 1.8  | 0.0  | 1.3  | 7.4  | 0.0  | 7.0  | 0.3  | 7.1  | 5.5  | 7.2  | 9.6  | 9.8  |
| Unsig. Movement Delay, s/veh  |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh         | 38.6 | 0.0  | 37.8 | 34.6 | 0.0  | 21.4 | 59.3 | 33.2 | 33.5 | 55.5 | 24.7 | 24.7 |
| LnGrp LOS                     | D    |      | D    | C    |      | C    | E    | C    | C    | E    | C    | C    |
| Approach Vol, veh/h           | 147  |      |      | 769  |      |      | 961  |      |      | 1320 |      |      |
| Approach Delay, s/veh         | 38.3 |      |      | 27.4 |      |      | 33.6 |      |      | 30.9 |      |      |
| Approach LOS                  | D    |      |      | C    |      |      | C    |      |      | C    |      |      |
| Timer - Assigned Phs          | 1    | 2    |      | 4    | 5    | 6    |      | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s      | 20.1 | 28.4 |      | 15.7 | 5.2  | 43.2 |      | 29.3 |      |      |      |      |
| Change Period (Y+Rc), s       | 4.0  | 4.0  |      | 4.0  | 4.0  | 4.0  |      | 4.0  |      |      |      |      |
| Max Green Setting (Gmax), s   | 20.0 | 36.0 |      | 29.0 | 5.0  | 51.0 |      | 29.0 |      |      |      |      |
| Max Q Clear Time (g_c+1.5), s | 11.8 | 19.0 |      | 6.0  | 2.6  | 25.9 |      | 21.9 |      |      |      |      |
| Green Ext Time (p_c), s       | 0.3  | 5.4  |      | 0.5  | 0.0  | 7.9  |      | 2.3  |      |      |      |      |
| <b>Intersection Summary</b>   |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 7th Control Delay, s/veh  | 31.2 |      |      |      |      |      |      |      |      |      |      |      |
| HCM 7th LOS                   | C    |      |      |      |      |      |      |      |      |      |      |      |

# HCM 7th Signalized Intersection Summary 50: Balboa Ave. & Moraga Ave.

Proposed Plan Conditions  
PM Peak Hour



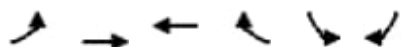
| Movement                     | EBL  | EBT   | WBT  | WBR  | SBL  | SBR   |
|------------------------------|------|-------|------|------|------|-------|
| Lane Configurations          | ↰    | ↱     | ↰    | ↱    | ↰    | ↱     |
| Traffic Volume (veh/h)       | 560  | 1590  | 1670 | 230  | 200  | 400   |
| Future Volume (veh/h)        | 560  | 1590  | 1670 | 230  | 200  | 400   |
| Initial Q (Qb), veh          | 0    | 0     | 0    | 0    | 0    | 0     |
| Lane Width Adj.              | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Ped-Bike Adj(A_pbT)          | 1.00 |       |      | 1.00 | 1.00 | 1.00  |
| Parking Bus, Adj             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Work Zone On Approach        |      | No    | No   |      | No   |       |
| Adj Sat Flow, veh/h/ln       | 1870 | 1870  | 1856 | 1856 | 1841 | 1841  |
| Adj Flow Rate, veh/h         | 589  | 1674  | 1758 | 194  | 211  | 337   |
| Peak Hour Factor             | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95  |
| Percent Heavy Veh, %         | 2    | 2     | 3    | 3    | 4    | 4     |
| Cap, veh/h                   | 590  | 2532  | 1806 | 805  | 363  | 323   |
| Arrive On Green              | 0.17 | 0.71  | 0.51 | 0.51 | 0.21 | 0.21  |
| Sat Flow, veh/h              | 3456 | 3647  | 3618 | 1572 | 1753 | 1560  |
| Grp Volume(v), veh/h         | 589  | 1674  | 1758 | 194  | 211  | 337   |
| Grp Sat Flow(s), veh/h/ln    | 1728 | 1777  | 1763 | 1572 | 1753 | 1560  |
| Q Serve(g_s), s              | 25.5 | 38.4  | 72.7 | 10.3 | 16.3 | 31.0  |
| Cycle Q Clear(g_c), s        | 25.5 | 38.4  | 72.7 | 10.3 | 16.3 | 31.0  |
| Prop In Lane                 | 1.00 |       |      | 1.00 | 1.00 | 1.00  |
| Lane Grp Cap(c), veh/h       | 590  | 2532  | 1806 | 805  | 363  | 323   |
| V/C Ratio(X)                 | 1.00 | 0.66  | 0.97 | 0.24 | 0.58 | 1.04  |
| Avail Cap(c_a), veh/h        | 590  | 2554  | 1809 | 807  | 363  | 323   |
| HCM Platoon Ratio            | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Upstream Filter(I)           | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Uniform Delay (d), s/veh     | 62.1 | 11.7  | 35.6 | 20.3 | 53.6 | 59.4  |
| Incr Delay (d2), s/veh       | 36.4 | 0.8   | 15.4 | 0.2  | 1.6  | 62.1  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 4.0  | 13.6  | 33.2 | 3.8  | 7.4  | 5.6   |
| Unsig. Movement Delay, s/veh |      |       |      |      |      |       |
| LnGrp Delay(d), s/veh        | 98.5 | 12.5  | 50.9 | 20.6 | 55.2 | 121.5 |
| LnGrp LOS                    | F    | B     | D    | C    | E    | F     |
| Approach Vol, veh/h          |      | 2263  | 1952 |      | 548  |       |
| Approach Delay, s/veh        |      | 34.9  | 47.9 |      | 96.0 |       |
| Approach LOS                 |      | C     | D    |      | F    |       |
| Timer - Assigned Phs         |      | 2     |      | 4    | 5    | 6     |
| Phs Duration (G+Y+Rc), s     |      | 113.2 |      | 36.6 | 30.0 | 83.2  |
| Change Period (Y+Rc), s      |      | * 6.5 |      | 5.6  | 4.4  | 6.5   |
| Max Green Setting (Gmax)*, s |      | 1E+02 |      | 31.0 | 25.6 | 76.9  |
| Max Q Clear Time (g_c+l1), s |      | 40.4  |      | 33.0 | 27.5 | 74.7  |
| Green Ext Time (p_c), s      |      | 40.6  |      | 0.0  | 0.0  | 2.0   |
| <b>Intersection Summary</b>  |      |       |      |      |      |       |
| HCM 7th Control Delay, s/veh |      |       | 47.3 |      |      |       |
| HCM 7th LOS                  |      |       | D    |      |      |       |

