Morena Blvd Station Area Planning Study

Appendix E:

Mobility Alternatives Support Materials

Contents:

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- Level of Service Reports - Adopted Community Plan
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- Trip Generation Supporting Materials
- Intersection Volume Comparison

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Appendix E:

Mobility Alternatives Development Support Materials

E.1 Process for Developing Alternatives

All concepts developed by this project need to take into account the goal of supporting all travel modes, not only because California Complete Streets legislation requires it, but to address safety and connectivity goals for the local community, as well as the first and last mile pedestrian and bike connections to the existing and proposed trolley stations. The intent of Complete Streets legislation is to take all roadway users into account when planning for changes along a roadway. Although the legislation does not require that all uses be equally balanced or that they have a place within the geometric cross section of the right-of-way, they do need to be accommodated in a safe and direct manner, within the study area itself. All mobility alternatives considered take into account the Complete Streets requirements and they look at providing additional linkages to the existing and proposed transit stations in the area.

Land use scenarios also are an important foundation to transportation planning. The land uses proposed by the Morena Boulevard Area Plan (MBAP) not only have an impact on the urban form of the study area, but also the efficiency and loading demand on the circulation system. Any change in land uses, or change in intensity of land use, can have an impact, positive or negative, on mobility within the study area.

The primary approach for developing mobility alternatives was to first decide on varying levels of land use that look at different land use mixes, densities and vehicular trip generation. Then, the mobility alternatives were paired up with the appropriate land use alternatives as required to support varying levels of trip generation and traffic volumes.

E.2 Overall Project Land Use Vision

The vision for the land use scenarios of the MBAP was based on input provided by the community, the results of market demand/trend analyses, and the city's goals of supporting transit through complementary land use patterns. The resulting land use vision converts many existing retail/commercial parcels into a higher amount of multi-family residential parcels. Key parcels near the existing and proposed trolley stations are envisioned for a mix of uses to include residential, retail, commercial, and office. The goal of this shift is to accommodate future growth in areas that are well served by transit, creating hubs of activity and density that incorporate sustainable principles while also adding diversity and vibrancy to the existing neighborhood. Whenever possible, a balance of jobs and housing should be obtained in order to keep trips more local. A balance of destinations and origins in areas around transit facilities allows for primary and reverse commute balance of users on the transit line. The incorporation of a wide variety of uses that support a community's needs generally keeps trips shorter, allowing for more of them to be made by bike or walking. All of these considerations are critical to creating a complete community.

In order to capitalize on the anticipated investment in the Mid-Coast Trolley corridor and its associated stations, the plan set a goal of achieving a range of between 30 and 70 dwelling units per acre. This range is widely accepted as the ideal range for transit oriented development. The goal is to strategically place the higher density development closest to the stations where walktimes are shortest, and gradually decrease density as the distance increases. This graduated approach also has the benefit of lessening physical incompatibilities with existing lower density single family development.

The initial phases of the project established that a density of 70 dwelling units per acre could generally be achieved through a development pattern of four stories of multi-family construction built on a podium of two floors structured parking, resulting in an overall height of six stories. However, this height in some areas is not likely to be supported by the public based on concerns over density and the potential for blocking views from many homes located up slope of the study area. The south end of the project study area does not have the neighborhood sensitivity of view blockage as the north end does. This is a result of the depth of non-residential development between I-5 and the slopes where housing exists, and it is also related to the lower elevation gains that occur when moving up on landforms to the east. Not as many views in the south end would be blocked and most of the views are of the industrial areas of Morena Boulevard and the freeway aerial structures of I-5 and I-8.

E.3 Workshop Alternative Concept Plans

The following descriptions and accompanying maps are representative of materials shown to the community through a series of meetings, presentations and workshops. This section should not to be confused with the recommended plans discussed later in the chapter. They are included here to represent the broad range of options that were reviewed and to document why certain options did not move forward into the recommendations phase of this study.

Common Circulation Elements Found in All 3 Alternative Concepts

The following design elements are common among the three conceptual plans developed for the workshops. They are each applied to their unique street conditions and are designed to improve the pedestrian, cyclist, and vehicular street environment. Common elements include:

- Use of lane diets (lane widths) to increase width for other uses and to calm traffic
- Use of road diets (dropping a lane) to increase width for other uses
- Provision of bicycle facilities
- Curb extensions that improve the visibility of walkers, and shortens the crossing distance
- Elements that encourage traffic calming
- New opportunities for landscaping
- Streetscape with tree-planted medians and parkways
- Increased visual quality
- Options for storm water management

E.3.1 Alternative 1: Lane Reductions with “T” Intersections (Conservative Circulation Alternative)

The primary design concept for this alternative is how the safety and comfort of pedestrians, cyclists, and drivers can be improved by reconfiguring several existing intersections into standard intersections. Please refer to the overview map on Figure 1, cross sections shown on Figure 2 and 3, and detail sheets shown on Figures 4 through 7. This approach is considered to be conservative since it preserves future capacity for additional traffic while taking back a portion of the excess rights-of-way that are not needed based on volume (present, planned and proposed).

The following design elements are unique to the northern portion of the study area north of the new LRT Tecolote Station (Figures 4 and 5):

- Morena Boulevard is proposed to have one traffic lane southbound and two traffic lanes northbound.
- Parallel parking is provided on the eastern side of Morena Boulevard between Jellet Street and Knoxville Street.
- Buffered Class 2 bike lanes are included on both sides of Morena Boulevard between Jellet Street and Knoxville Street.
- A new standard intersection where Knoxville Street meets West Morena Boulevard is proposed
- A proposed trail along Tecolote Creek on the northern side of Tecolote Road between Morena Boulevard and West Morena Boulevard provides pedestrian access.
- A new walkway on the southern side of Tecolote Road between Savannah Street and West Morena Boulevard that will provide pedestrian and bike access from various neighborhood streets in the area.

Southern portion from the new Tecolote LRT Station to the southern boundary of study area (Figures 6 and 7):

- West Morena Boulevard is designed to have two traffic lanes both northbound and southbound.
- Parallel parking is provided on both sides of Morena Boulevard between Vega Street and the southern Morena split.
- Buffered Class 2 bike lanes are provided on both sides of Morena Boulevard between Vega Street and the southern Morena split.
- Class 2 bike lanes continue on both sides of Morena Boulevard past the southern Morena split towards the southern boundary of the study area.
- New parking and green space proposed on the eastern side of Morena Boulevard between the southern Morena split and the intersection where Napa Street, Sherman Street and Morena Boulevard meet.

Design treatments to the eastern extension of Morena Boulevard north of the current Morena split (Figure 7):

- Class 2 bike lanes on both sides and a pedestrian mid-block crossing north of Dorcas Street.
- The southern Morena split and the intersection where Napa Street, Sherman Street and Morena Boulevard meet are redesigned as standard intersections. Although the existing freeway-style street configuration is efficient for motorists, it negatively affects the pedestrian and cycling experience and introduces safety concerns. By redesigning these as standard intersections, vehicular speeds are reduced, which in turn improves the safety and comfort of all roadway users.

E.3.2 Alternative 2: Lane Reductions with "Triangle –about" (Moderate Circulation Alternative)

The design concept for this alternate focuses on the reconfiguration of circulation patterns around the triangular parcel of land bordered by Napa Street, Morena Boulevard, and Linda Vista Road. Please refer to the overview map on Figure 8, cross sections shown on Figure 9 and 10, and detail sheets shown on Figure 11 through 14. The "Triangle-About" is inspired by the free-flowing, continuous circulation and organization found in standard round-abouts.

The following design elements are unique to the northern portion of the study area north of the new LRT Tecolote Station (Figures 11 and 12):

- Morena Boulevard is designed to have one traffic lane southbound and one lane northbound.
- Parallel parking is provided on the eastern side of Morena Boulevard between Jellet Street and Knoxville Street.
- A buffered Class 2 bike lane is included on the eastern side of Morena Boulevard between Jellet Street and Knoxville Street.
- A buffered multi-use trail is proposed on the west side of Morena Boulevard.
- A new standard intersection where Knoxville Street meets West Morena Boulevard.
- A trail is proposed along Tecolote Creek on the northern side of Tecolote Road between Morena Boulevard and West Morena Boulevard to provide pedestrian access.
- A new walkway on the southern side of Tecolote Road between Savannah Street and West Morena Boulevard provides pedestrian access.

Southern portion from the new Tecolote LRT Station down to the current Morena Split (Figures 13 and 14):

- West Morena Boulevard is designed to have one traffic lane southbound and one traffic lane northbound between Tecolote Road and the southern Morena split.
- Morena Boulevard is designed to have one traffic lane southbound and one traffic lane northbound between Tecolote Road and the southern Morena split.
- Morena Boulevard is designed to have two traffic lanes southbound between the southern Morena split and the southern boundary of the study area.
- Angled parking is provided on both sides of West Morena Boulevard between Vega Street and the southern Morena split.
- Tree pop-outs are included at every 4-5 angled parking spaces.
- A multi-use trail is proposed on the west side of Morena Boulevard.
- The southern Morena split is redesigned as a traditional intersection.
- A Cass II bike lane is proposed on the west side of Linda Vista Road and on both sides of Linda Vista Road north of Napa Street.
- New parking and green space is proposed on the eastern side of Morena Boulevard between the southern Morena Split and the Triangle-about for the existing businesses.
- Improvements on Morena between Tecolote Road and the southern Morena split include Class 2 bike lanes on both sides and a pedestrian mid-block crossing north of Dorcas Street.

Summary of the circulation being proposed by the Triangle-About (Figure 14):
The Triangle-About aims to improve circulation, safety, and comfort by reconfiguring the roadway and public right-of-way around the triangular parcel of land bordered by Napa Street, Morena Boulevard, and Linda Vista Road. Free-left turns and pedestrian-actuated crosswalks work together to create an efficient and safe mode of navigation. Some of the features include:

- Morena Boulevard south of Napa Street becomes one-way heading southbound.
- Provides more efficiently flowing traffic for motorists traveling southbound on Morena Boulevard and for those who need to connect to Linda Vista Road.
- Motorists traveling northbound on Morena Boulevard south of Linda Vista Road are directed onto Linda Vista Road and must navigate around the triangle-about to continue northbound on Morena Boulevard.
- Motorists traveling southbound on Linda Vista Road towards Morena Boulevard must turn right onto the triangle-about on Napa Street and can then continue northbound or southbound.
- The multi-use trail on the west side of Morena Boulevard comes to an end at the southern corner of the triangle-about. Pedestrians and cyclists who need to head northbound on Linda Vista Road can use the pedestrian/bicycle-actuated crosswalk to safely cross.
- Pedestrian-actuated crosswalks are located at each corner of the triangle-about.
- Entrances to the business inside of the triangle-about are maintained on each side.

E.3.3 Alternative 3: Lane Reductions w Roundabouts (Aggressive Circulation Alternative)

The design concept for this alternate focuses on the reconfiguration of the circulation of the southern Morena split and the triangular parcel of land bordered by Napa Street, Morena Boulevard, and Linda Vista Road. Please refer to the overview map on Figure 15, cross sections shown on Figures 16 and 17, and detail sheets shown on Figures 18 through 21. The efficient, free-flowing design of round-abouts will improve the circulation at these two locations, as well as provide new opportunities for green space and gateway/art installations.

The following design elements are unique to the northern portion of the study area north of the new LRT Tecolote Station (Figures 18 and 19):

- Morena Boulevard is designed to have two traffic lanes both southbound and northbound.
- Parallel parking is provided on the eastern side of Morena Boulevard between Jellet Street and Knoxville Street.
- Class 2 bike lanes are proposed on both sides of Morena Boulevard between Jellet Street and the Tecolote Station.

Southern portion from the new Tecolote LRT Station to the southern boundary of the study area (Figures 20 and 21):

- West Morena Boulevard is designed to have one traffic lane southbound and one traffic lane northbound between Tecolote Road and the southern Morena split.
- Morena Boulevard is designed to have one traffic lane southbound and one traffic lane northbound between Tecolote Road and the southern Morena split.
- Morena Boulevard is designed to have two traffic lanes southbound between the southern Morena split and the southern boundary of the study area.
- One of these lanes functions as a bypass lane through the round-abouts.
- Angled parking is provided on both sides of West Morena Boulevard between Vega Street and the southern Morena split.
- Tree pop-outs are included at every 4-5 angled parking spaces.
- A multi-use trail is proposed on the west side of Morena Boulevard
- A pedestrian-actuated crosswalk is proposed at the Morena Boulevard-Dorcas Street-Naples Street intersection.
- Additional parking and green space is proposed on the eastern side of Morena Boulevard between the two round-abouts for the existing businesses.

Summary of the circulation being proposed by the Round-About (Figure 21):

- Motorists travelling southbound on West Morena Boulevard and Morena Boulevard can take the bypass lane to continue southbound freely.
- Motorists needing to turn back or head towards Linda Vista Road can navigate through the round-about freely.
- This vehicular circulation also applies to motorists traveling northbound on Morena Boulevard and Naples Street.
- The multi-use trail on the west side of Morena Boulevard comes to an end at the Morena Boulevard-Linda Vista Road intersection. Pedestrians and cyclists who need to head northbound on Linda Vista Road use the pedestrian/bicycle actuated crosswalk to safely continue across.
- Pedestrian-actuated crosswalks are located around the round-abouts.

E.4 I-5 Bridge Crossing Options

The MBAP also addresses the existing issues that make the Tecolote and Clairemont I-5 freeway overpasses a challenge for pedestrians and cyclists to navigate. Three solutions are proposed for each bridge and include specific combinations of the following design elements:

E.4.1 Tecolote I-5 Crossings (Figure 22 Overview Map)

Option 1 (Figure 23)

- A five-foot Class 2 bike lane with a one and a half-foot striped buffer on the outside
- The existing walkway remains the same, but pedestrians benefit from greater separation from vehicular traffic as a result of the bike lane
- Two travel lanes westbound and eastbound

Option 2 (Figure 24)

- A five-foot Class 2 bike lane with a three-foot striped buffer on the outside
- The existing walkway remains the same, but pedestrians benefit from the new separation from vehicular traffic
- One travel lane westbound and two travel lanes eastbound

Option 3 (Figure 25)

- A five-foot Class 2 bike lane with a two-foot striped buffer on the outside
- Walkways are widened to eight feet
- One travel lane westbound and two travel lanes eastbound

E.4.2 Clairemont I-5 Crossings (Figure 26 Overview Map)

Option 1 (Figure 27)

- A five-foot Class 2 bike lane with a three-foot striped buffer on the outside
- The existing walkway remains the same, but pedestrians benefit from the new separation from vehicular traffic
- Two travel lanes northbound and southbound

Option 2 (Figure 28)

- A five-foot Class 2 bike lane with a three-foot striped buffer on both sides
- The bike lane heading westbound is placed to the left of right turn-only lanes
- Walkways are widened to eight feet
- Two travel lanes northbound and southbound

Option 3 (Figure 29)

- A painted and buffered multiuse path (Class 1) designed in the center median
- Walkways are widened to eight feet
- Two-travel lanes northbound and southbound

E.5 Community Input on the Alternative Concepts

Community Workshop 3 was held on November 12, 2013 at the San Diego Humane Society. The workshop summarized the findings and recommendations of the previous two workshops, and provided new information. The three land use and mobility concepts were formally presented, followed by table-top discussions.

In general, workshop attendees supported the goal of shifting some non-residential land uses to residential land uses, as long as a core of businesses were retained and enhanced to support the budding "design district" identity of the corridor. Attendees recognized the importance of increasing the level of development near the existing and proposed trolley stations as a means to direct growth away from established single-family neighborhoods and support long-term sustainability goals. There were varying opinions on the appropriate level of density near the stations, however. Some workshop attendees agreed that 60' in height was appropriate in certain locations, especially if it is "stepped back" as it approaches lower density development. Other attendees were adamant that the existing 30' height limit (in the Clairemont planning area) be enforced. Of particular concern to this group were blockage of views and the introduction of too much development in an already established neighborhood.

The following are key points and comments received from community members regarding the Land Use Alternatives:

- Several people requested to make sure building heights are restricted to a maximum of 30 feet to prevent view blockages.
- People overall agreed that higher density seems appropriate for this corridor, especially near Linda Vista Road due to the close proximity to USD.
- The idea of implementing a parking district along Morena Boulevard was supported.

The following are key points and comments received from community members regarding the Mobility Alternatives:

Alternative 1 (Figure 1)

- There is large community support for opening up Knoxville Street to Morena Boulevard.
- Support for making Morena-Napa Street-Sherman intersection into a standard intersection.
- People were concerned about the safety of cyclists on both bridges at each right turn lane.
- There was also concern about traffic backing up on the bridges due to the lane reductions.

Alternative 2 (Figure 8)

- People were concerned whether Ingulf Street would be able to handle the new traffic that would result from the station.
- Large support for the multi-use trail on the west side of Morena Boulevard.
- Large community support for opening up Knoxville Street to Morena Boulevard.
- There was some concern whether the "triangle-about" would be able to handle high traffic volumes and how easy would it be to navigate.
- Several people suggested using new green spaces for monumentation/gateways.

Alternative 3 (Figure 15)

- Large community support for opening up Knoxville Street to Morena Boulevard.
- The multi-use trail in the center median on Clairemont Drive had mixed reviews.
- The round-abouts also had mixed reviews. Some people thought it was a great idea, others thought it would be too confusing
- Large support for the Class 2 bike facilities

E.5.1 Documentation of Decisions

Land Use Scenarios

Discussions on the recommended land use scenarios are discussed in other portions of this document. In general, however, it was felt that a moderately aggressive land use scenario would be the best to consider for refinement. The initial modeling done for traffic generation was based upon the moderately aggressive land use scenario in terms of location of land use changes and intensification. The initial intensity of new development looked at in this model matched that of the aggressive land use scenario. However, after initial model runs and further review by city staff, the intensity was dropped back to levels closer to the moderately aggressive scenario. Review the other sections of the document, including Section 1.3.1, to obtain a better sense of the final recommended land use plan.

Additional Variations of the Workshop Alternatives

In an effort to work through some potential benefits to on-street parking and to reconfigurations around the transit stations, some additional concept refinement was conducted prior to the recommended plans (Figure 34). These efforts focused on providing on-street parking for the transit stations and angled parking in the business districts. There was also a variation in the roadway geometry directly next to the Clairemont station platforms, as well as variations at the Tecolote station.

The refined alternatives located at the Clairemont station looked at dropping a lane of travel southbound, and providing a greater width at the station platform, which is currently proposed to have a protection wall since the platform extends to the curb edge, which has a travel lane currently in this location (see Figures 30 through 33). The dropping of the travel lane allows for a walkway, fence and tree buffer to be placed in this area making the station platform and adjacent pedestrian circulation work better. The other variations considered did not work as well as Figure 33.

Mobility Alternative Options Analyzed at the North End of the Study Area

The alternative that was refined into the recommended plan discussed below was that of the Conservative Alternative (See Section 1 on Figure 3). This version captures some capacity of the excess roadway and makes it available for other uses. Southbound travel lanes are reduced to one travel lane while northbound travel remains at two. The final recommended alternative is also based on a variation of Figure 35, except that it also includes a full width multi use path. The circulation alternative for North Morena Boulevard shown in the moderate alternative was determined to not be feasible due to a requirement that emergency vehicles need a minimum passing requirement of 20' between raised medians and parked vehicles or curbs (See Section 1 on Figure 10 and Figure 36). The aggressive alternative (actually conservative approach for mobility in order to support an aggressive land use alternative) was determined to not obtain enough benefits for other uses and did not address some of the community requested features (See Section 1 on Figure 17). This alternative is close to the current condition, with the addition of bike lanes created out of lane width reductions (Figure 37).

Mobility Alternative Options Analyzed at the South End of the Study Area

Located a few blocks just south of the Clairemont station, a potential exists for providing on-street parking to service the station (see Figures 34). The same applies to the Tecolote station (see Figure 38). MTS as the transit authority does have pre-emptive rights to the public right-of-way for transportation purposes. If they wanted to use some of

the excess public right-of-way for parking, they do have the jurisdictional authority to do so. However, after careful site planning and roadway geometry layout, it was determined that the variation in lane markings, cross intersection lane line ups and the limited amount of parking generated was not worth the expense or right-of-way to recommend inclusion in the final plans. Also, SANDAG / MTS indicated that the on-street parking would not entice them to lower their off-street parking requirements. One of the goals of this alternative is to accommodate some of the transit station parking on the street, and to allow less of the nearby development capacity for transit oriented development to be taken up by Mid-Coast surface parking lots. Without the commitment to reserve these off-site areas for future development (or at least some of these areas), the goal was not attained and therefore this alternative was dropped form further consideration. It has been included here in case the benefits (parking capacity, traffic calming through a chicane arrangement of lanes, protection for the adjacent Class 1 multi-use path) were considered to be important enough to continue to pursue or if SANDAG / MTS decided to lower their off-street parking needs. The actual recommended plan took a variation of this concept by adding drop-off zones, kiss and rides, 15 minute waiting zones and taxi-zones along the east and west sides nearest the Clairemont and Tecolote stations.

A third area of concept refinement occurred south of the Tecolote station, south of Vega Street (see Figure 38 through 40). The original intent of some of the concepts was to allow for angled parking along the east side of West Morena near the design district (Figure 38 and 39). This would substantially increase the amount of available parking that would in turn allow reinvestment in the existing development without having to be brought up to current parking code requirements. The businesses would pay into a parking management district fund run by local stakeholders. If they cannot meet parking standards on their small lots and or make a structured parking solution work due to small lot dimensions, they would pay an in-lieu parking fee equivalent to the cost of a structured parking space for each parking space they would normally be required to provide. This approach also allows for parking strategies where some customers and employees would be able to park once and walk to several destinations. These spaces could also be metered and money collected would be partially available to the parking district to reinvest in circulation improvements in the Morena Design District area. However, the City of San Diego expressed concern over the ability to fit a bike lane and angle parking through this area. Solutions included the use of sharrows in the outer lane of the two lane road heading northbound on West Morena. Another solution included a “green back” painted sharrow lane (Figure 39), similar to what was done in a business district in Long Beach. However, the city’s stance on these solutions is that they did not want to pursue a sharrow or sharrow lane solution, so this alternative was dropped and parallel parking is now proposed as part of the recommended plan (Figure 40).