## Notes

\* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary  
51: Balboa Ave./Garnet Ave.

Proposed Plan Conditions  
PM Peak Hour



| Movement                     | EBL | EBT | WBT  | WBR  | SBL  | SBR  |
|------------------------------|-----|-----|------|------|------|------|
| Lane Configurations          |     |     | ↑↑↑↑ | ↑↑   | ↑↑   | ↑↑   |
| Traffic Volume (veh/h)       | 0   | 0   | 1540 | 530  | 1    | 840  |
| Future Volume (veh/h)        | 0   | 0   | 1540 | 530  | 1    | 840  |
| Initial Q (Qb), veh          |     |     | 0    | 0    | 0    | 0    |
| Lane Width Adj.              |     |     | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          |     |     |      | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj             |     |     | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |     |     | No   |      | No   |      |
| Adj Sat Flow, veh/h/ln       |     |     | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         |     |     | 1674 | 576  | 1    | 913  |
| Peak Hour Factor             |     |     | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         |     |     | 2    | 2    | 2    | 2    |
| Cap, veh/h                   |     |     | 4008 | 1244 | 0    | 0    |
| Arrive On Green              |     |     | 0.78 | 0.78 | 0.00 | 0.00 |
| Sat Flow, veh/h              |     |     | 5274 | 1585 | 0    |      |
| Grp Volume(v), veh/h         |     |     | 1674 | 576  | 0.0  |      |
| Grp Sat Flow(s),veh/h/ln     |     |     | 1702 | 1585 |      |      |
| Q Serve(g_s), s              |     |     | 2.2  | 2.6  |      |      |
| Cycle Q Clear(g_c), s        |     |     | 2.2  | 2.6  |      |      |
| Prop In Lane                 |     |     |      | 1.00 |      |      |
| Lane Grp Cap(c), veh/h       |     |     | 4008 | 1244 |      |      |
| V/C Ratio(X)                 |     |     | 0.42 | 0.46 |      |      |
| Avail Cap(c_a), veh/h        |     |     | 5148 | 1598 |      |      |
| HCM Platoon Ratio            |     |     | 1.00 | 1.00 |      |      |
| Upstream Filter(I)           |     |     | 1.00 | 1.00 |      |      |
| Uniform Delay (d), s/veh     |     |     | 0.7  | 0.8  |      |      |
| Incr Delay (d2), s/veh       |     |     | 0.1  | 0.3  |      |      |
| Initial Q Delay(d3), s/veh   |     |     | 0.0  | 0.0  |      |      |
| %ile BackOfQ(50%),veh/ln     |     |     | 0.0  | 0.1  |      |      |
| Unsig. Movement Delay, s/veh |     |     |      |      |      |      |
| LnGrp Delay(d), s/veh        |     |     | 0.8  | 1.0  |      |      |
| LnGrp LOS                    |     |     | A    | A    |      |      |
| Approach Vol, veh/h          |     |     | 2250 |      |      |      |
| Approach Delay, s/veh        |     |     | 0.9  |      |      |      |
| Approach LOS                 |     |     | A    |      |      |      |
| Timer - Assigned Phs         |     |     |      |      | 6    |      |
| Phs Duration (G+Y+Rc), s     |     |     |      |      | 20.9 |      |
| Change Period (Y+Rc), s      |     |     |      |      | 4.5  |      |
| Max Green Setting (Gmax), s  |     |     |      |      | 21.1 |      |
| Max Q Clear Time (g_c+l1), s |     |     |      |      | 4.6  |      |
| Green Ext Time (p_c), s      |     |     |      |      | 11.9 |      |
| <b>Intersection Summary</b>  |     |     |      |      |      |      |
| HCM 7th Control Delay, s/veh |     |     | 0.9  |      |      |      |
| HCM 7th LOS                  |     |     | A    |      |      |      |



## Attachment G - 95<sup>th</sup> Percentile Queue Reports – Clairemont CPU Proposed Plan Conditions



## Queues

Proposed Plan Conditions

1: Regents Rd. &amp; SR-52 WB On Ramp/SR-52 WB Off Ramp

AM Peak Hour



| Lane Group              | WBT  | WBR  | NBL  | NBT  | SBT  | SBR  |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 411  | 263  | 642  | 726  | 568  | 400  |
| v/c Ratio               | 0.85 | 0.45 | 0.85 | 0.35 | 0.52 | 0.52 |
| Control Delay (s/veh)   | 47.3 | 8.8  | 30.3 | 7.8  | 28.9 | 5.9  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 47.3 | 8.8  | 30.3 | 7.8  | 28.9 | 5.9  |
| Queue Length 50th (ft)  | 216  | 23   | 50   | 121  | 143  | 0    |
| Queue Length 95th (ft)  | 313  | 80   | 117  | m167 | 211  | 72   |
| Internal Link Dist (ft) | 863  |      |      | 352  | 1080 |      |
| Turn Bay Length (ft)    |      |      | 185  |      |      | 190  |
| Base Capacity (vph)     | 570  | 649  | 847  | 2104 | 1101 | 765  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.72 | 0.41 | 0.76 | 0.35 | 0.52 | 0.52 |

## Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

## Queues

## Proposed Plan Conditions

## 2: SR-52 EB Off Ramp/SR-52 EB On Ramp &amp; Regents Rd.

AM Peak Hour

|                         |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                                |
| Lane Group Flow (vph)   | 170                                                                               | 167                                                                               | 379                                                                               | 1042                                                                              | 968                                                                               | 421                                                                               | 547                                                                                |
| v/c Ratio               | 0.96                                                                              | 0.94                                                                              | 0.75                                                                              | 0.65                                                                              | 1.06                                                                              | 1.04                                                                              | 0.21                                                                               |
| Control Delay (s/veh)   | 100.9                                                                             | 95.6                                                                              | 14.8                                                                              | 20.3                                                                              | 62.5                                                                              | 65.3                                                                              | 5.3                                                                                |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                |
| Total Delay (s/veh)     | 100.9                                                                             | 95.6                                                                              | 14.8                                                                              | 20.3                                                                              | 62.5                                                                              | 65.3                                                                              | 5.3                                                                                |
| Queue Length 50th (ft)  | 103                                                                               | 101                                                                               | 0                                                                                 | 226                                                                               | ~486                                                                              | ~248                                                                              | 84                                                                                 |
| Queue Length 95th (ft)  | #234                                                                              | #228                                                                              | #113                                                                              | 295                                                                               | #725                                                                              | #398                                                                              | 75                                                                                 |
| Internal Link Dist (ft) |                                                                                   | 783                                                                               |                                                                                   | 2477                                                                              |                                                                                   |                                                                                   | 352                                                                                |
| Turn Bay Length (ft)    | 400                                                                               |                                                                                   | 65                                                                                |                                                                                   | 50                                                                                | 120                                                                               |                                                                                    |
| Base Capacity (vph)     | 177                                                                               | 178                                                                               | 506                                                                               | 1604                                                                              | 916                                                                               | 406                                                                               | 2594                                                                               |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Reduced v/c Ratio       | 0.96                                                                              | 0.94                                                                              | 0.75                                                                              | 0.65                                                                              | 1.06                                                                              | 1.04                                                                              | 0.21                                                                               |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

## Queues

## Proposed Plan Conditions

## 4: Genesee Ave. &amp; SR-52 EB Ramps

AM Peak Hour

|                         |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group              | WBL                                                                               | WBR                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               |
| Lane Group Flow (vph)   | 105                                                                               | 211                                                                               | 1537                                                                              | 874                                                                               | 400                                                                               | 684                                                                               |
| v/c Ratio               | 0.54                                                                              | 0.58                                                                              | 1.40                                                                              | 0.86                                                                              | 1.52                                                                              | 0.48                                                                              |
| Control Delay (s/veh)   | 65.5                                                                              | 13.2                                                                              | 211.3                                                                             | 27.6                                                                              | 291.1                                                                             | 6.9                                                                               |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)     | 65.5                                                                              | 13.2                                                                              | 211.3                                                                             | 27.6                                                                              | 291.1                                                                             | 6.9                                                                               |
| Queue Length 50th (ft)  | 87                                                                                | 0                                                                                 | ~1711                                                                             | 449                                                                               | ~464                                                                              | 142                                                                               |
| Queue Length 95th (ft)  | 145                                                                               | 70                                                                                | #2400                                                                             | #1000                                                                             | #784                                                                              | 391                                                                               |
| Internal Link Dist (ft) | 831                                                                               |                                                                                   | 2787                                                                              |                                                                                   |                                                                                   | 1658                                                                              |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   |                                                                                   | 150                                                                               | 520                                                                               |                                                                                   |
| Base Capacity (vph)     | 427                                                                               | 542                                                                               | 1097                                                                              | 1013                                                                              | 263                                                                               | 1439                                                                              |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio       | 0.25                                                                              | 0.39                                                                              | 1.40                                                                              | 0.86                                                                              | 1.52                                                                              | 0.48                                                                              |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