None of the three alternative street configurations represented in the workshops were carried through without major change into the recommended phase. Traffic modeling and detailed analysis determined that none of the three would work efficiently and provide enough benefits compared to the costs. The conservative scenario was too conservative and continued to have level of service failures at the triangle. The right angle “T” did work well at the current Morena south end split. The Knoxville connection at West Morena worked adequately and was moved forward into the recommended plan.

The “triangle-about” (Figure 14) and the “round-about” (Figure 21) versions of roadway adjustments did not completely resolve the congestion problems associated with traffic flow in the area. The recommended plan uses the idea of the “triangle-about” as the mid-term solution (although it is two way), but replaces several streets in the south study area with a distributed grid network that allows for the bypassing of through traffic that is freeway bound at Tecolote Road and I-5, to take a more direct path to this location instead of going through the congested Napa / Linda Vista / Morena triangle congestion point.

Alternative Concepts: “Conservative Land Use”

NORTH 1”= 600’ **Figure 1**

Segment 1

Segment 2

Segment 3

Segment 4

Section 1

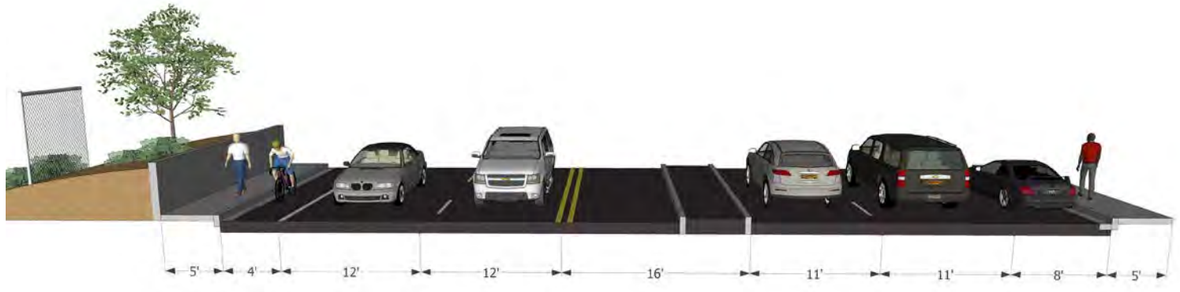

Figure 2 **Existing Section 1:** North Morena Boulevard

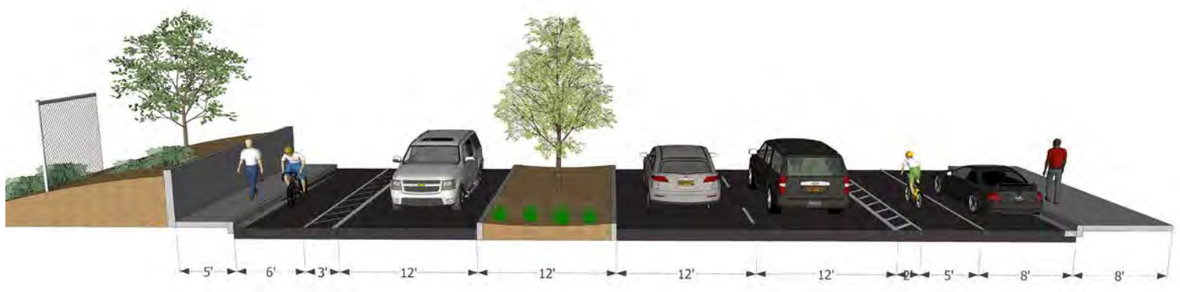

Figure 3 **Proposed Section 1:** North Morena Boulevard

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“Conservative Land Use”: Segment 1

NORTH 1”= 200’ **Figure 4**

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Vehicular Improvements

1. Road diet (drop a lane)
2. Lane diet (narrow a lane)
3. New roadway
4. Close road or reclaim space
5. Drop-off zone / 15 minute zone
6. New driveway / curbcut
7. On-street parking
8. New traffic signal

Pedestrian Improvements

1. Enhanced crosswalk
2. Curb extension
3. Median refuge
4. Count-down pedestrian signals
5. Rectangular Rapid Flashing Beacon
6. HAWK crossing
7. Widened walkway
8. Enhanced double tree lined path

Bike Improvements

1. Class 1 multi-use path
2. Class 2 standard bike lane
3. Class 2 buffered bike lane
4. Class 3 route
5. Sharrows
6. Painted green cross over lane
7. Bike crosswalk
8. Jug handle (left turn for bikes)

Design Improvements

1. Raised median with no planting
2. Raised median with planting
3. Bio-swales
4. Street furnishings
5. Trees with tree grates
6. Trees in median
7. Trees in parkway strip
8. Entry monumentation / wayfinding


"Conservative Land Use": Segment 2
NORTH
1"= 200'
Figure 5
Morena Blvd Station Area Planning Study
Undercrossing
Vehicular Improvements
1 Road diet (drop a lane)
2 Lane diet (narrow a lane)
3 New roadway
4 Close road or reclaim space
5 Drop-off zone / 15 minute zone
6 New driveway / curbcut
7 On-street parking
8 New traffic signal
Pedestrian Improvements
1 Enhanced crosswalk
2 Curb extension
3 Median refuge
4 Count-down pedestrian signals
5 Rectangular Rapid Flashing Beacon
6 HAWK crossing
7 Widened walkway
8 Enhanced double tree lined path
Bike Improvements
1 Class 1 multi-use path
2 Class 2 standard bike lane
3 Class 2 buffered bike lane
4 Class 3 route
5 Sharrows
6 Painted green cross over lane
7 Bike crosswalk
8 Jug handle (left turn for bikes)
Design Improvements
1 Raised median with no planting
2 Raised median with planting
3 Bio-swales
4 Street furnishings
5 Trees with tree grates
6 Trees in median
7 Trees in parkway strip
8 Entry monumentation / wayfinding


"Conservative Land Use": Segment 3
NORTH
1"= 200'
Figure 6
Vehicular Improvements
1 Road diet (drop a lane)
2 Lane diet (narrow a lane)
3 New roadway
4 Close road or reclaim space
5 Drop-off zone / 15 minute zone
6 New driveway / curbcut
7 On-street parking
8 New traffic signal
Pedestrian Improvements
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2 Curb extension
3 Median refuge
4 Count-down pedestrian signals
5 Rectangular Rapid Flashing Beacon
6 HAWK crossing
7 Widened walkway
8 Enhanced double tree lined path
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3 Class 2 buffered bike lane
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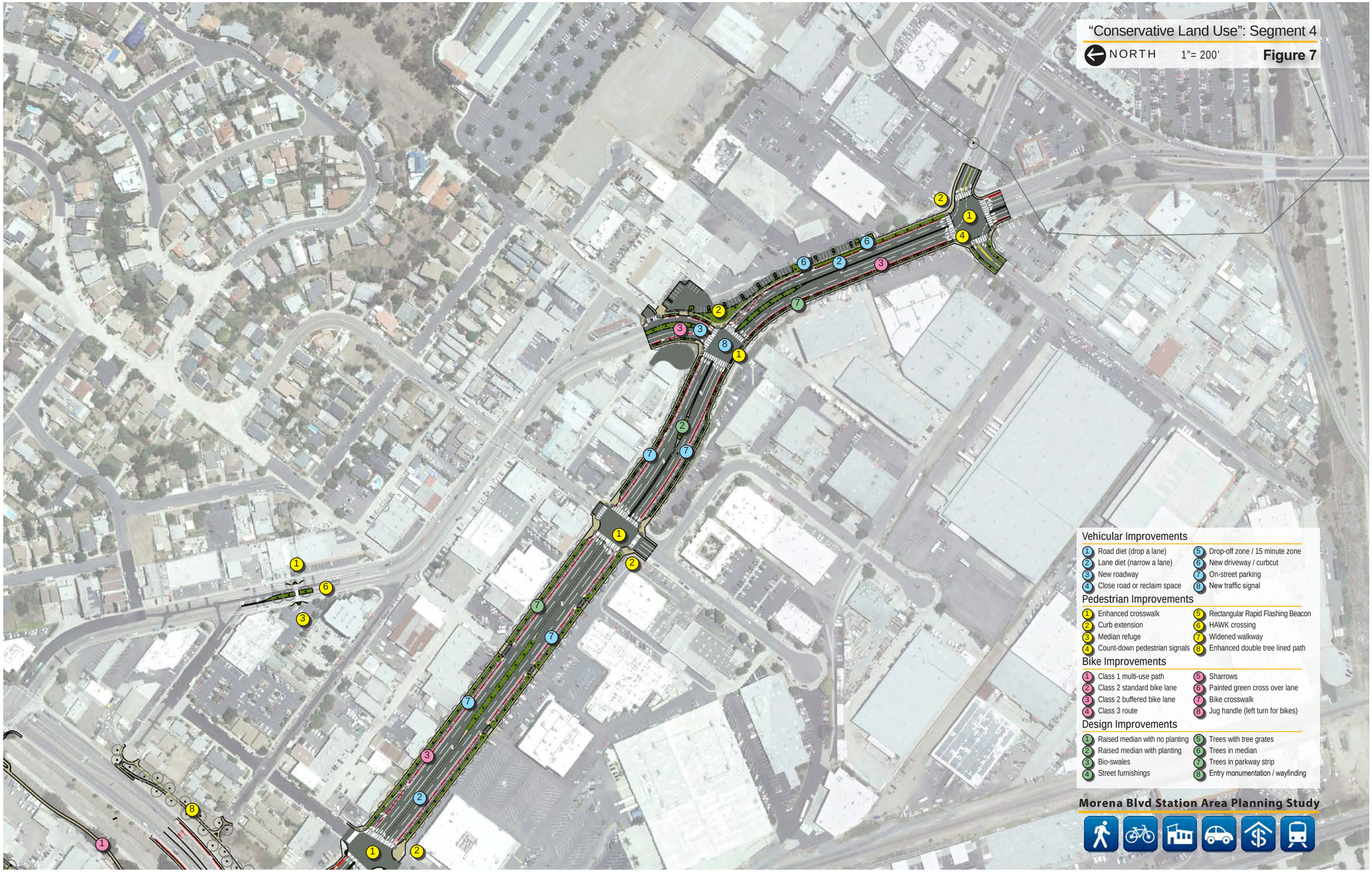
3 Bio-swales
4 Street furnishings
5 Trees with tree grates
6 Trees in median
7 Trees in parkway strip
8 Entry monumentation / wayfinding
Morena Blvd Station Area Planning Study


“Conservative Land Use”: Segment 4
NORTH
1”= 200’
Figure 7
Vehicular Improvements
1 Road diet (drop a lane)
2 Lane diet (narrow a lane)
3 New roadway
4 Close road or reclaim space
5 Drop-off zone / 15 minute zone
6 New driveway / curbcut
7 On-street parking
8 New traffic signal
Pedestrian Improvements
1 Enhanced crosswalk
2 Curb extension
3 Median refuge
4 Count-down pedestrian signals
5 Rectangular Rapid Flashing Beacon
6 HAWK crossing
7 Widened walkway
8 Enhanced double tree lined path
Bike Improvements
1 Class 1 multi-use path
2 Class 2 standard bike lane
3 Class 2 buffered bike lane
4 Class 3 route
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6 Painted green cross over lane
7 Bike crosswalk
8 Jug handle (left turn for bikes)
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1 Raised median with no planting
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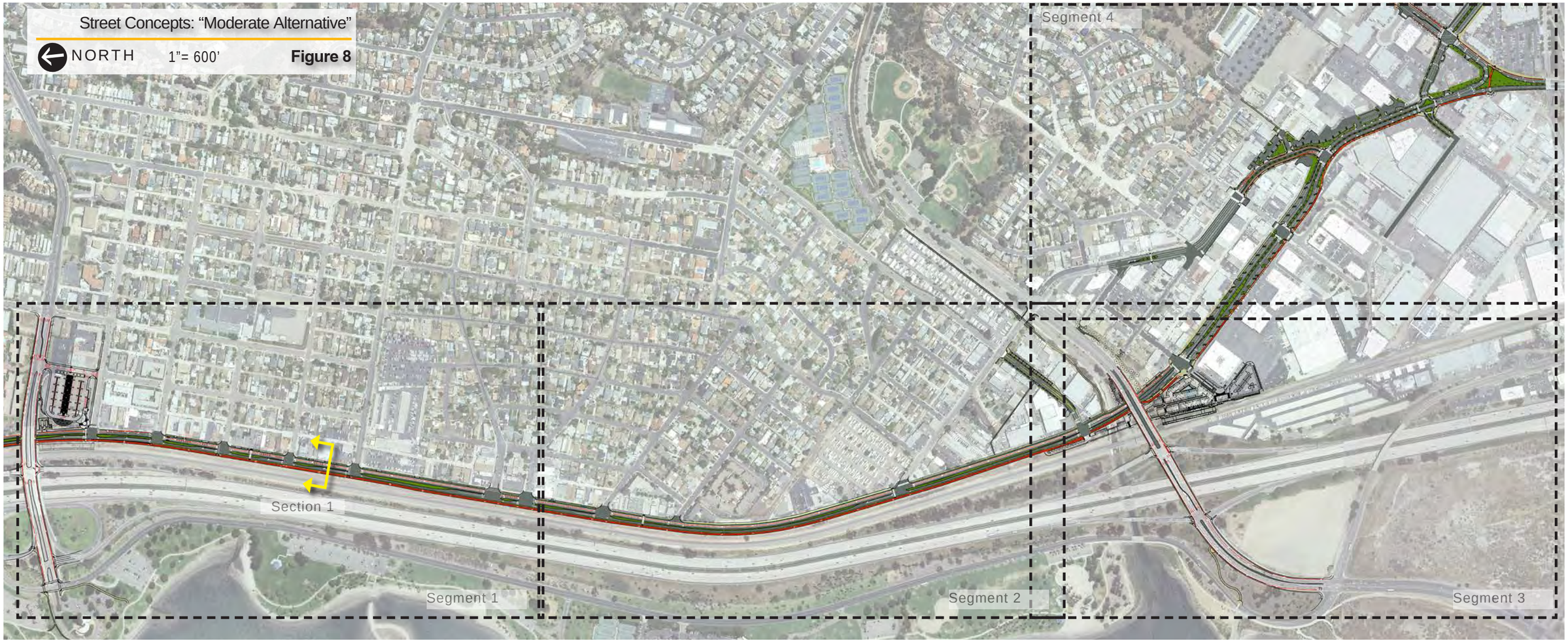
3 Bio-swales
4 Street furnishings
5 Trees with tree grates
6 Trees in median
7 Trees in parkway strip
8 Entry monumentation / wayfinding
Morena Blvd Station Area Planning Study

Street Concepts: "Moderate Alternative"

NORTH 1"= 600' **Figure 8**



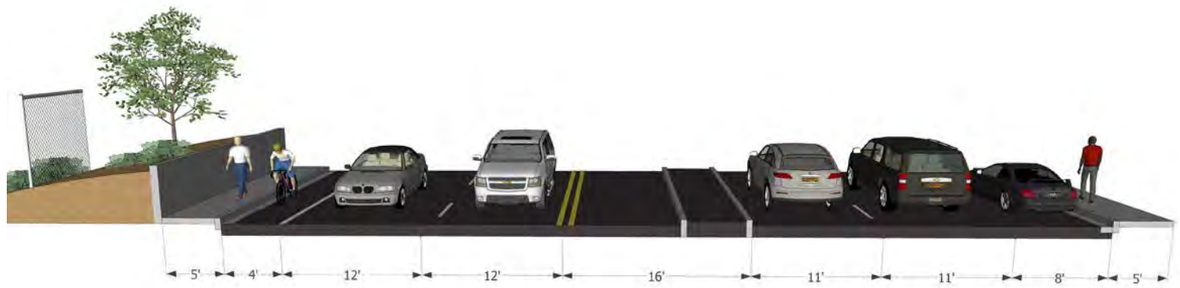


Figure 9 **Existing Section 1:** North Morena Boulevard

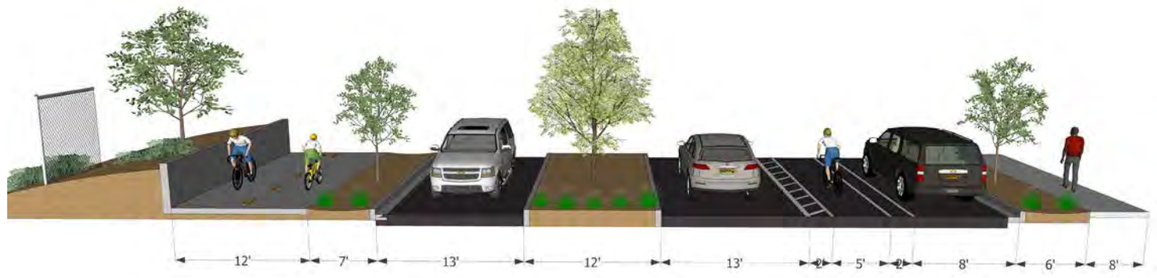
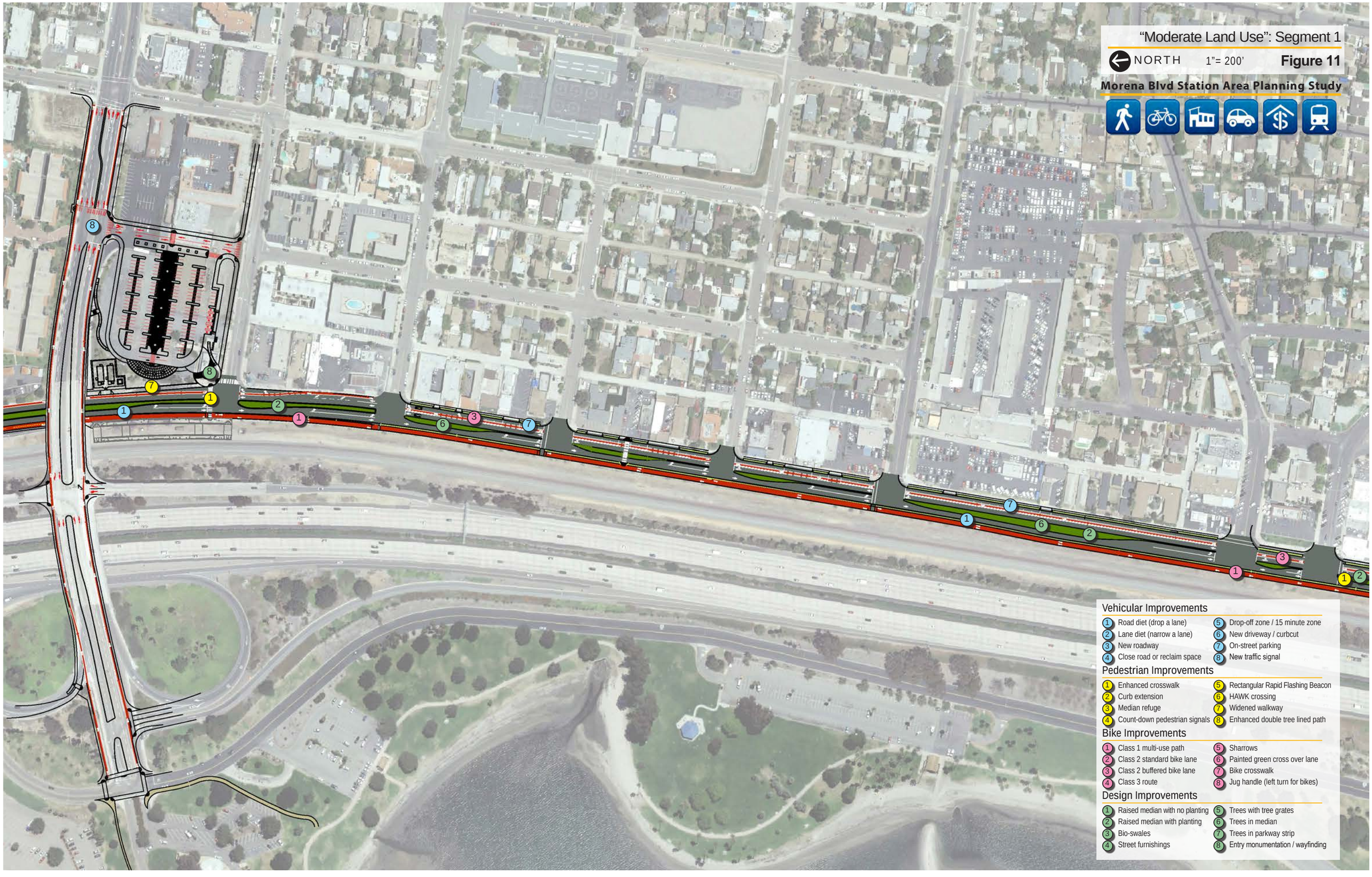


Figure 10 **Proposed Section 1:** North Morena Boulevard


“Moderate Land Use”: Segment 1
NORTH
1”= 200’
Figure 11
Morena Blvd Station Area Planning Study
Vehicular Improvements
1 Road diet (drop a lane)
2 Lane diet (narrow a lane)
3 New roadway
4 Close road or reclaim space
5 Drop-off zone / 15 minute zone
6 New driveway / curbcut
7 On-street parking
8 New traffic signal
Pedestrian Improvements
1 Enhanced crosswalk
2 Curb extension
3 Median refuge
4 Count-down pedestrian signals
5 Rectangular Rapid Flashing Beacon
6 HAWK crossing
7 Widened walkway
8 Enhanced double tree lined path
Bike Improvements
1 Class 1 multi-use path
2 Class 2 standard bike lane
3 Class 2 buffered bike lane
4 Class 3 route
5 Sharrows
6 Painted green cross over lane
7 Bike crosswalk
8 Jug handle (left turn for bikes)
Design Improvements
1 Raised median with no planting
2 Raised median with planting
3 Bio-swales
4 Street furnishings
5 Trees with tree grates
6 Trees in median
7 Trees in parkway strip
8 Entry monumentation / wayfinding