## Queues

## Proposed Plan Conditions

15: I-805 NB Off-Ramp/I-805 NB On-Ramp &amp; Clairemont Mesa Blvd

AM Peak Hour

|                         | →    | ↘    | ↑    | ↗    | ↓    |
|-------------------------|------|------|------|------|------|
| Lane Group              | EBT  | EBR  | NBT  | NBR  | SBT  |
| Lane Group Flow (vph)   | 1032 | 716  | 1    | 558  | 421  |
| v/c Ratio               | 0.54 | 0.48 | 0.00 | 0.68 | 1.90 |
| Control Delay (s/veh)   | 9.1  | 1.1  | 10.0 | 14.7 | 0.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 9.1  | 1.1  | 10.0 | 14.7 | 0.0  |
| Queue Length 50th (ft)  | 50   | 0    | 0    | 40   | 0    |
| Queue Length 95th (ft)  | 78   | 0    | 2    | #97  | 0    |
| Internal Link Dist (ft) | 1462 |      | 422  |      | 683  |
| Turn Bay Length (ft)    |      | 250  |      |      |      |
| Base Capacity (vph)     | 2690 | 1501 | 614  | 976  | 221  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.38 | 0.48 | 0.00 | 0.57 | 1.90 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues  
25: I-805 SB Ramps & Balboa Ave.

Proposed Plan Conditions  
AM Peak Hour



| Lane Group              | WBT  | WBR  | NBT  | SBT  | SBR  |
|-------------------------|------|------|------|------|------|
| Lane Group Flow (vph)   | 1895 | 295  | 453  | 1    | 347  |
| v/c Ratio               | 0.69 | 0.19 | 2.11 | 0.00 | 0.68 |
| Control Delay (s/veh)   | 8.0  | 0.3  | 0.0  | 14.0 | 20.2 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 8.0  | 0.3  | 0.0  | 14.0 | 20.2 |
| Queue Length 50th (ft)  | 92   | 0    | 0    | 0    | 32   |
| Queue Length 95th (ft)  | 130  | 0    | 0    | 3    | #78  |
| Internal Link Dist (ft) | 1019 |      | 639  | 709  |      |
| Turn Bay Length (ft)    |      |      |      |      |      |
| Base Capacity (vph)     | 2896 | 1553 | 215  | 336  | 554  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.65 | 0.19 | 2.11 | 0.00 | 0.63 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues  
26: I-805 NB Ramps & Balboa Ave.

Proposed Plan Conditions  
AM Peak Hour

|                         | →    | ↘    | ↑    | ↗    | ↓    |
|-------------------------|------|------|------|------|------|
| Lane Group              | EBT  | EBR  | NBT  | NBR  | SBT  |
| Lane Group Flow (vph)   | 1653 | 878  | 1    | 484  | 400  |
| v/c Ratio               | 0.69 | 0.57 | 0.00 | 0.71 | 1.86 |
| Control Delay (s/veh)   | 9.2  | 1.5  | 12.0 | 19.7 | 0.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 9.2  | 1.5  | 12.0 | 19.7 | 0.0  |
| Queue Length 50th (ft)  | 87   | 0    | 0    | 47   | 0    |
| Queue Length 95th (ft)  | 123  | 0    | 3    | #106 | 0    |
| Internal Link Dist (ft) | 1019 |      | 850  |      | 648  |
| Turn Bay Length (ft)    |      |      |      |      |      |
| Base Capacity (vph)     | 2734 | 1553 | 450  | 731  | 215  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.60 | 0.57 | 0.00 | 0.66 | 1.86 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

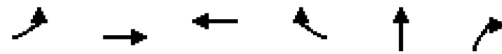


## Queues

Proposed Plan Conditions

29: I-5 NB Off Ramp/I-5 NB On Ramp &amp; Clairemont Dr.

AM Peak Hour



| Lane Group              | EBL   | EBT  | WBT  | WBR  | NBT  | NBR  |
|-------------------------|-------|------|------|------|------|------|
| Lane Group Flow (vph)   | 305   | 421  | 1269 | 552  | 179  | 474  |
| v/c Ratio               | 1.10  | 0.20 | 0.98 | 0.63 | 0.33 | 0.97 |
| Control Delay (s/veh)   | 125.2 | 10.6 | 54.4 | 5.5  | 31.3 | 73.3 |
| Queue Delay             | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 125.2 | 10.6 | 54.4 | 5.5  | 31.3 | 73.3 |
| Queue Length 50th (ft)  | 188   | 72   | 471  | 0    | 97   | 329  |
| Queue Length 95th (ft)  | #265  | 108  | #641 | 83   | 158  | #541 |
| Internal Link Dist (ft) |       | 465  | 961  |      | 859  |      |
| Turn Bay Length (ft)    | 250   |      |      | 400  |      |      |
| Base Capacity (vph)     | 278   | 2107 | 1289 | 881  | 548  | 487  |
| Starvation Cap Reductn  | 0     | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0     | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 1.10  | 0.20 | 0.98 | 0.63 | 0.33 | 0.97 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

## Queues

41: SR-163 SB On Ramp/SR-163 SB Ramps &amp; Genesee Ave.

Proposed Plan Conditions

AM Peak Hour

|                         |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | EBR                                                                               | WBT                                                                               | SBL                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Group Flow (vph)   | 646                                                                               | 563                                                                               | 1062                                                                              | 580                                                                               | 569                                                                               | 528                                                                               |
| v/c Ratio               | 0.51                                                                              | 0.36                                                                              | 0.84                                                                              | 0.82                                                                              | 0.82                                                                              | 0.79                                                                              |
| Control Delay (s/veh)   | 15.0                                                                              | 0.6                                                                               | 22.3                                                                              | 24.9                                                                              | 23.9                                                                              | 22.4                                                                              |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)     | 15.0                                                                              | 0.6                                                                               | 22.3                                                                              | 24.9                                                                              | 23.9                                                                              | 22.4                                                                              |
| Queue Length 50th (ft)  | 84                                                                                | 0                                                                                 | 151                                                                               | 161                                                                               | 148                                                                               | 128                                                                               |
| Queue Length 95th (ft)  | 125                                                                               | 0                                                                                 | #255                                                                              | #329                                                                              | #328                                                                              | #290                                                                              |
| Internal Link Dist (ft) | 1531                                                                              |                                                                                   | 139                                                                               |                                                                                   | 595                                                                               |                                                                                   |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 490                                                                               |
| Base Capacity (vph)     | 1416                                                                              | 1583                                                                              | 1407                                                                              | 818                                                                               | 793                                                                               | 761                                                                               |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio       | 0.46                                                                              | 0.36                                                                              | 0.75                                                                              | 0.71                                                                              | 0.72                                                                              | 0.69                                                                              |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues  
42: Cardinal Rd./SR-163 NB Ramps & Genesee Ave.

Proposed Plan Conditions  
AM Peak Hour

|                         |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBT                                                                               | SBT                                                                                | SBR                                                                                 |
| Lane Group Flow (vph)   | 579                                                                               | 1915                                                                              | 63                                                                                | 413                                                                               | 187                                                                               | 568                                                                               | 1                                                                                  | 537                                                                                 |
| v/c Ratio               | 0.85                                                                              | 0.97                                                                              | 0.30                                                                              | 0.28                                                                              | 0.25                                                                              | 0.82                                                                              | 0.02                                                                               | 0.54                                                                                |
| Control Delay (s/veh)   | 61.4                                                                              | 41.7                                                                              | 58.4                                                                              | 18.3                                                                              | 4.7                                                                               | 57.5                                                                              | 67.0                                                                               | 5.1                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 |
| Total Delay (s/veh)     | 61.4                                                                              | 41.7                                                                              | 58.4                                                                              | 18.3                                                                              | 4.7                                                                               | 57.5                                                                              | 67.0                                                                               | 5.1                                                                                 |
| Queue Length 50th (ft)  | 235                                                                               | 772                                                                               | 47                                                                                | 79                                                                                | 0                                                                                 | 233                                                                               | 1                                                                                  | 0                                                                                   |
| Queue Length 95th (ft)  | 329                                                                               | #1255                                                                             | 106                                                                               | 170                                                                               | 58                                                                                | 315                                                                               | 8                                                                                  | 32                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 338                                                                               |                                                                                   | 291                                                                               |                                                                                   | 263                                                                               | 504                                                                                |                                                                                     |
| Turn Bay Length (ft)    | 220                                                                               |                                                                                   | 55                                                                                |                                                                                   | 175                                                                               |                                                                                   |                                                                                    | 250                                                                                 |
| Base Capacity (vph)     | 954                                                                               | 1977                                                                              | 213                                                                               | 1497                                                                              | 746                                                                               | 1067                                                                              | 45                                                                                 | 1168                                                                                |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   |
| Reduced v/c Ratio       | 0.61                                                                              | 0.97                                                                              | 0.30                                                                              | 0.28                                                                              | 0.25                                                                              | 0.53                                                                              | 0.02                                                                               | 0.46                                                                                |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues  
46: SR-163 NB Off Ramp & Mesa College Dr.

Proposed Plan Conditions  
AM Peak Hour

|                         | →    | ←    | ↶    | ↷    |
|-------------------------|------|------|------|------|
| Lane Group              | EBT  | WBT  | NBL  | NBR  |
| Lane Group Flow (vph)   | 600  | 1221 | 778  | 359  |
| v/c Ratio               | 0.36 | 0.72 | 0.73 | 0.64 |
| Control Delay (s/veh)   | 7.9  | 12.1 | 14.7 | 11.9 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 7.9  | 12.1 | 14.7 | 11.9 |
| Queue Length 50th (ft)  | 45   | 118  | 62   | 29   |
| Queue Length 95th (ft)  | 77   | 189  | 119  | 105  |
| Internal Link Dist (ft) | 471  | 416  | 659  |      |
| Turn Bay Length (ft)    |      |      | 450  | 450  |
| Base Capacity (vph)     | 2153 | 2153 | 1347 | 668  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.28 | 0.57 | 0.58 | 0.54 |
| Intersection Summary    |      |      |      |      |