“Moderate Land Use”: Segment 2

NORTH 1”= 200’ **Figure 12**

Vehicular Improvements

1. Road diet (drop a lane)
2. Lane diet (narrow a lane)
3. New roadway
4. Close road or reclaim space
5. Drop-off zone / 15 minute zone
6. New driveway / curbcut
7. On-street parking
8. New traffic signal

Pedestrian Improvements

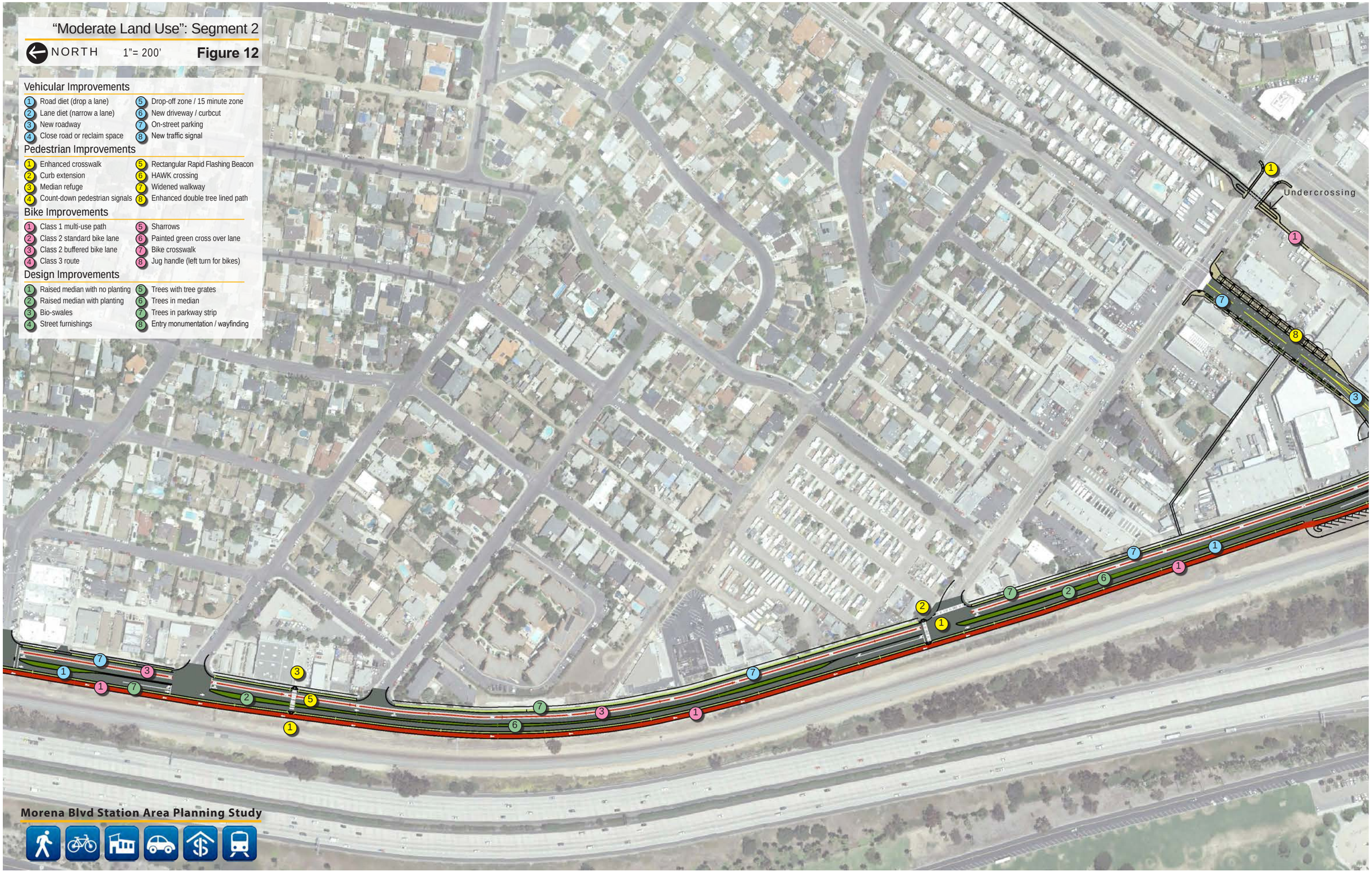
1. Enhanced crosswalk
2. Curb extension
3. Median refuge
4. Count-down pedestrian signals
5. Rectangular Rapid Flashing Beacon
6. HAWK crossing
7. Widened walkway
8. Enhanced double tree lined path

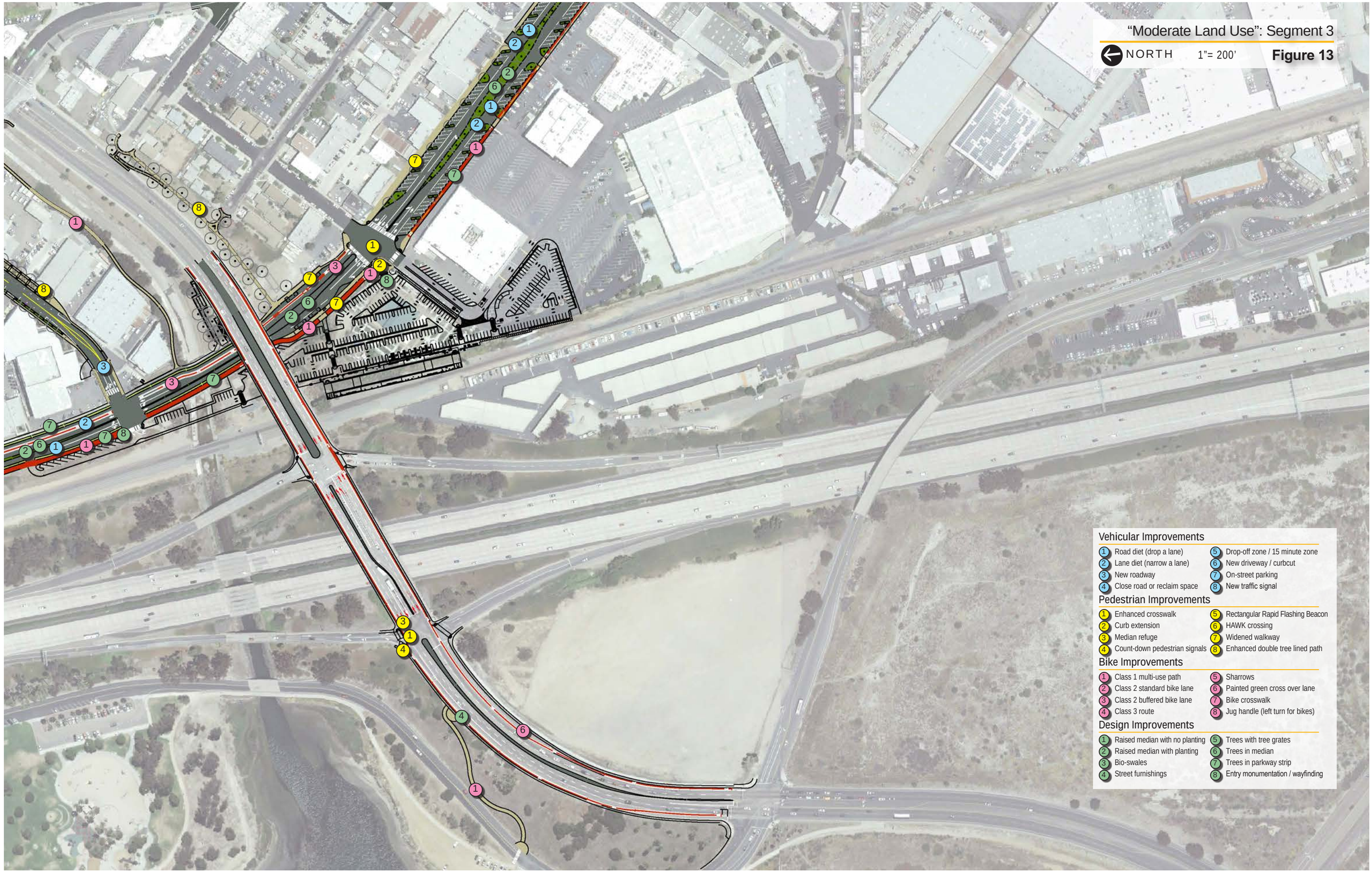
Bike Improvements

1. Class 1 multi-use path
2. Class 2 standard bike lane
3. Class 2 buffered bike lane
4. Class 3 route
5. Sharrows
6. Painted green cross over lane
7. Bike crosswalk
8. Jug handle (left turn for bikes)

Design Improvements

1. Raised median with no planting
2. Raised median with planting
3. Bio-swales
4. Street furnishings
5. Trees with tree grates
6. Trees in median
7. Trees in parkway strip
8. Entry monumentation / wayfinding




“Moderate Land Use”: Segment 3
NORTH
1”= 200’
Figure 13
Vehicular Improvements
1 Road diet (drop a lane)
2 Lane diet (narrow a lane)
3 New roadway
4 Close road or reclaim space
5 Drop-off zone / 15 minute zone
6 New driveway / curbcut
7 On-street parking
8 New traffic signal
Pedestrian Improvements
1 Enhanced crosswalk
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Design Improvements
1 Raised median with no planting
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3 Bio-swales
4 Street furnishings
5 Trees with tree grates
6 Trees in median
7 Trees in parkway strip
8 Entry monumentation / wayfinding

“Moderate Land Use”: Segment 4

NORTH 1”= 200’ **Figure 14**

Vehicular Improvements

1. Road diet (drop a lane)
2. Lane diet (narrow a lane)
3. New roadway
4. Close road or reclaim space
5. Drop-off zone / 15 minute zone
6. New driveway / curbcut
7. On-street parking
8. New traffic signal

Pedestrian Improvements

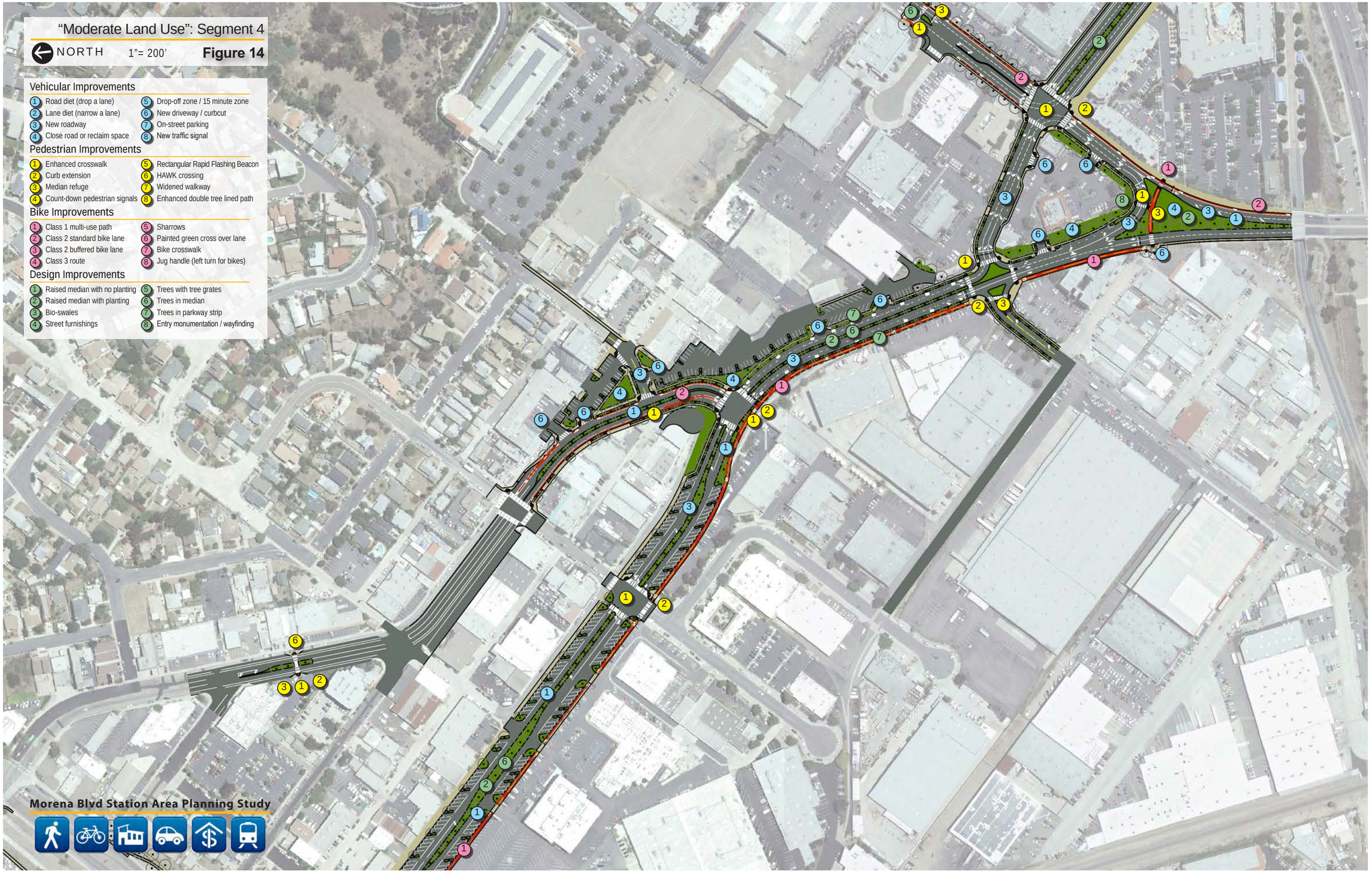
1. Enhanced crosswalk
2. Curb extension
3. Median refuge
4. Count-down pedestrian signals
5. Rectangular Rapid Flashing Beacon
6. HAWK crossing
7. Widened walkway
8. Enhanced double tree lined path

Bike Improvements

1. Class 1 multi-use path
2. Class 2 standard bike lane
3. Class 2 buffered bike lane
4. Class 3 route
5. Sharrows
6. Painted green cross over lane
7. Bike crosswalk
8. Jug handle (left turn for bikes)

Design Improvements

1. Raised median with no planting
2. Raised median with planting
3. Bio-swales
4. Street furnishings
5. Trees with tree grates
6. Trees in median
7. Trees in parkway strip
8. Entry monumentation / wayfinding



Segment 4

Street Concepts: "Aggressive Land Use"

NORTH 1"= 600' **Figure 15**

Section 1

Segment 1

Segment 2

Segment 3

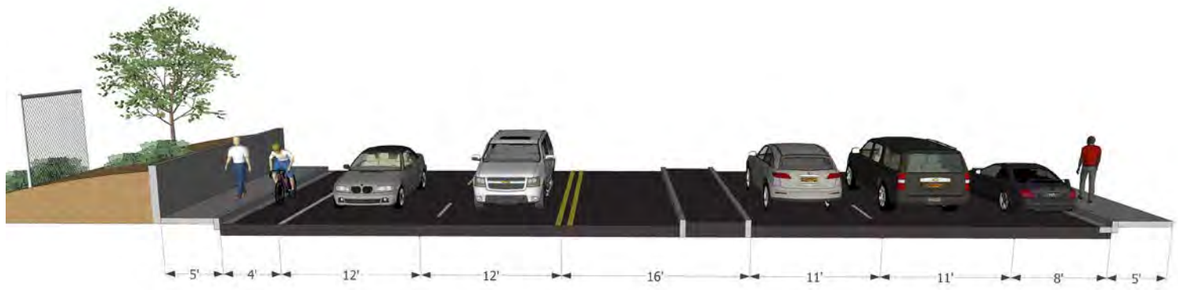


Figure 16 **Existing Section 1:** North Morena Boulevard

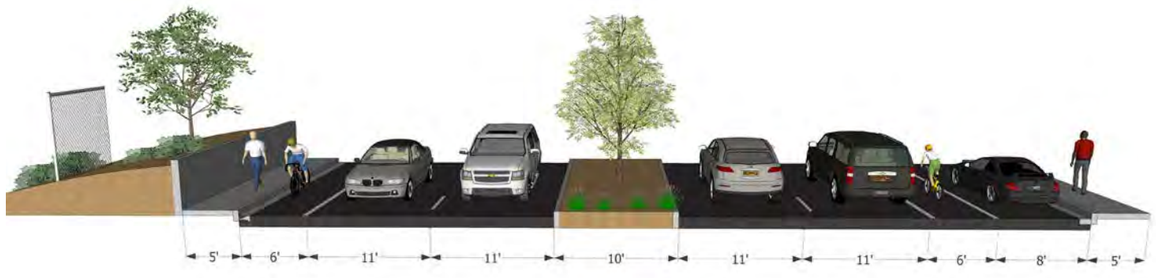
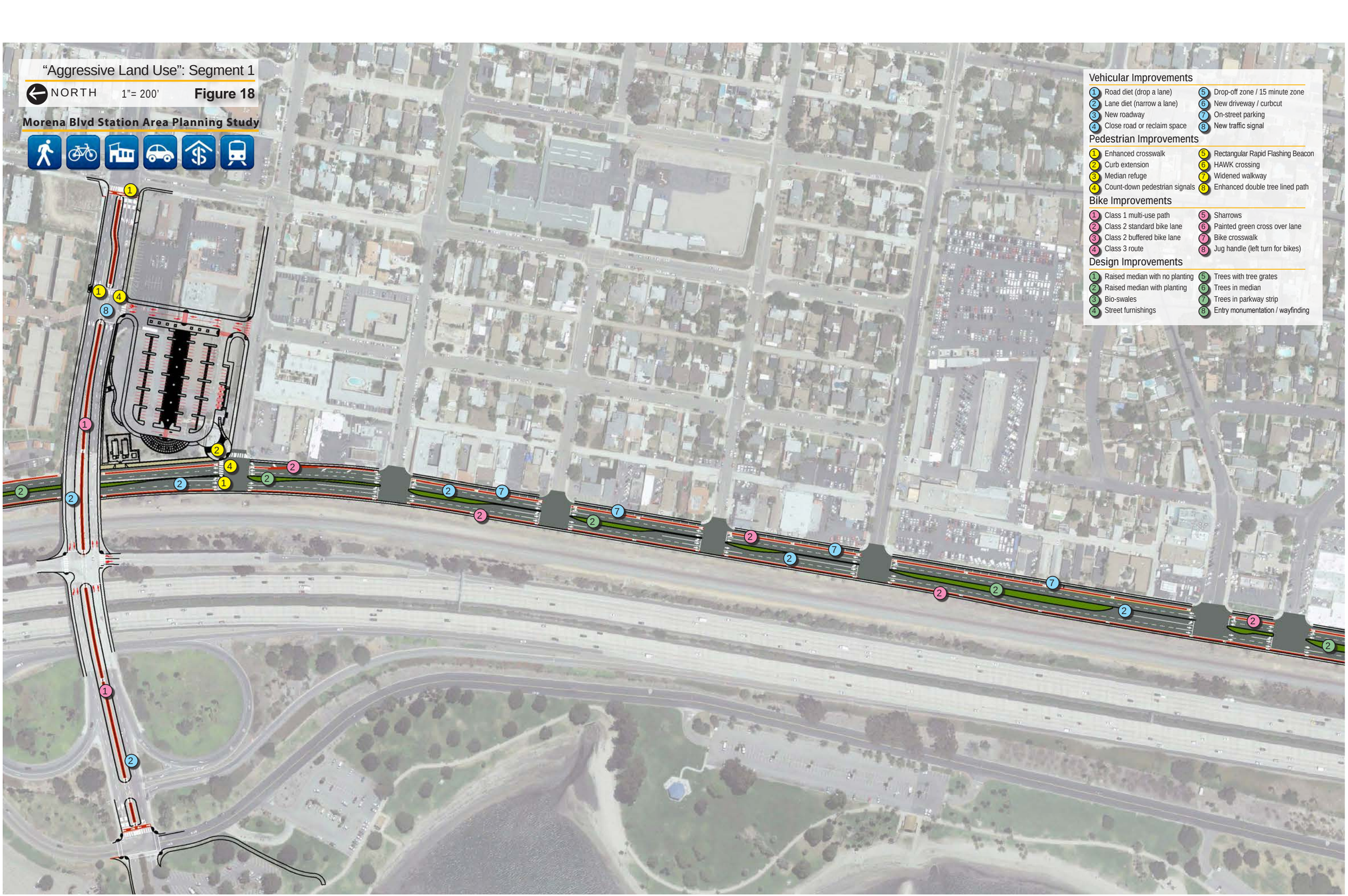