## Queues

Proposed Plan Conditions

1: Regents Rd. &amp; SR-52 WB On Ramp/SR-52 WB Off Ramp

PM Peak Hour



| Lane Group              | WBT  | WBR  | NBL   | NBT  | SBT  | SBR  |
|-------------------------|------|------|-------|------|------|------|
| Lane Group Flow (vph)   | 1043 | 295  | 421   | 611  | 600  | 232  |
| v/c Ratio               | 1.09 | 0.32 | 1.02  | 0.49 | 0.99 | 0.50 |
| Control Delay (s/veh)   | 81.6 | 8.4  | 56.8  | 15.3 | 76.0 | 9.1  |
| Queue Delay             | 5.2  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 86.8 | 8.4  | 56.8  | 15.3 | 76.0 | 9.1  |
| Queue Length 50th (ft)  | ~753 | 55   | 120   | 100  | 203  | 0    |
| Queue Length 95th (ft)  | #997 | 107  | m#179 | 114  | #318 | 64   |
| Internal Link Dist (ft) | 863  |      |       | 383  | 1080 |      |
| Turn Bay Length (ft)    |      |      | 185   |      |      | 190  |
| Base Capacity (vph)     | 956  | 908  | 412   | 1241 | 607  | 463  |
| Starvation Cap Reductn  | 0    | 0    | 0     | 0    | 0    | 0    |
| Spillback Cap Reductn   | 224  | 0    | 0     | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0     | 0    | 0    | 0    |
| Reduced v/c Ratio       | 1.42 | 0.32 | 1.02  | 0.49 | 0.99 | 0.50 |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

## Queues

## Proposed Plan Conditions

## 2: SR-52 EB Off Ramp/SR-52 EB On Ramp &amp; Regents Rd.

PM Peak Hour

|                         |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                                |
| Lane Group Flow (vph)   | 213                                                                               | 215                                                                               | 1071                                                                              | 582                                                                               | 439                                                                               | 224                                                                               | 1357                                                                               |
| v/c Ratio               | 0.25                                                                              | 0.25                                                                              | 1.26                                                                              | 0.76                                                                              | 0.88                                                                              | 1.29                                                                              | 1.06                                                                               |
| Control Delay (s/veh)   | 14.8                                                                              | 14.8                                                                              | 152.2                                                                             | 43.3                                                                              | 40.6                                                                              | 175.0                                                                             | 53.3                                                                               |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 14.8                                                                               |
| Total Delay (s/veh)     | 14.8                                                                              | 14.8                                                                              | 152.2                                                                             | 43.3                                                                              | 40.6                                                                              | 175.0                                                                             | 68.1                                                                               |
| Queue Length 50th (ft)  | 76                                                                                | 77                                                                                | ~840                                                                              | 183                                                                               | 154                                                                               | ~189                                                                              | ~500                                                                               |
| Queue Length 95th (ft)  | 125                                                                               | 126                                                                               | #1090                                                                             | 245                                                                               | #337                                                                              | m#192                                                                             | m#394                                                                              |
| Internal Link Dist (ft) |                                                                                   | 783                                                                               |                                                                                   | 2407                                                                              |                                                                                   |                                                                                   | 383                                                                                |
| Turn Bay Length (ft)    | 400                                                                               |                                                                                   | 65                                                                                |                                                                                   | 50                                                                                | 120                                                                               |                                                                                    |
| Base Capacity (vph)     | 855                                                                               | 859                                                                               | 847                                                                               | 769                                                                               | 499                                                                               | 173                                                                               | 1275                                                                               |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 98                                                                                 |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Reduced v/c Ratio       | 0.25                                                                              | 0.25                                                                              | 1.26                                                                              | 0.76                                                                              | 0.88                                                                              | 1.29                                                                              | 1.15                                                                               |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



## Queues

Proposed Plan Conditions

## 4: Genesee Ave. &amp; SR-52 EB Ramps

PM Peak Hour

|                         |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group              | WBL                                                                               | WBR                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                               | SBT                                                                               |
| Lane Group Flow (vph)   | 326                                                                               | 295                                                                               | 663                                                                               | 263                                                                               | 611                                                                               | 1337                                                                              |
| v/c Ratio               | 0.91                                                                              | 0.53                                                                              | 1.07                                                                              | 0.45                                                                              | 1.05                                                                              | 1.04                                                                              |
| Control Delay (s/veh)   | 87.5                                                                              | 8.8                                                                               | 104.0                                                                             | 25.9                                                                              | 96.0                                                                              | 56.3                                                                              |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)     | 87.5                                                                              | 8.8                                                                               | 104.0                                                                             | 25.9                                                                              | 96.0                                                                              | 56.3                                                                              |
| Queue Length 50th (ft)  | 311                                                                               | 0                                                                                 | ~728                                                                              | 123                                                                               | ~569                                                                              | ~1333                                                                             |
| Queue Length 95th (ft)  | #479                                                                              | 82                                                                                | #974                                                                              | 210                                                                               | #740                                                                              | #1495                                                                             |
| Internal Link Dist (ft) | 831                                                                               |                                                                                   | 2855                                                                              |                                                                                   |                                                                                   | 1427                                                                              |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   |                                                                                   | 150                                                                               | 520                                                                               |                                                                                   |
| Base Capacity (vph)     | 382                                                                               | 573                                                                               | 617                                                                               | 590                                                                               | 584                                                                               | 1289                                                                              |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio       | 0.85                                                                              | 0.51                                                                              | 1.07                                                                              | 0.45                                                                              | 1.05                                                                              | 1.04                                                                              |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

## Queues

Proposed Plan Conditions

15: I-805 NB Off-Ramp/I-805 NB On-Ramp &amp; Clairemont Mesa Blvd.

PM Peak Hour

|                         | →    | ↘    | ↑    | ↗    | ↓    |
|-------------------------|------|------|------|------|------|
| Lane Group              | EBT  | EBR  | NBT  | NBR  | SBT  |
| Lane Group Flow (vph)   | 1800 | 505  | 1    | 1105 | 695  |
| v/c Ratio               | 0.74 | 0.34 | 0.00 | 0.97 | 8.69 |
| Control Delay (s/veh)   | 22.9 | 0.6  | 22.0 | 52.4 | 0.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 22.9 | 0.6  | 22.0 | 52.4 | 0.0  |
| Queue Length 50th (ft)  | 331  | 0    | 0    | 405  | 0    |
| Queue Length 95th (ft)  | 386  | 0    | 4    | #621 | 0    |
| Internal Link Dist (ft) | 1434 |      | 422  |      | 683  |
| Turn Bay Length (ft)    |      | 250  |      |      |      |
| Base Capacity (vph)     | 2808 | 1507 | 746  | 1135 | 80   |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.64 | 0.34 | 0.00 | 0.97 | 8.69 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

## Queues

25: I-805 SB Ramps &amp; Balboa Ave.

Proposed Plan Conditions

PM Peak Hour



| Lane Group              | WBT  | WBR  | NBT  | SBT  | SBR  |
|-------------------------|------|------|------|------|------|
| Lane Group Flow (vph)   | 2583 | 417  | 621  | 1    | 589  |
| v/c Ratio               | 0.89 | 0.27 | 5.70 | 0.00 | 0.82 |
| Control Delay (s/veh)   | 16.6 | 0.4  | 0.0  | 15.0 | 28.7 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 16.6 | 0.4  | 0.0  | 15.0 | 28.7 |
| Queue Length 50th (ft)  | 246  | 0    | 0    | 0    | 101  |
| Queue Length 95th (ft)  | #438 | 0    | 0    | 3    | 156  |
| Internal Link Dist (ft) | 1097 |      | 639  | 709  |      |
| Turn Bay Length (ft)    |      |      |      |      |      |
| Base Capacity (vph)     | 2943 | 1553 | 109  | 599  | 900  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.88 | 0.27 | 5.70 | 0.00 | 0.65 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues  
26: I-805 NB Ramps & Balboa Ave.

Proposed Plan Conditions  
PM Peak Hour

|                         | →    | ↘    | ↑    | ↗    | ↓    |
|-------------------------|------|------|------|------|------|
| Lane Group              | EBT  | EBR  | NBT  | NBR  | SBT  |
| Lane Group Flow (vph)   | 1845 | 464  | 1    | 937  | 653  |
| v/c Ratio               | 0.85 | 0.31 | 0.00 | 0.90 | 4.16 |
| Control Delay (s/veh)   | 18.6 | 0.5  | 11.0 | 30.2 | 0.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 18.6 | 0.5  | 11.0 | 30.2 | 0.0  |
| Queue Length 50th (ft)  | 184  | 0    | 0    | 150  | 0    |
| Queue Length 95th (ft)  | 243  | 0    | 3    | #272 | 0    |
| Internal Link Dist (ft) | 1097 |      | 850  |      | 648  |
| Turn Bay Length (ft)    |      |      |      |      |      |
| Base Capacity (vph)     | 2270 | 1520 | 697  | 1078 | 157  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.81 | 0.31 | 0.00 | 0.87 | 4.16 |

Intersection Summary

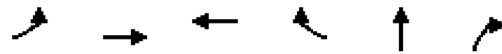
# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

## Queues

## Proposed Plan Conditions

## 29: I-5 NB Off Ramp/I-5 NB On Ramp &amp; Clairemont Dr

PM Peak Hour



| Lane Group              | EBL   | EBT  | WBT  | WBR  | NBT  | NBR   |
|-------------------------|-------|------|------|------|------|-------|
| Lane Group Flow (vph)   | 95    | 737  | 829  | 357  | 242  | 947   |
| v/c Ratio               | 1.02  | 0.57 | 0.93 | 0.56 | 0.25 | 1.10  |
| Control Delay (s/veh)   | 155.2 | 32.3 | 58.7 | 7.3  | 15.3 | 87.9  |
| Queue Delay             | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   |
| Total Delay (s/veh)     | 155.2 | 32.3 | 58.7 | 7.3  | 15.3 | 87.9  |
| Queue Length 50th (ft)  | ~75   | 236  | 336  | 0    | 96   | ~836  |
| Queue Length 95th (ft)  | #185  | 298  | #457 | 84   | 145  | #1086 |
| Internal Link Dist (ft) |       | 523  | 952  |      | 859  |       |
| Turn Bay Length (ft)    | 250   |      |      | 400  |      |       |
| Base Capacity (vph)     | 93    | 1325 | 925  | 645  | 972  | 864   |
| Starvation Cap Reductn  | 0     | 0    | 0    | 0    | 0    | 0     |
| Spillback Cap Reductn   | 0     | 0    | 0    | 0    | 0    | 0     |
| Storage Cap Reductn     | 0     | 0    | 0    | 0    | 0    | 0     |
| Reduced v/c Ratio       | 1.02  | 0.56 | 0.90 | 0.55 | 0.25 | 1.10  |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

## Queues

41: SR-163 SB On Ramp/SR-163 SB Ramps &amp; Genesee Ave.