Figure 17 **Proposed Section 1:** North Morena Boulevard

“Aggressive Land Use”: Segment 1

NORTH 1”= 200’ **Figure 18**

Morena Blvd Station Area Planning Study

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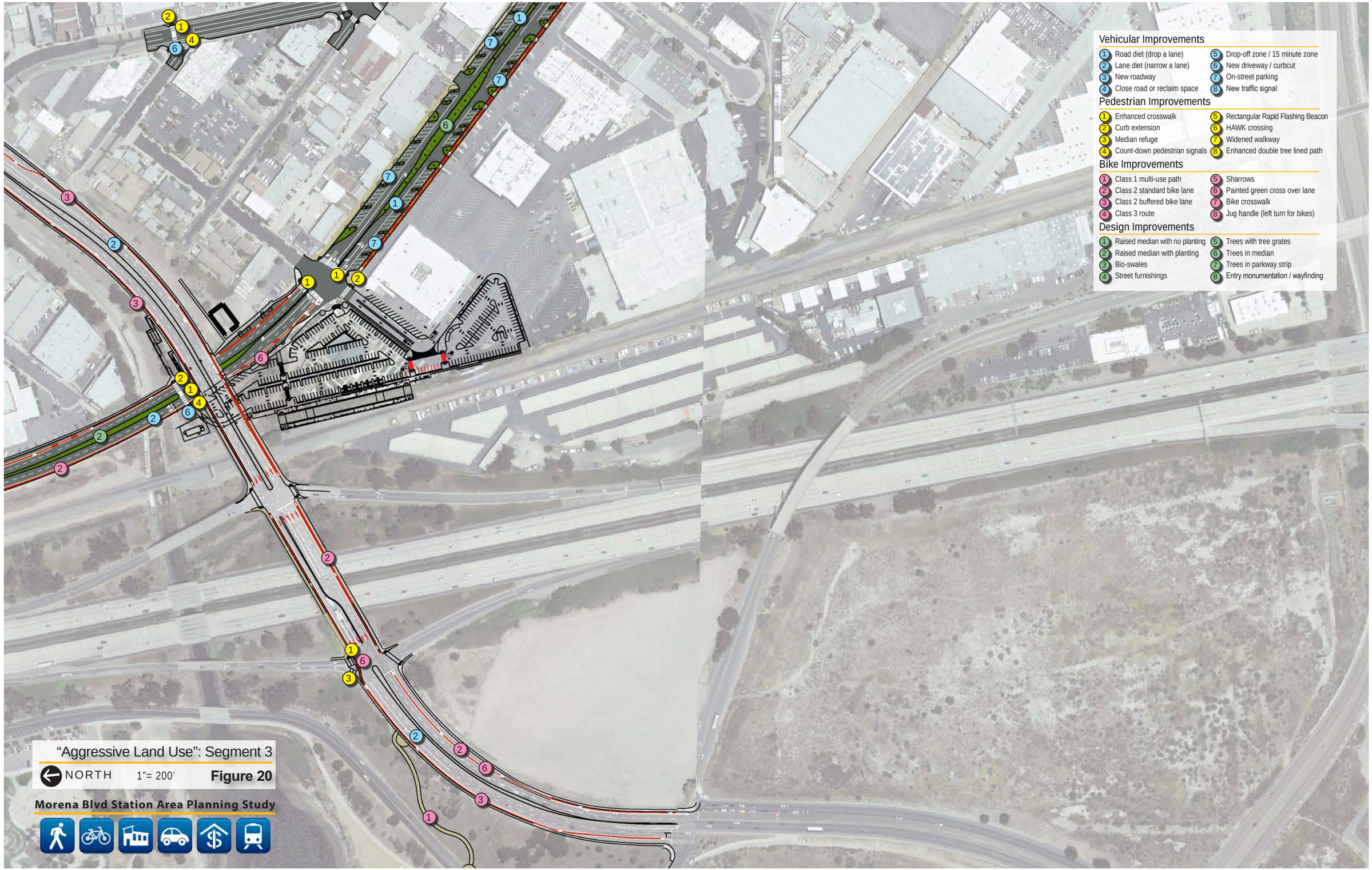
1 Raised median with no planting
2 Raised median with planting
3 Bio-swales
4 Street furnishings
5 Trees with tree grates
6 Trees in median
7 Trees in parkway strip
8 Entry monumentation / wayfinding
“Aggressive Land Use”: Segment 2
NORTH
1”= 200’
Figure 19
Morena Blvd Station Area Planning Study


Vehicular Improvements
1 Road diet (drop a lane)
2 Lane diet (narrow a lane)
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4 Close road or reclaim space
5 Drop-off zone / 15 minute zone
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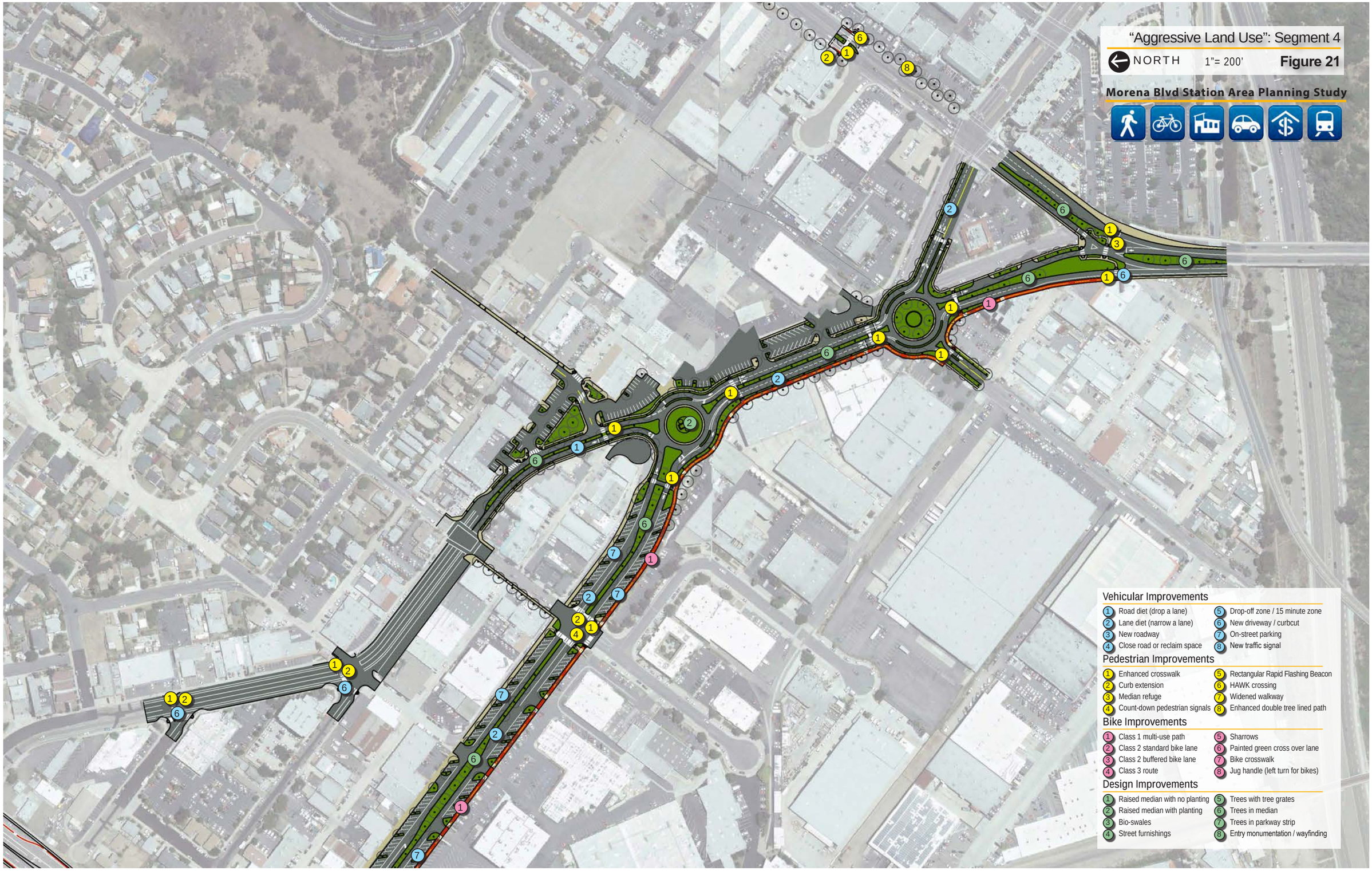
6 Trees in median
7 Trees in parkway strip
8 Entry monumentation / wayfinding
“Aggressive Land Use”: Segment 3
NORTH
1”= 200’
Figure 20
Morena Blvd Station Area Planning Study


"Aggressive Land Use": Segment 4
NORTH
1"= 200'
Figure 21
Morena Blvd Station Area Planning Study
Vehicular Improvements
1 Road diet (drop a lane)
2 Lane diet (narrow a lane)
3 New roadway
4 Close road or reclaim space
5 Drop-off zone / 15 minute zone
6 New driveway / curbcut
7 On-street parking
8 New traffic signal
Pedestrian Improvements
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3 Median refuge
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7 Widened walkway
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4 Street furnishings
5 Trees with tree grates
6 Trees in median
7 Trees in parkway strip
8 Entry monumentation / wayfinding

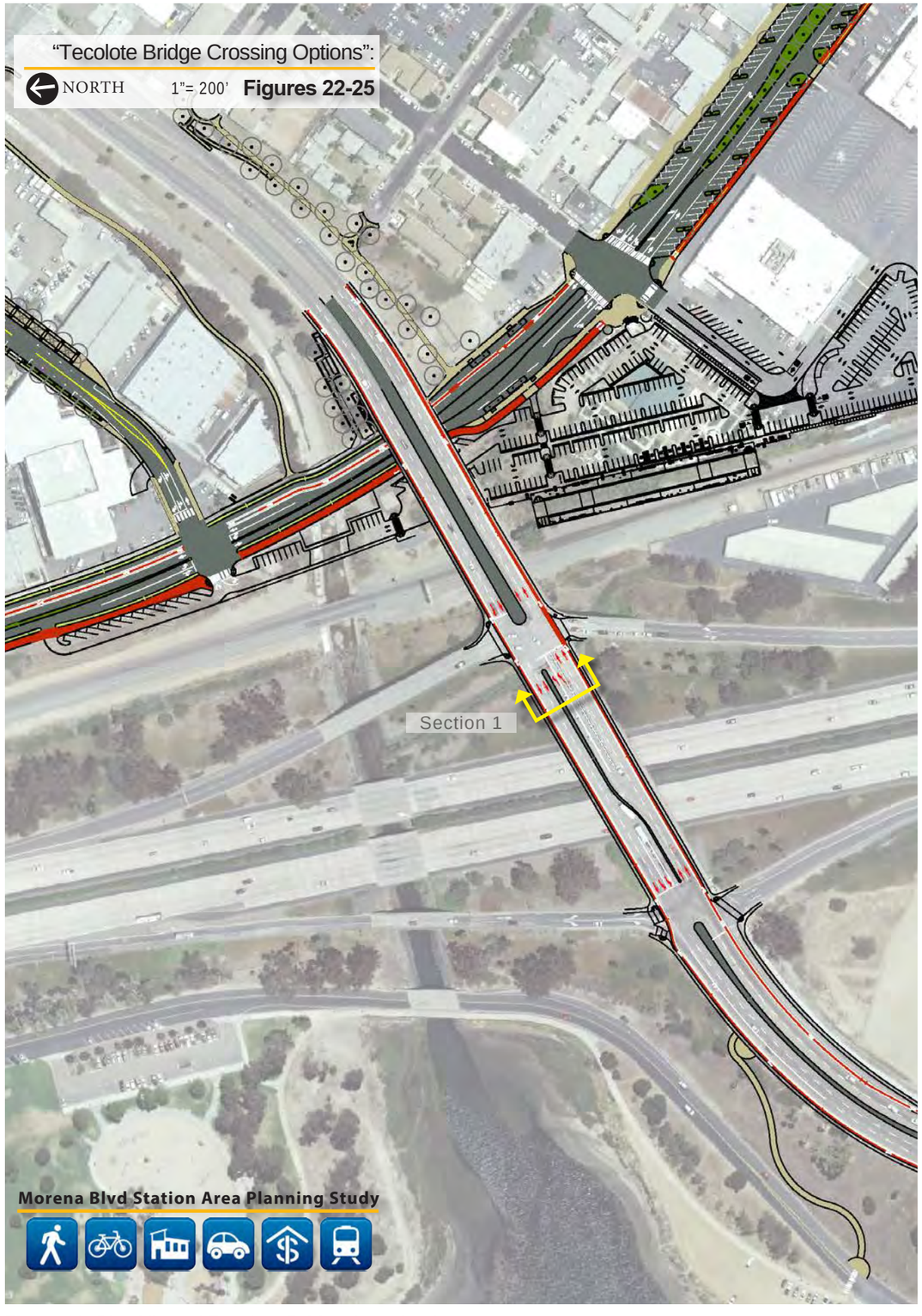


Figure 22: Plan View of Tecolote Bridge Crossing Improvements

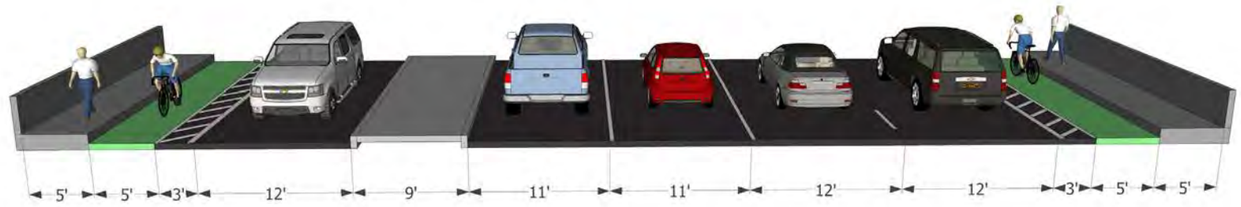


Figure 23: Single Thru Lane, Buffered Bike Lane with Bike / Ped Phase & no Turn on Red **Proposed Section 1:** Tecolote Bridge

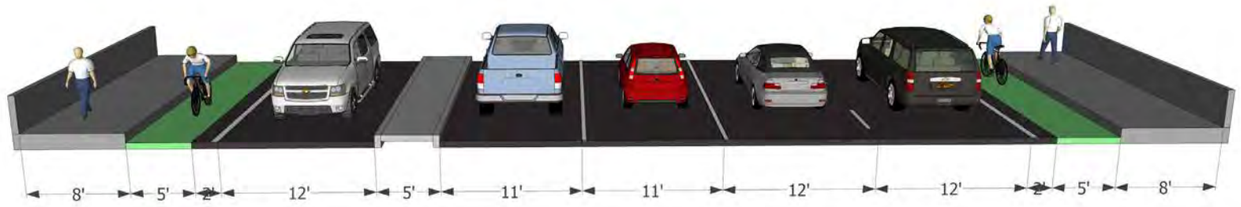


Figure 24: Single Thru Lane, Bike Lane, Painted Lane Crossovers, & Widened Walkway **Proposed Section 1:** Tecolote Bridge

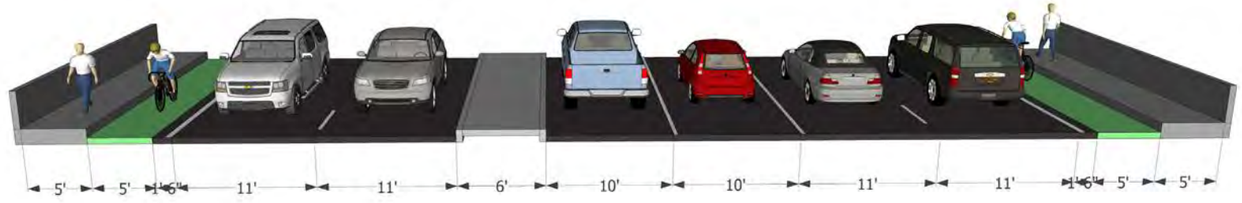


Figure 25: Standard Bike Lanes with Minor Median Modifications **Proposed Section 1:** Tecolote Bridge

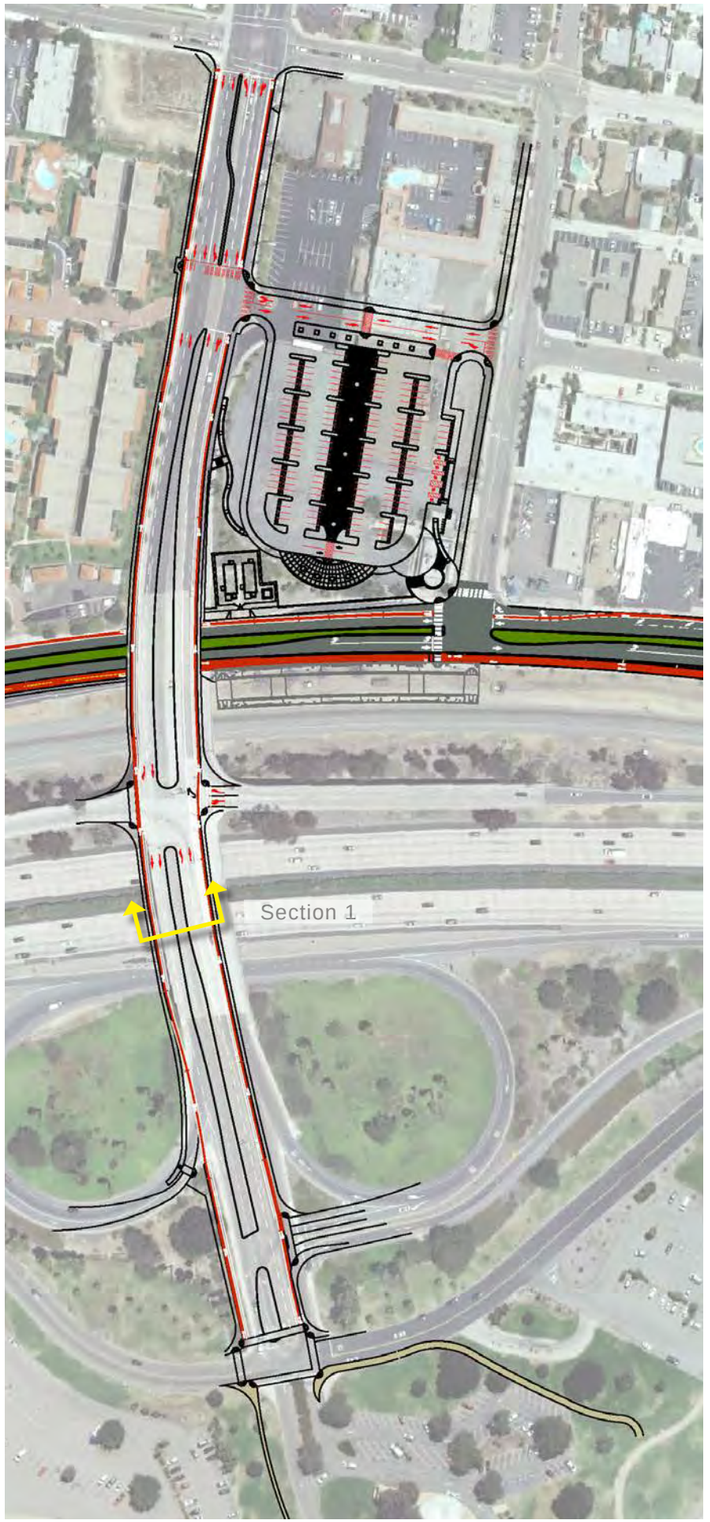


Figure 26: Plan View of Clairemont Bridge Crossing Improvements

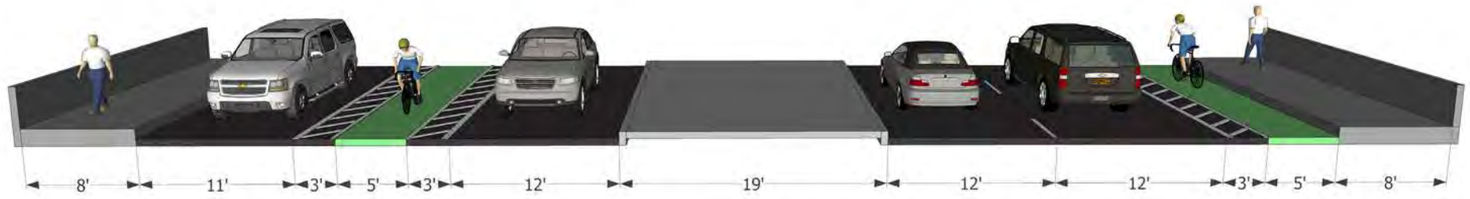


Figure 27: Buffered Bike Lanes with Right Turn Only Lane & Green Lane Crossovers

Proposed Section 1: Clairemont Bridge

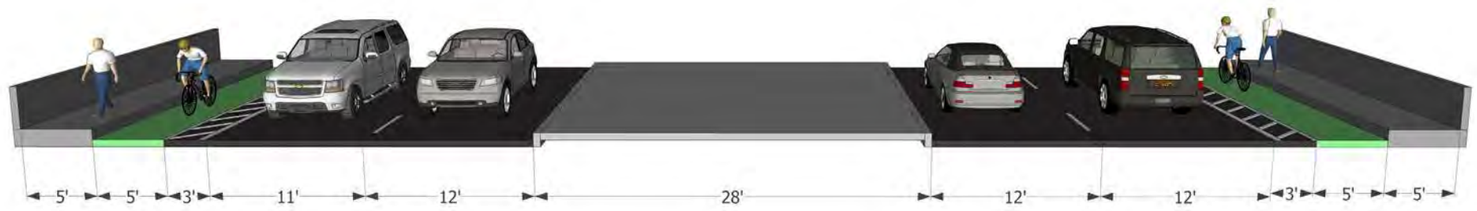


Figure 28: Buffered Bike Lanes Against Curb with Special Bike & Ped. Phase & Right Turn on Red Restrictions

Proposed Section 1: Clairemont Bridge

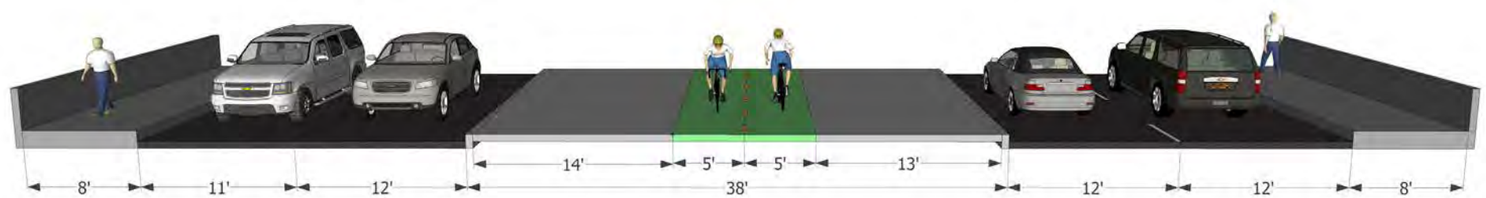


Figure 29: Median Based Bike Lane with Special Left Turn Signal Controls & Bike Signal Only Phase

Proposed Section 1:Clairemont Bridge

“Post Workshop Options” South of Clairemont

NORTH 1”= 200’ **Figures 30-37**

Morena Blvd Station Area Planning Study

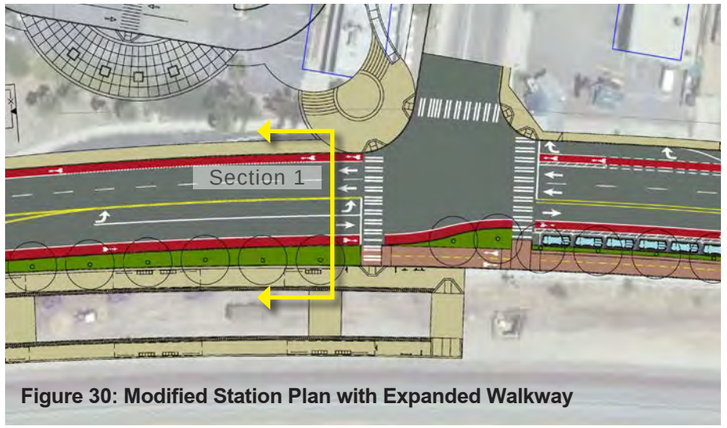


Figure 30: Modified Station Plan with Expanded Walkway

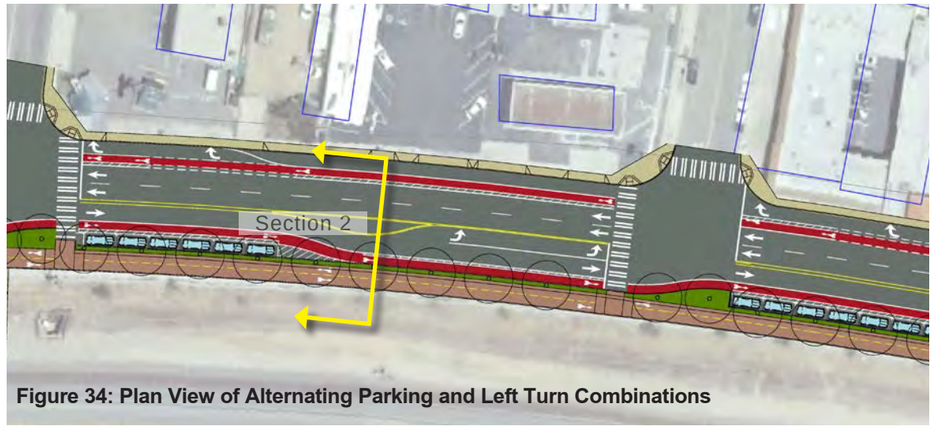


Figure 34: Plan View of Alternating Parking and Left Turn Combinations

Figure 31: Currently Planned MidCoast Station **Section 1:** Clairemont Trolley Station

Figure 32: Buffer Provided by Parkway & Bike Lane **Section 1:** Clairemont Trolley Station

Figure 33: Add Fence, Walkway with Trees in Tree Grates & Buffered Bike Lane **Section 1:** Clairemont Trolley Station

Figure 35: Drop Southbound & Add Cycle Track **Section 2: South of** Clairemont Trolley Station

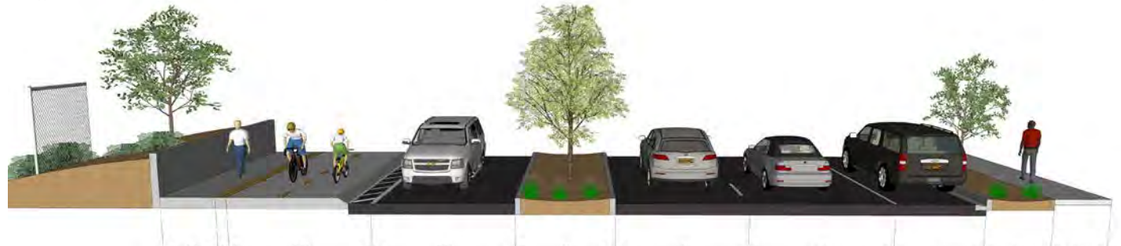


Figure 36: Drop Southbound & Add Buffered Bike Lanes **Section 2: South of** Clairemont Trolley Station

Figure 37: Remove East Side Parking & Add Bike Lanes **Section 2: South of** Clairemont Trolley Station

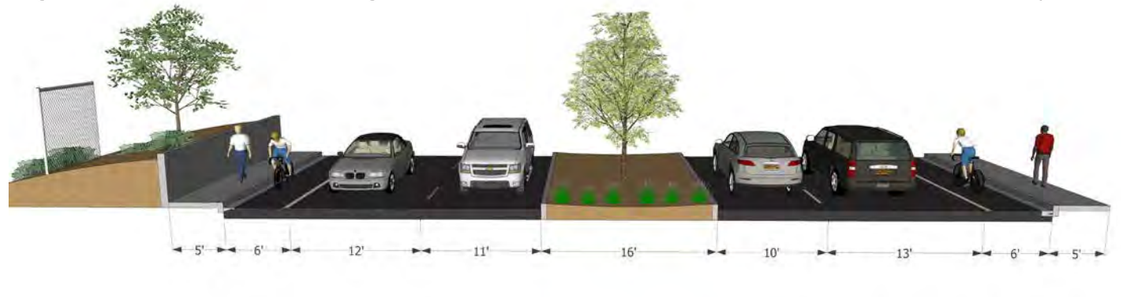


Figure 38: Plan View of Improvements South of Tecolote

Figure 39: One Lane Southbound with Green Backed Sharrow Lane Northbound **Section 1:** Clairemont Trolley Station

Figure 40: Two Lanes Each Direction with Parallel Parking **Section 1:** Clairemont Trolley Station

Morena Blvd Station Area Planning Study

Appendix E:

Travel Demand Model Output Sheets

Morena 2008 Street Network

MORENA Street Network

SANDAG SR12
2008 Network

Legend

- Freeway
- Prime
- Major
- Collector
- Local Collector
- Rural Collector
- Rural Light Collector
- Local
- Ramp

- Signal
- All-Way Stop
- Stop

Feet
0 800 1,600
0 96 288 480
Meters

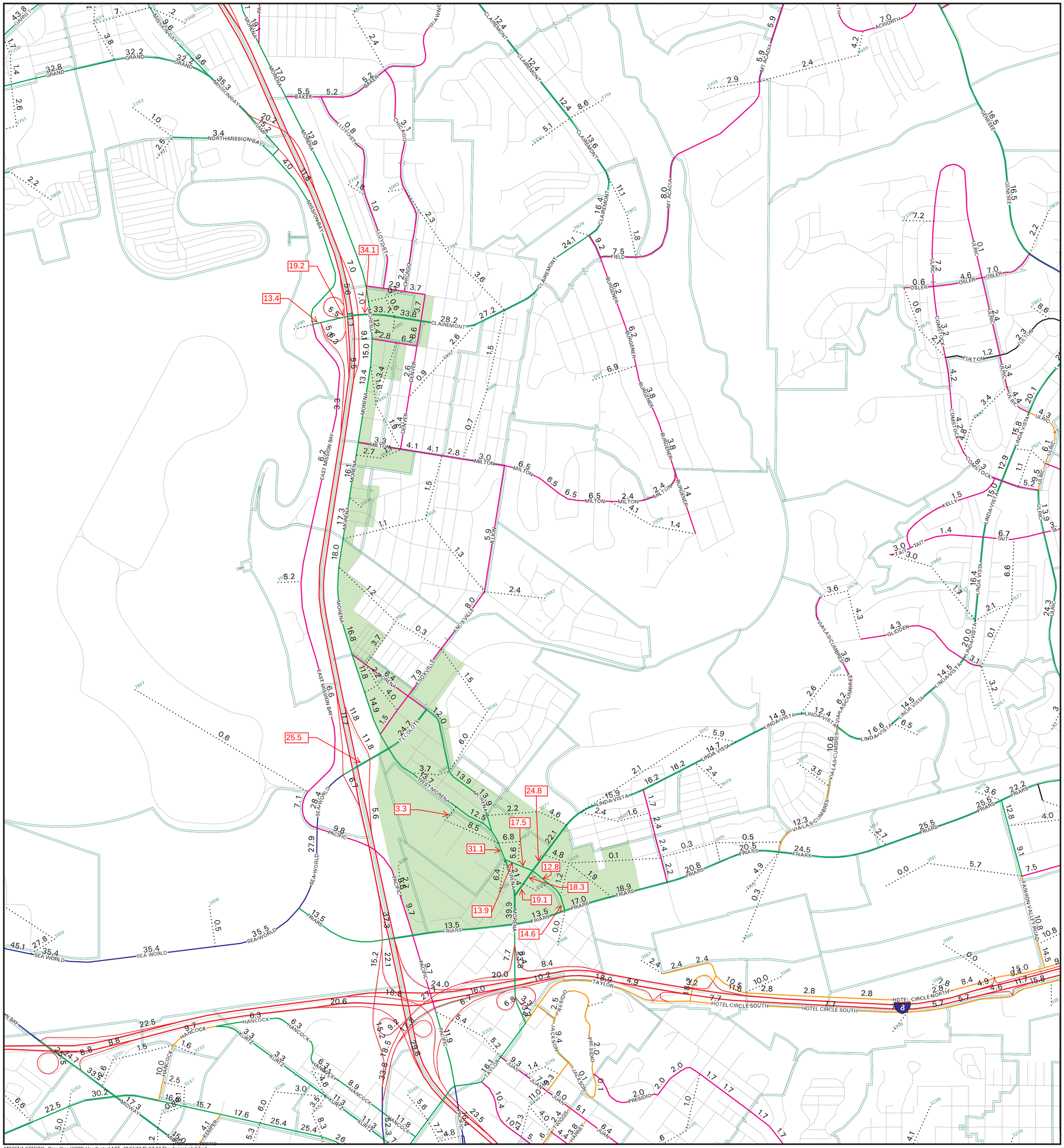
N

April 11, 2013

DWP

Morena 2008 Street Network, 04/11/13.12:21:50.Thu, byear/hwynetplt.hp2

MORENA STATION - Base Year (2008) Unadjusted ADT



Morena Station

SANDAG Series 12

Base Year Unadjusted ADT

Legend

- Freeway
- Prime
- Major
- Collector
- Local Collector
- Rural Collector
- Rural Light Collector
- Local
- Ramp

 # Unadjusted Volumes (1000s)

Feet
0 800 1,600
0 96 288 480
Meters

N

October 17, 2013

Morena Station - Adopted CP Street Network

Morean Station

SANDAG Series 12

Regional: 2035RC
Study Area: Adopted CP

Legend

- Freeway
- Prime
- Major
- Collector
- Local Collector
- Rural Collector
- Rural Light Collector
- Local
- Ramp

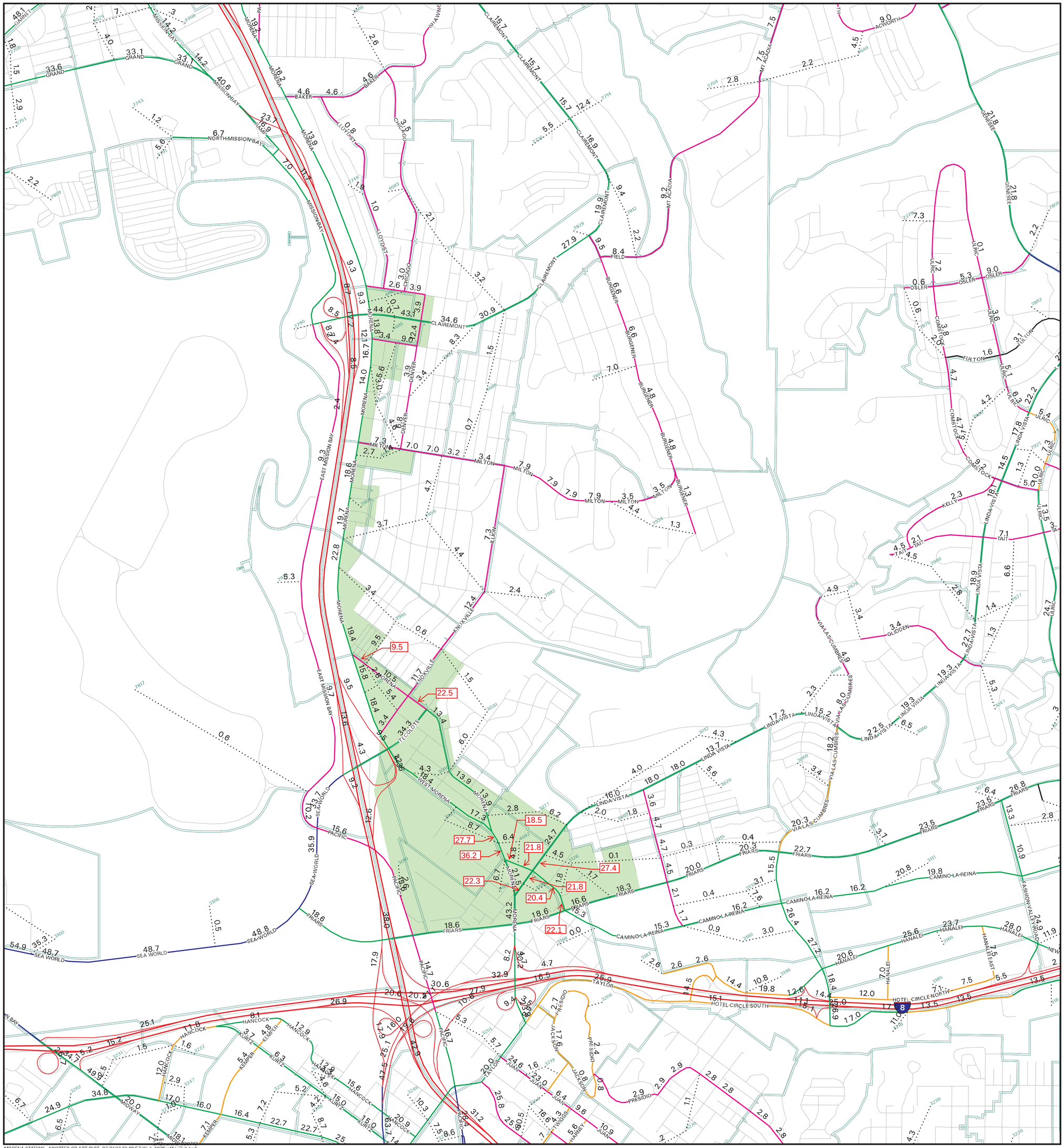
- Signal
- All-Way Stop
- Stop

Feet
0 800 1,600
0 96 288 480
Meters

N

August 15, 2013

MORENA STATION - ADOPTED CP ADT PLOT



Morena Station

SANDAG Series 12

Regional: 2035RC
Study Area: Adopted CP

Legend

- Freeway
- Prime
- Major
- Collector
- Local Collector
- Rural Collector
- Rural Light Collector
- Local
- Ramp

 # Unadjusted Volumes (1000s)

Feet
0 800 1,600
0 96 288 480
Meters

N

July 31, 2013

The information contained on this map pertains to this project. Interpretation of the information should be made by someone appropriately qualified. The use of the City traffic model should not be interpreted as an approval of the project. This map may also contain information from SANDAG and/or SanGIS.

Morena Station - 2035 Street Network (w/Scenario 1)

Morean Station

SANDAG Series 12

Regional: 2035RC
Study Area: Scenario 1

Legend

- Freeway
- Prime
- Major
- Collector
- Local Collector
- Rural Collector
- Rural Light Collector
- Local
- Ramp

- Signal
- All-Way Stop
- Stop

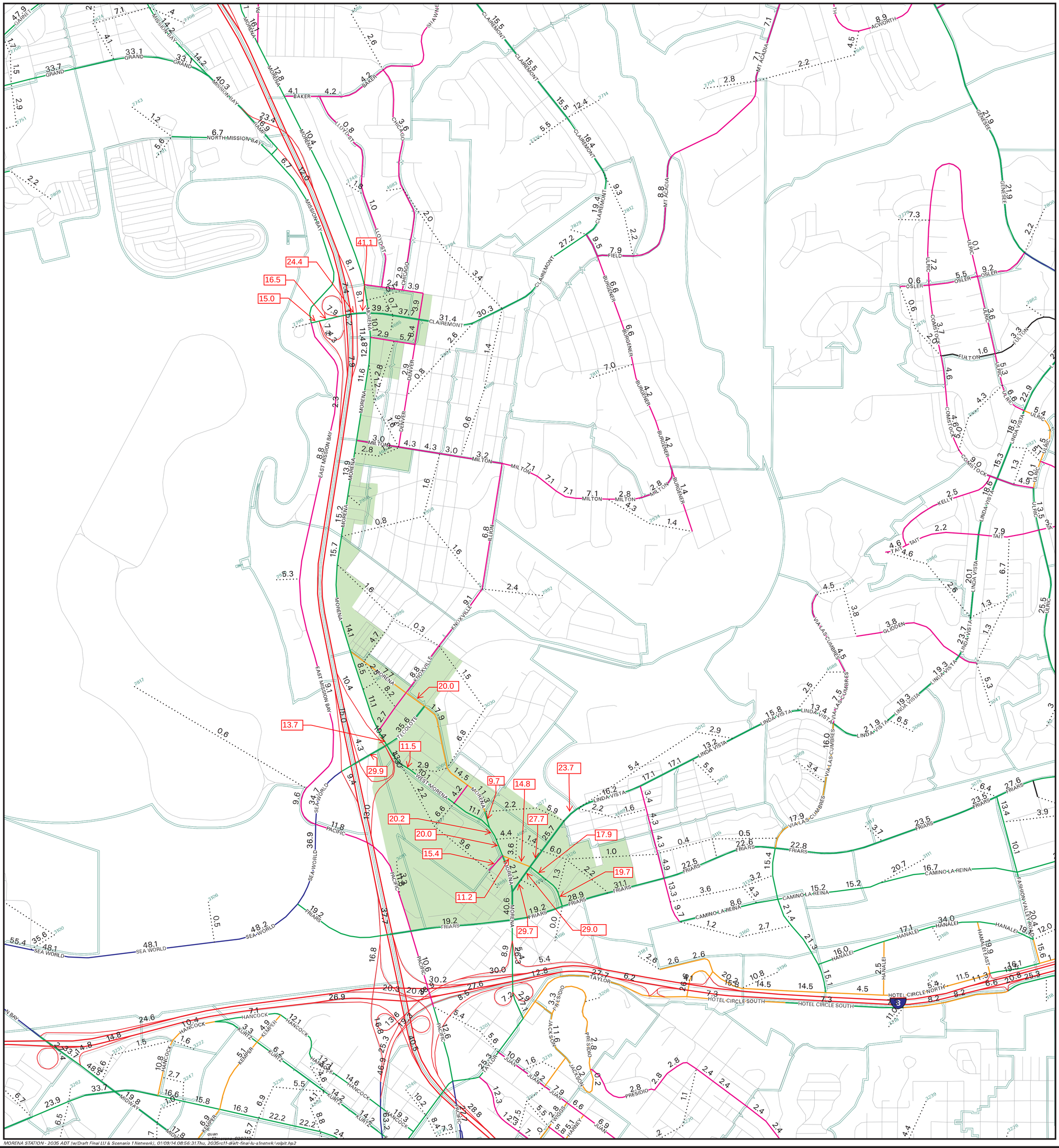
Feet
0 800 1,600
0 96 288 480
Meters

N

January 10, 2014

DWP

MORENA STATION - 2035 ADT (w/Draft Final LU & Scenario 1 Network)



Morena Station

SANDAG Series 12

Regional: 2035RC
Study Area: Draft Final LU
w/Scenario 1 Street Network

Legend

- Freeway
- Prime
- Major
- Collector
- Local Collector
- Rural Collector
- Rural Light Collector
- Local
- Ramp

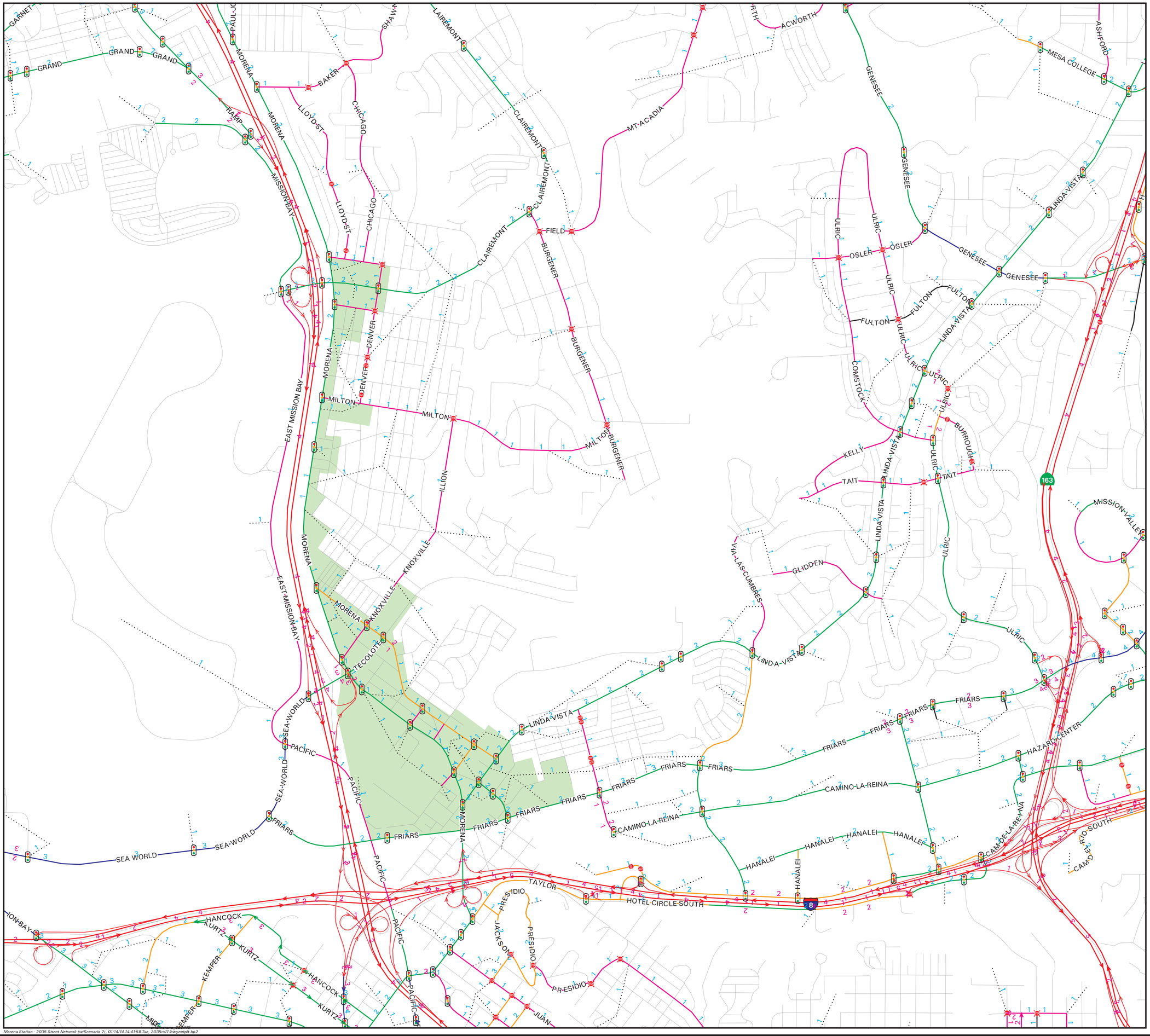
 # Unadjusted Volumes (1000s)