Proposed Plan Conditions

PM Peak Hour

|                         | →    | ↘    | ←    | ↙    | ↓    | ↗    |
|-------------------------|------|------|------|------|------|------|
| Lane Group              | EBT  | EBR  | WBT  | SBL  | SBT  | SBR  |
| Lane Group Flow (vph)   | 694  | 531  | 1408 | 358  | 398  | 387  |
| v/c Ratio               | 0.45 | 0.34 | 0.81 | 0.70 | 0.77 | 0.72 |
| Control Delay (s/veh)   | 10.2 | 0.6  | 11.4 | 22.1 | 21.9 | 19.1 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 10.2 | 0.6  | 11.4 | 22.1 | 21.9 | 19.1 |
| Queue Length 50th (ft)  | 68   | 0    | 100  | 90   | 74   | 67   |
| Queue Length 95th (ft)  | 104  | 0    | 176  | 166  | #201 | #160 |
| Internal Link Dist (ft) | 1519 |      | 175  |      | 595  |      |
| Turn Bay Length (ft)    |      |      |      |      |      | 490  |
| Base Capacity (vph)     | 1868 | 1583 | 1996 | 675  | 652  | 670  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.37 | 0.34 | 0.71 | 0.53 | 0.61 | 0.58 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



## Queues

Proposed Plan Conditions

42: Cardinal Rd./SR-163 NB Ramps &amp; Genesee Ave.

PM Peak Hour

|                         |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBT                                                                               | SBT                                                                                | SBR                                                                                 |
| Lane Group Flow (vph)   | 621                                                                               | 779                                                                               | 53                                                                                | 1013                                                                              | 450                                                                               | 506                                                                               | 1                                                                                  | 442                                                                                 |
| v/c Ratio               | 0.82                                                                              | 0.43                                                                              | 0.19                                                                              | 0.83                                                                              | 0.58                                                                              | 0.65                                                                              | 0.02                                                                               | 0.48                                                                                |
| Control Delay (s/veh)   | 46.7                                                                              | 14.4                                                                              | 39.4                                                                              | 33.7                                                                              | 8.0                                                                               | 36.2                                                                              | 51.0                                                                               | 7.5                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 |
| Total Delay (s/veh)     | 46.7                                                                              | 14.4                                                                              | 39.4                                                                              | 33.7                                                                              | 8.0                                                                               | 36.2                                                                              | 51.0                                                                               | 7.5                                                                                 |
| Queue Length 50th (ft)  | 171                                                                               | 116                                                                               | 26                                                                                | 262                                                                               | 20                                                                                | 138                                                                               | 1                                                                                  | 15                                                                                  |
| Queue Length 95th (ft)  | #367                                                                              | 253                                                                               | 75                                                                                | #563                                                                              | 149                                                                               | 203                                                                               | 7                                                                                  | 53                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 305                                                                               |                                                                                   | 291                                                                               |                                                                                   | 263                                                                               | 504                                                                                |                                                                                     |
| Turn Bay Length (ft)    | 220                                                                               |                                                                                   | 55                                                                                |                                                                                   | 175                                                                               |                                                                                   |                                                                                    | 250                                                                                 |
| Base Capacity (vph)     | 753                                                                               | 1795                                                                              | 281                                                                               | 1224                                                                              | 770                                                                               | 1406                                                                              | 60                                                                                 | 915                                                                                 |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   |
| Reduced v/c Ratio       | 0.82                                                                              | 0.43                                                                              | 0.19                                                                              | 0.83                                                                              | 0.58                                                                              | 0.36                                                                              | 0.02                                                                               | 0.48                                                                                |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues  
46: SR-163 NB Off Ramp & Mesa College Dr.

Proposed Plan Conditions  
PM Peak Hour

|                         | →    | ←    | ↶    | ↷    |
|-------------------------|------|------|------|------|
| Lane Group              | EBT  | WBT  | NBL  | NBR  |
| Lane Group Flow (vph)   | 583  | 1365 | 453  | 214  |
| v/c Ratio               | 0.36 | 0.74 | 0.63 | 0.50 |
| Control Delay (s/veh)   | 5.3  | 9.5  | 17.2 | 8.9  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 5.3  | 9.5  | 17.2 | 8.9  |
| Queue Length 50th (ft)  | 52   | 154  | 39   | 0    |
| Queue Length 95th (ft)  | 81   | 227  | 87   | 54   |
| Internal Link Dist (ft) | 505  | 440  | 598  |      |
| Turn Bay Length (ft)    |      |      | 450  | 450  |
| Base Capacity (vph)     | 2060 | 2354 | 807  | 460  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.28 | 0.58 | 0.56 | 0.47 |
| Intersection Summary    |      |      |      |      |