Feet
0 800 1,600
0 96 288 480
Meters

N

January 9, 2014

Morena Station - 2035 Street Network (w/Scenario 2)



Morean Station

SANDAG Series 12

Regional: 2035RC
Study Area: Scenario 2

Legend

- Freeway
- Prime
- Major
- Collector
- Local Collector
- Rural Collector
- Rural Light Collector
- Local
- Ramp

- Signal
- All-Way Stop
- Stop

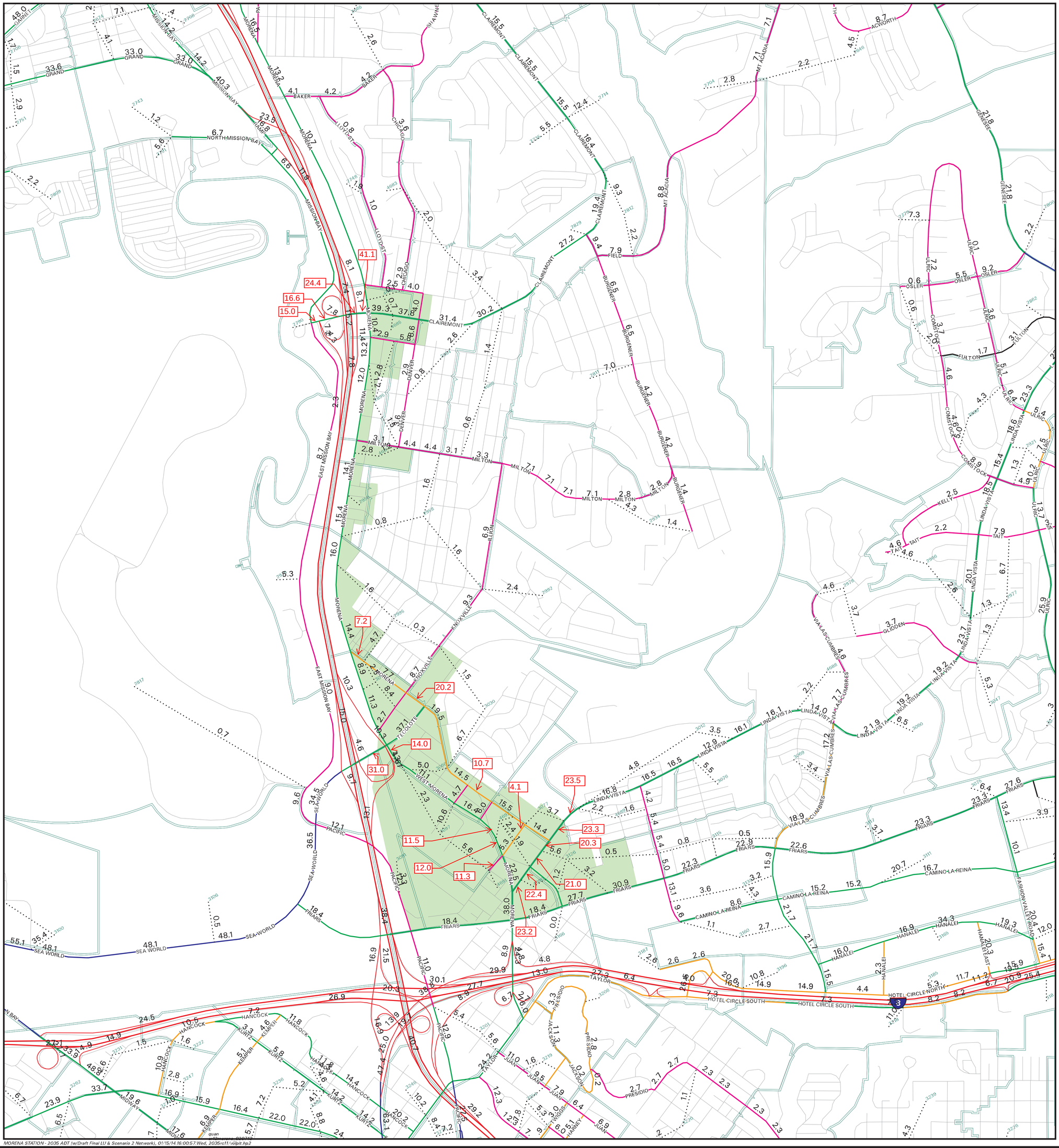
Feet
0 800 1,600
0 96 288 480
Meters

N

January 14, 2014

DWP

MORENA STATION - 2035 ADT (w/Draft Final LU & Scenario 2 Network)



Morena Station

SANDAG Series 12

Regional: 2035RC
Study Area: Draft Final LU
w/Scenario 2 Street Network

Legend

- Freeway
- Prime
- Major
- Collector
- Local Collector
- Rural Collector
- Rural Light Collector
- Local
- Ramp

 # Unadjusted Volumes (1000s)

Feet
0 800 1,600
0 96 288 480
Meters

N

January 15, 2014

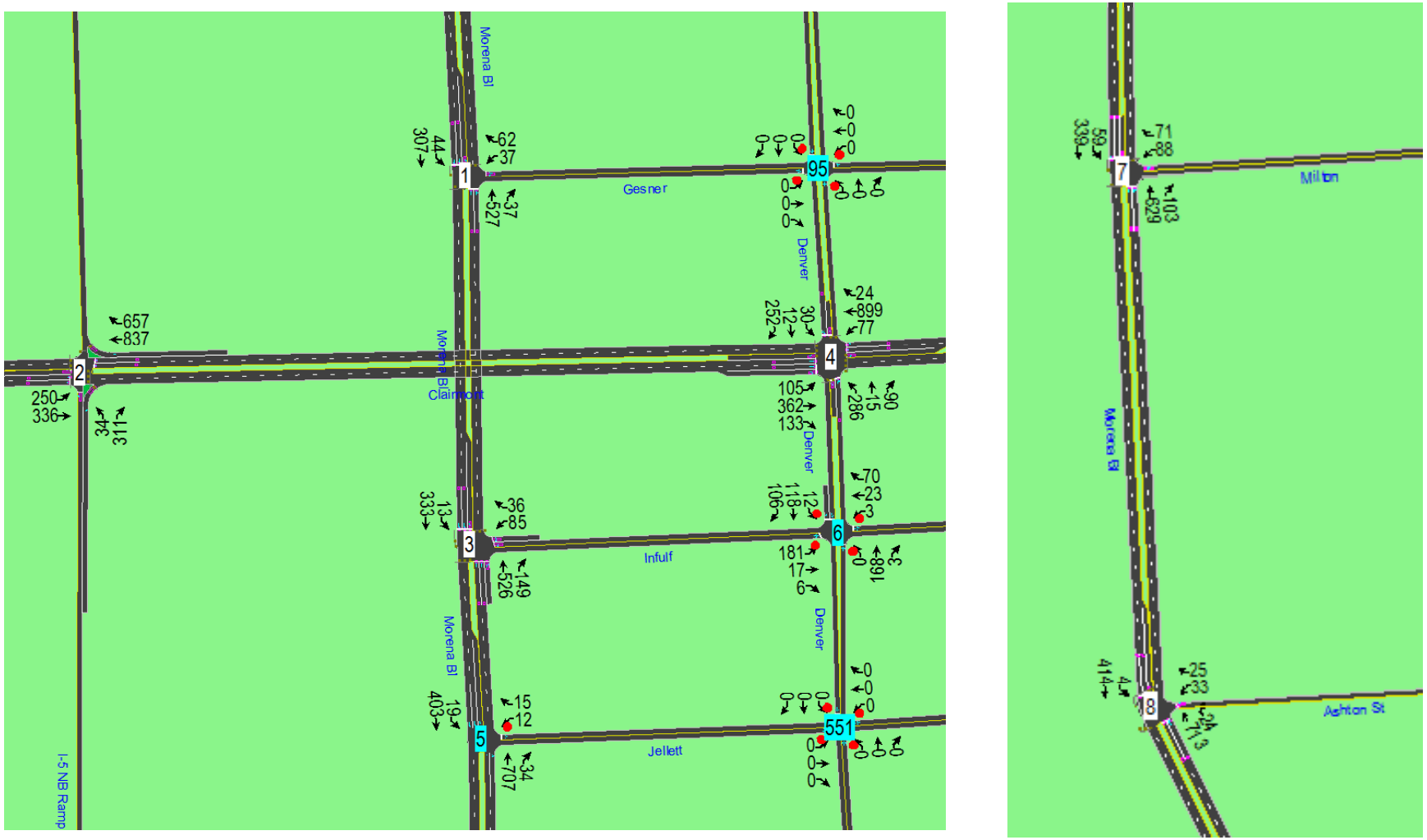
Morena Blvd Station Area Planning Study

Appendix E:

Intersection Turning Movements

Morena Blvd Station Area Plan

Existing Conditions – AM Peak Hour

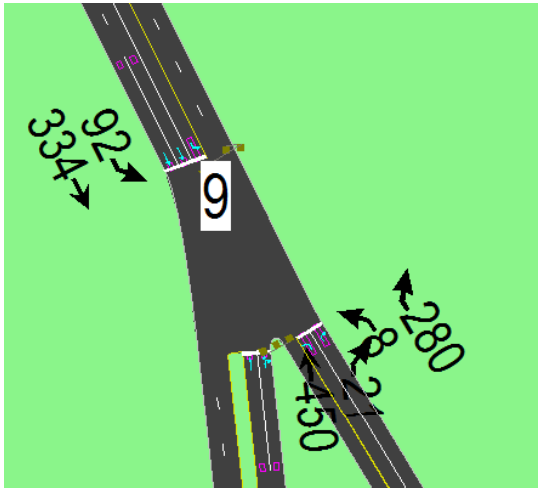


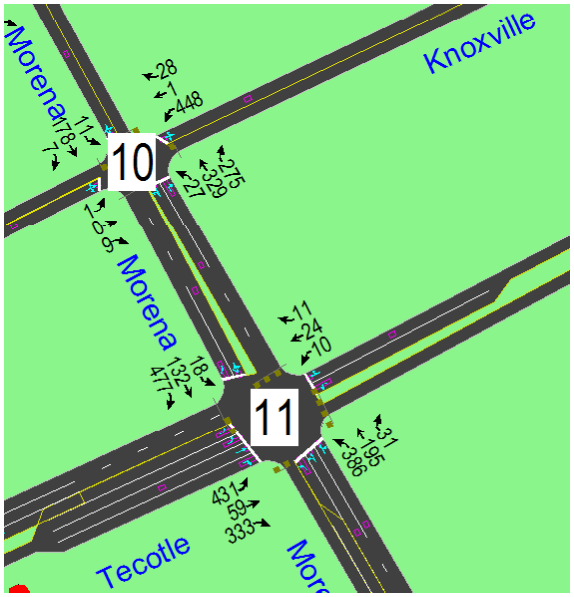
Intersections 1-8

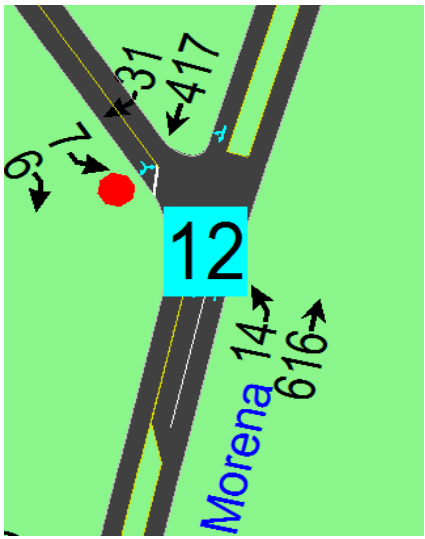
Intersection Turning Movements

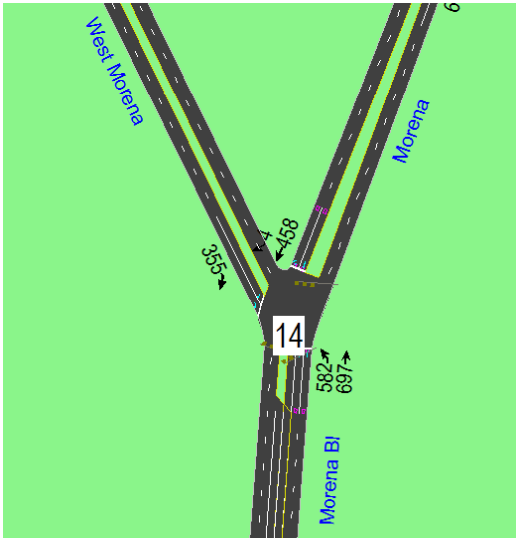
Morena Blvd Station Area Plan

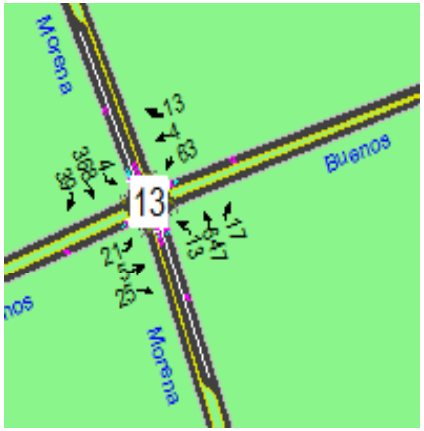
Existing Conditions – AM Peak Hour







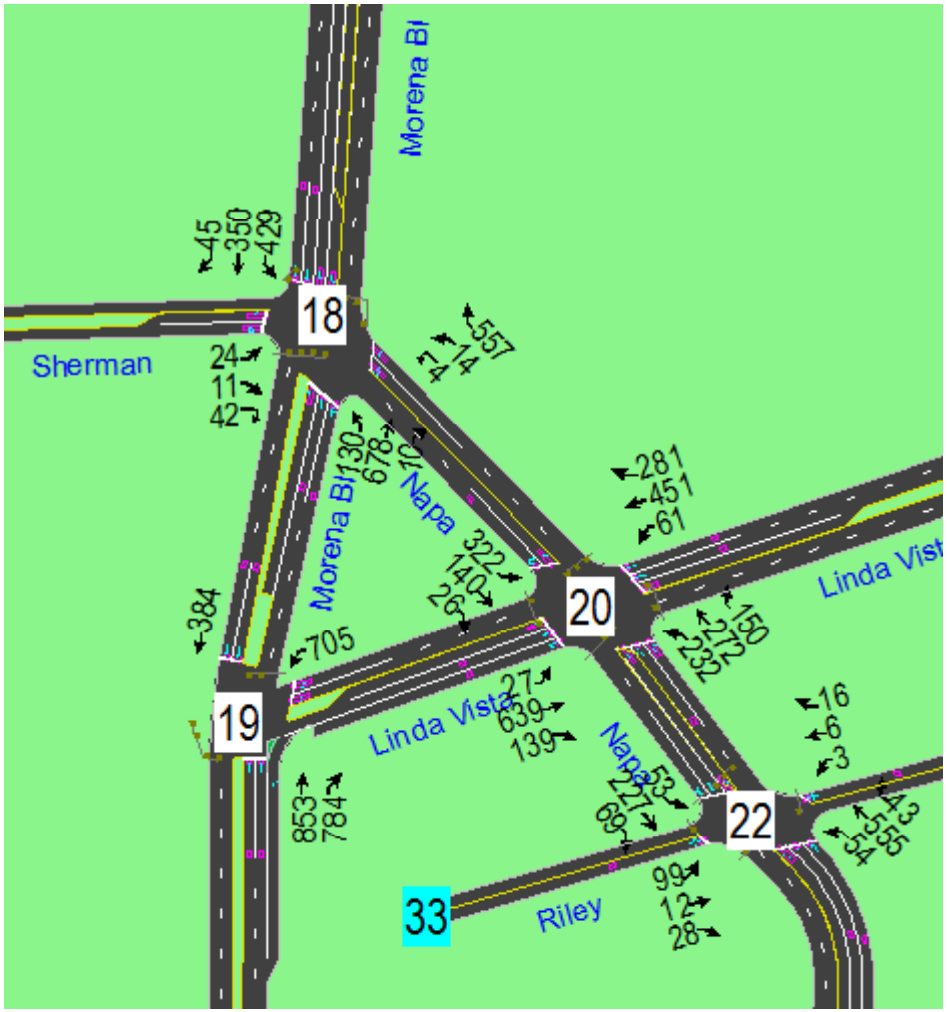




Intersections 9-14

Intersection Turning Movements

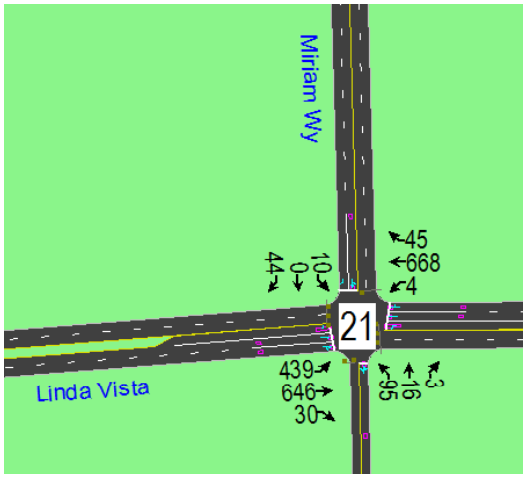
Existing Conditions – AM Peak Hour

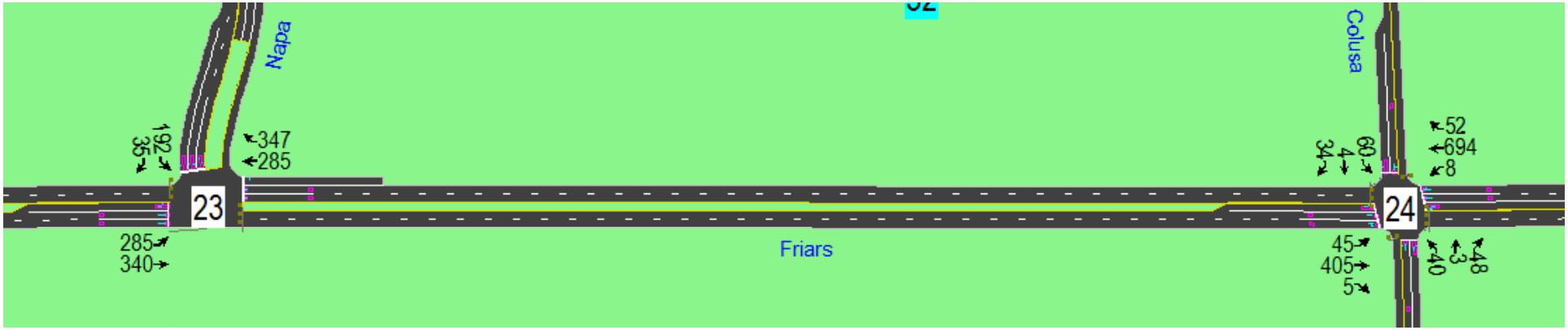


Intersections 16-20 & 22

Intersection Turning Movements

Existing Conditions – AM Peak Hour

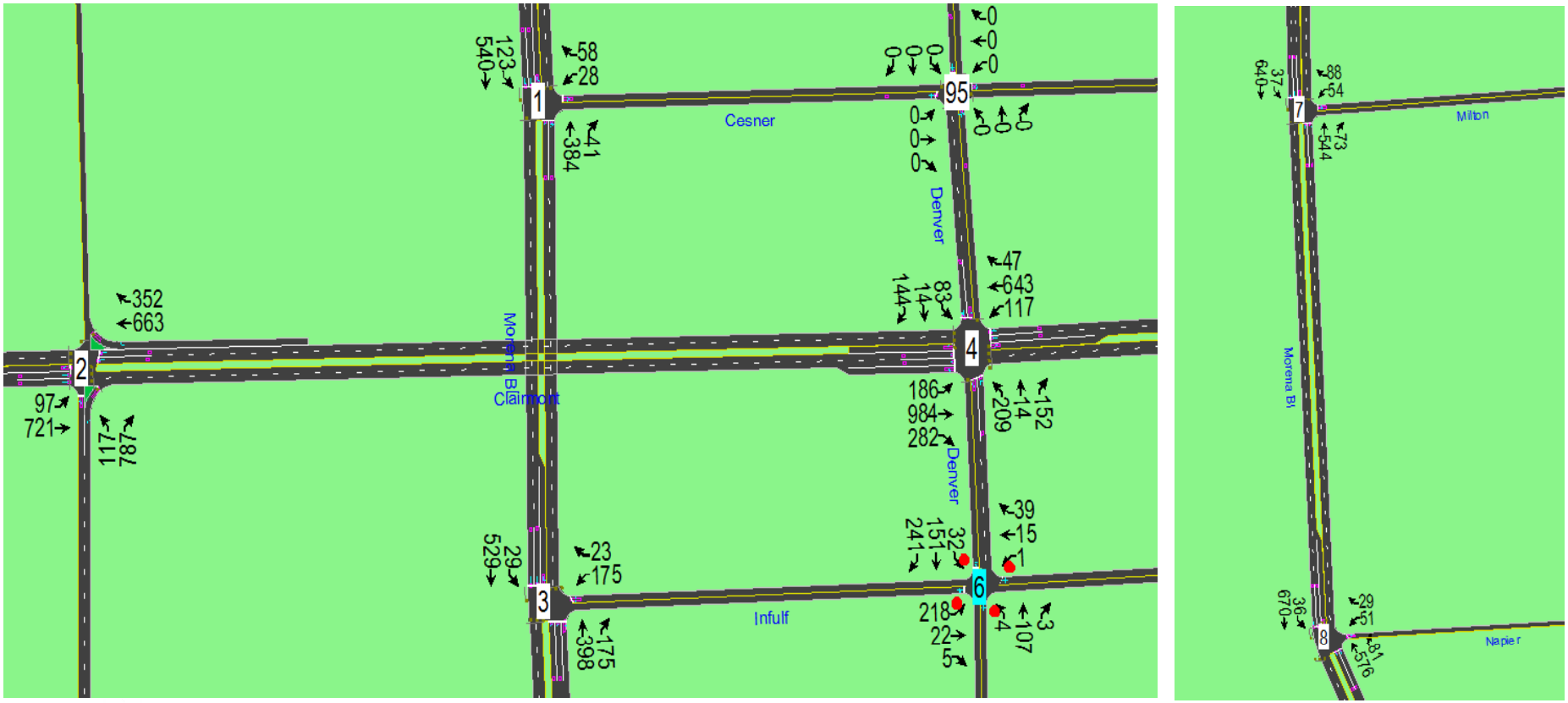




Intersections 21, 23-24

Intersection Turning Movements

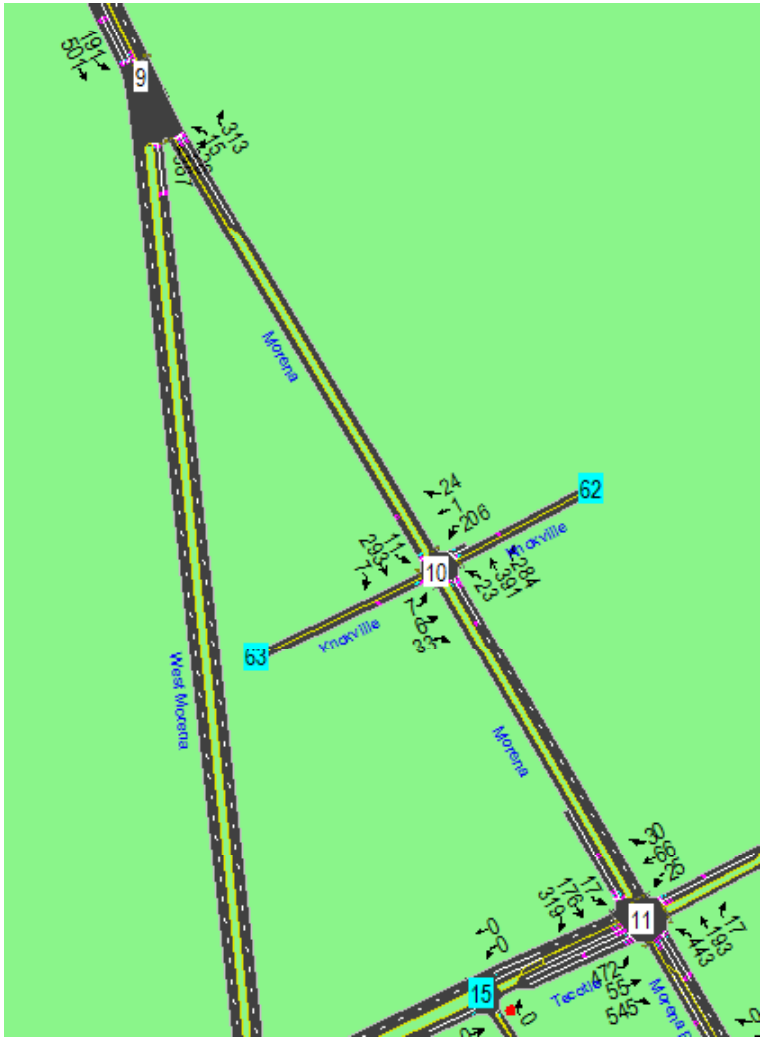
Existing Conditions – PM Peak Hour

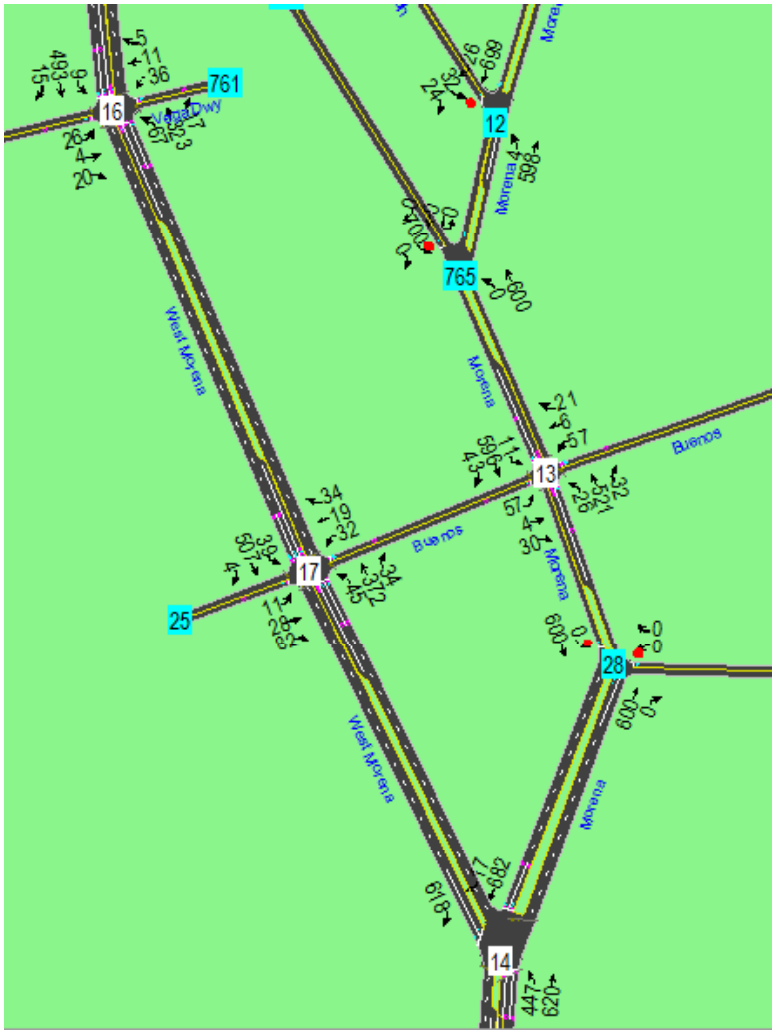


Intersections 1-8

Intersection Turning Movements

Existing Conditions – PM Peak Hour



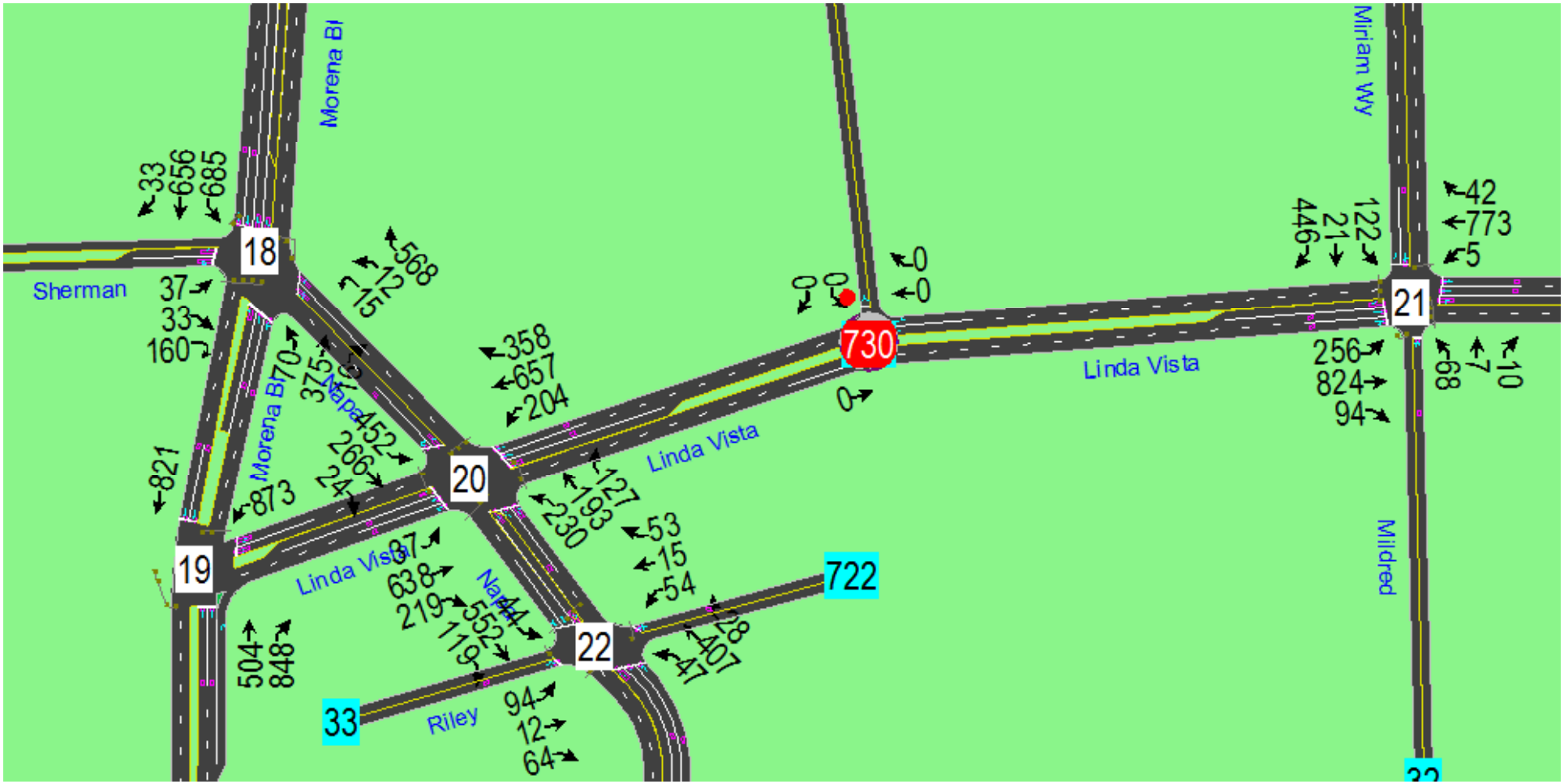


Intersections 9-17

Intersection Turning Movements

Morena Blvd Station Area Plan

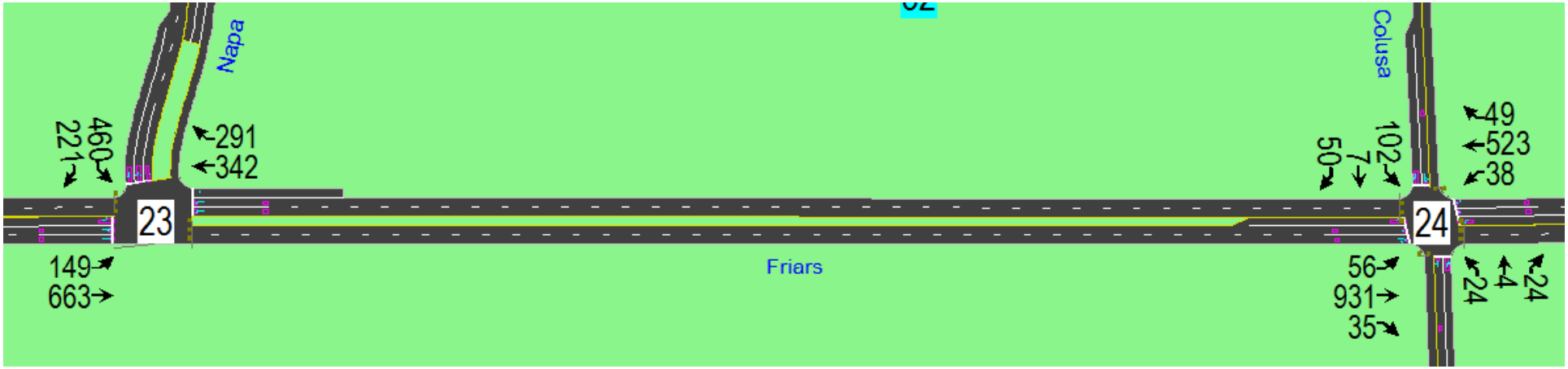
Existing Conditions – PM Peak Hour



Intersections 18-22

Intersection Turning Movements

Existing Conditions – PM Peak Hour

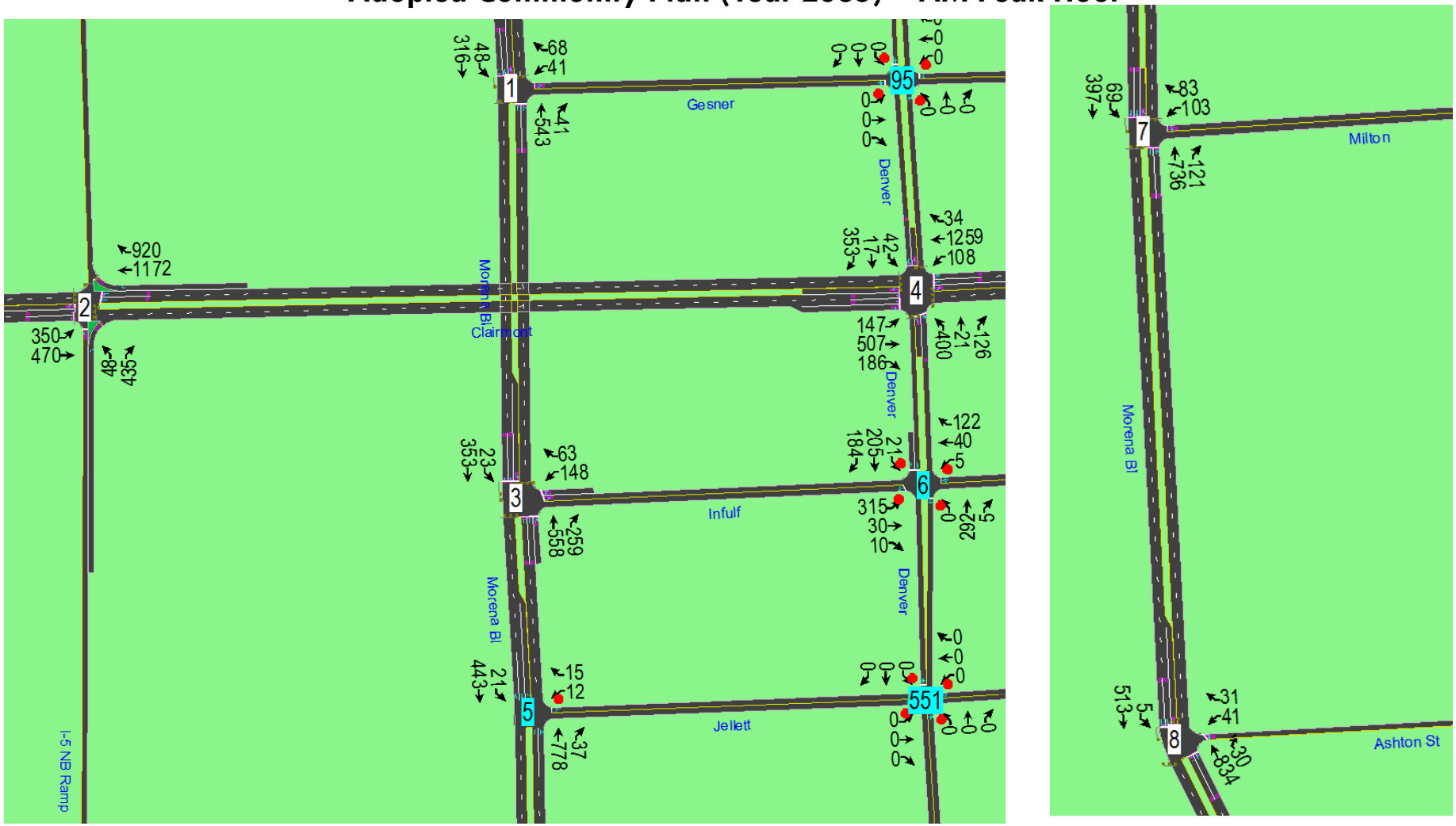


Intersections 21, 23-24

Intersection Turning Movements

Morena Blvd Station Area Plan

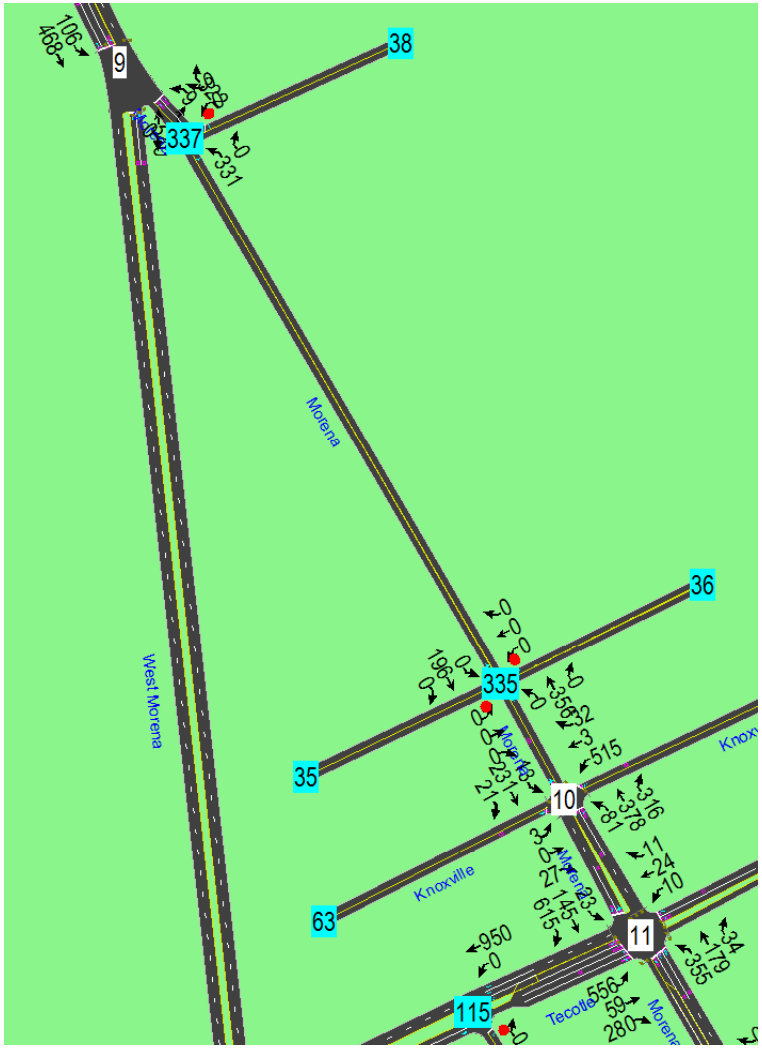
Adopted Community Plan (Year 2035) – AM Peak Hour

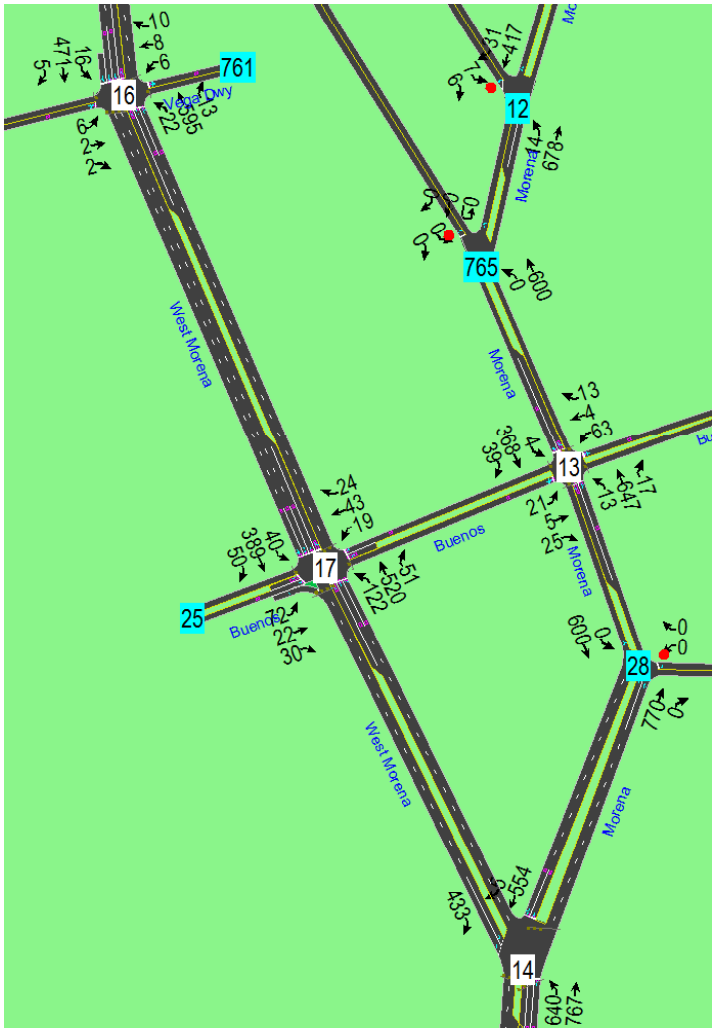


Intersections 1-8

Intersection Turning Movements

Adopted Community Plan (Year 2035) – AM Peak Hour

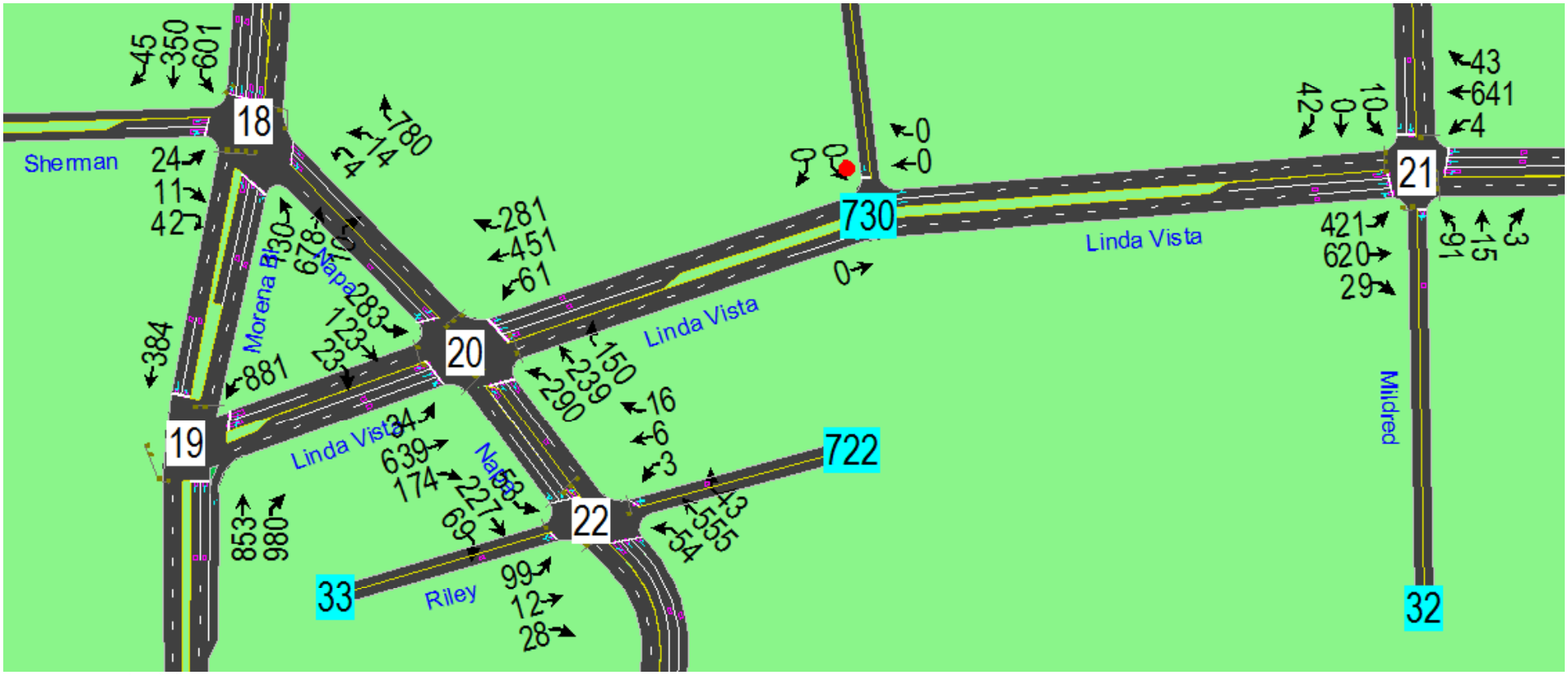




Intersections 9-17

Intersection Turning Movements

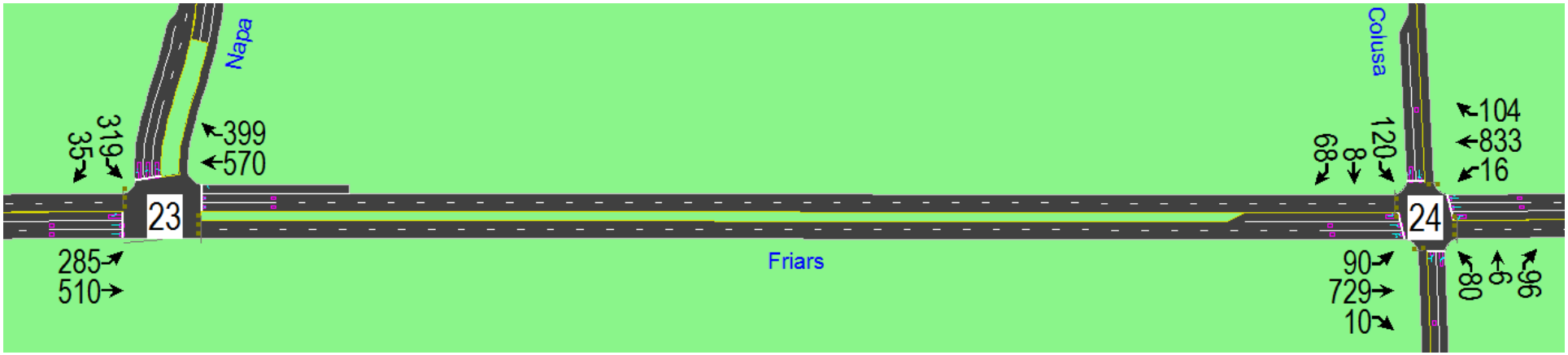
Adopted Community Plan (Year 2035) – AM Peak Hour



Intersections 18-22

Intersection Turning Movements

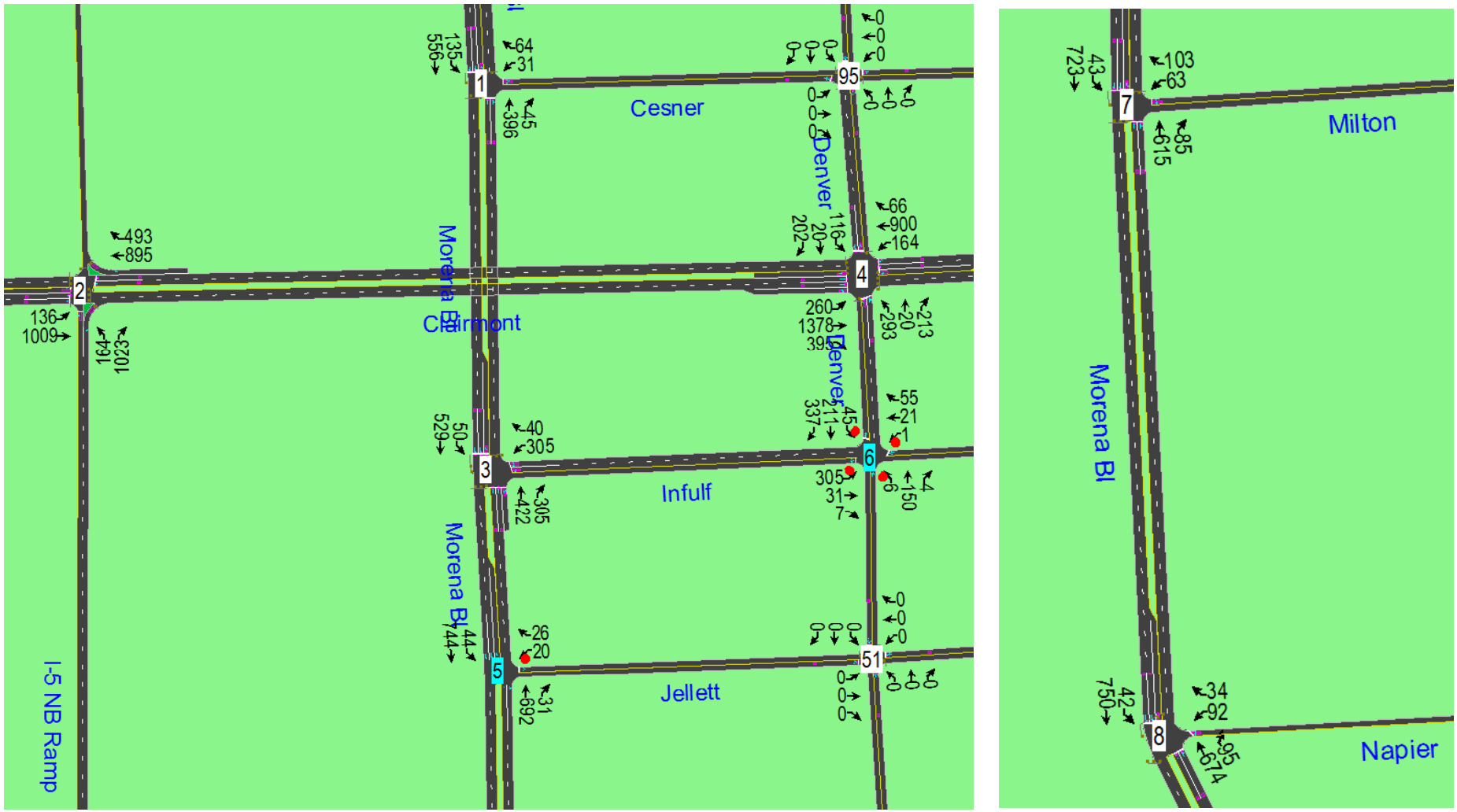
Adopted Community Plan (Year 2035) – AM Peak Hour



Intersections 23-24

Intersection Turning Movements

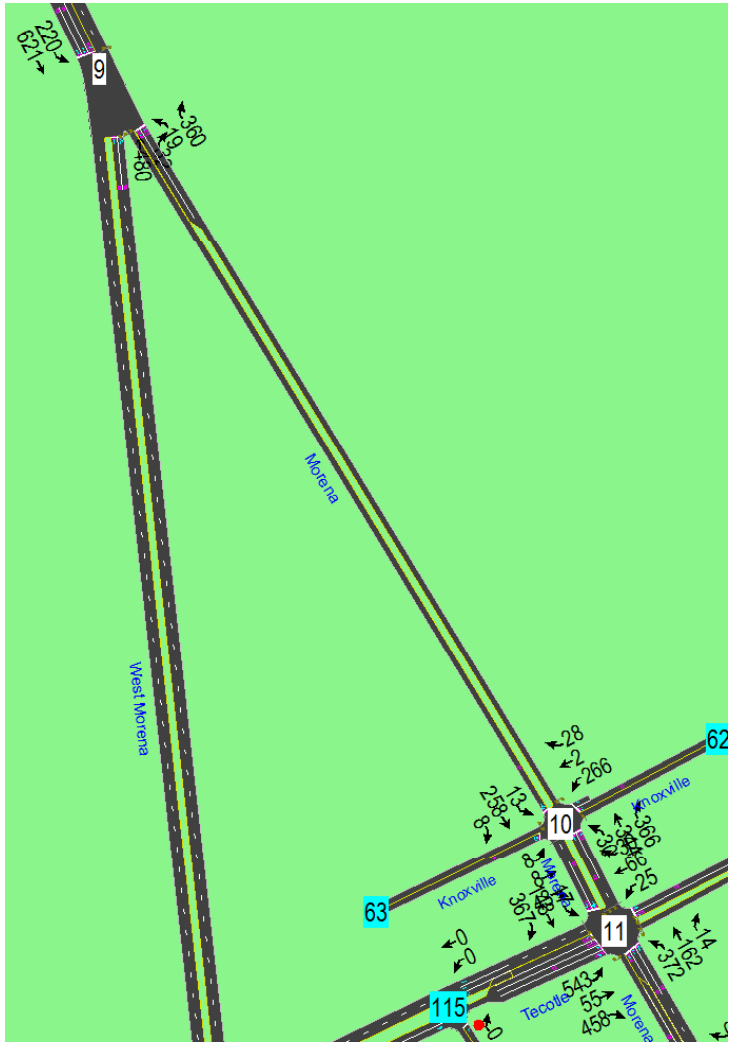
Adopted Community Plan (Year 2035) – PM Peak Hour

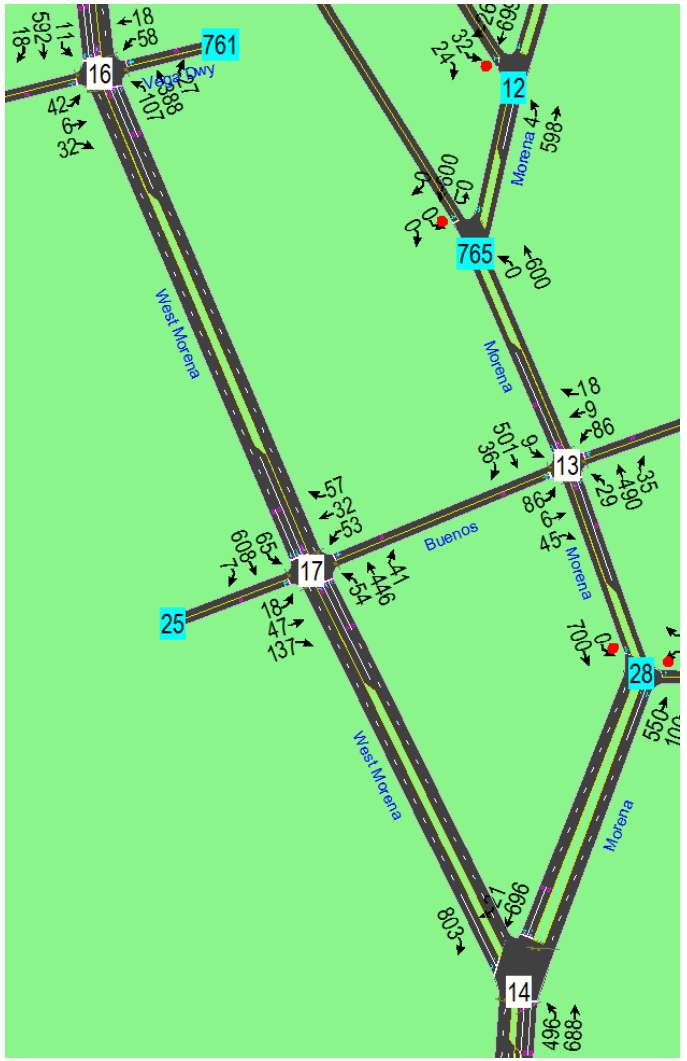


Intersections 1-8

Intersection Turning Movements

Adopted Community Plan (Year 2035) – PM Peak Hour

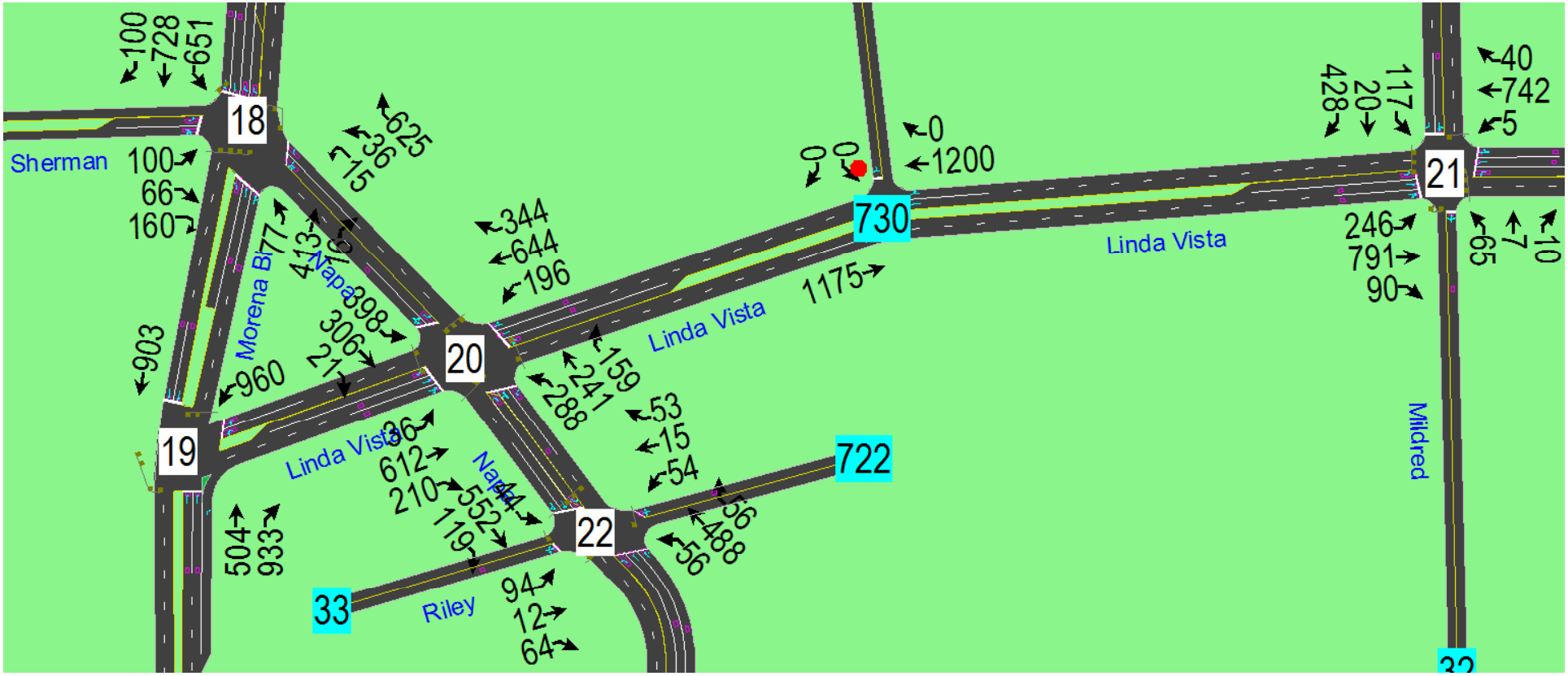




Intersections 9-17

Intersection Turning Movements

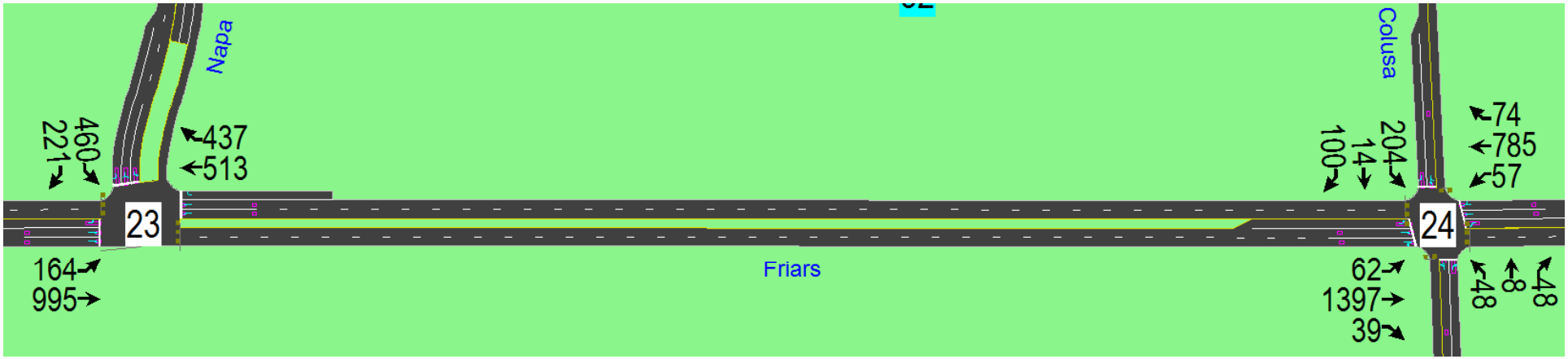
Adopted Community Plan (Year 2035) – PM Peak Hour



Intersections 18-22

Intersection Turning Movements

Adopted Community Plan (Year 2035) – PM Peak Hour



Intersections 23-24

Intersection Turning Movements

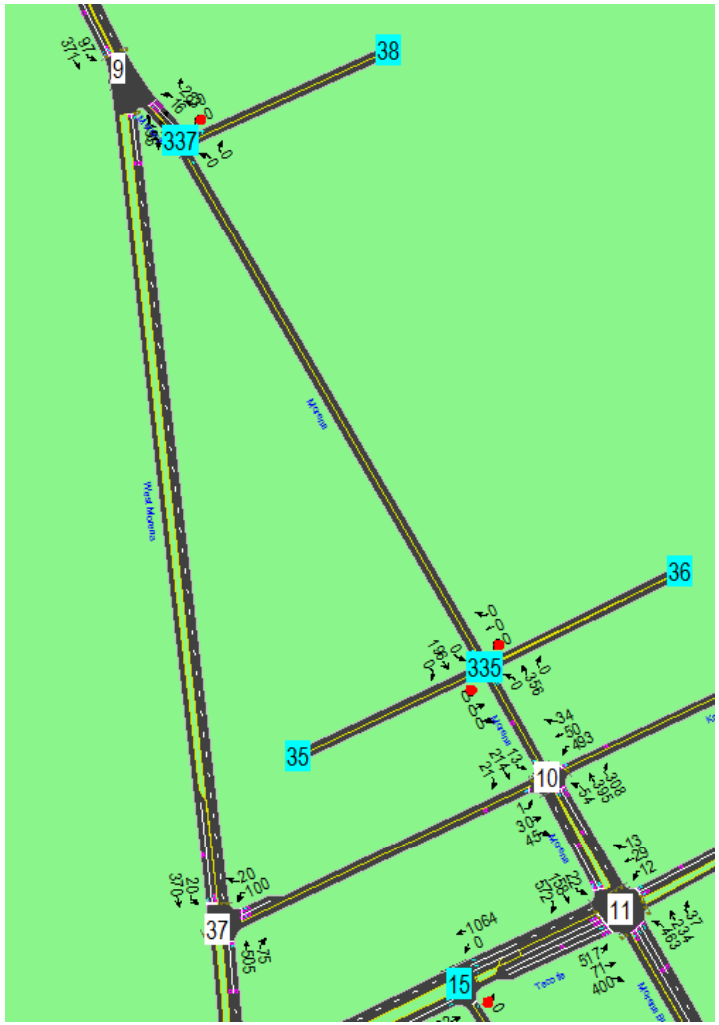
Morena Blvd Station Area Plan

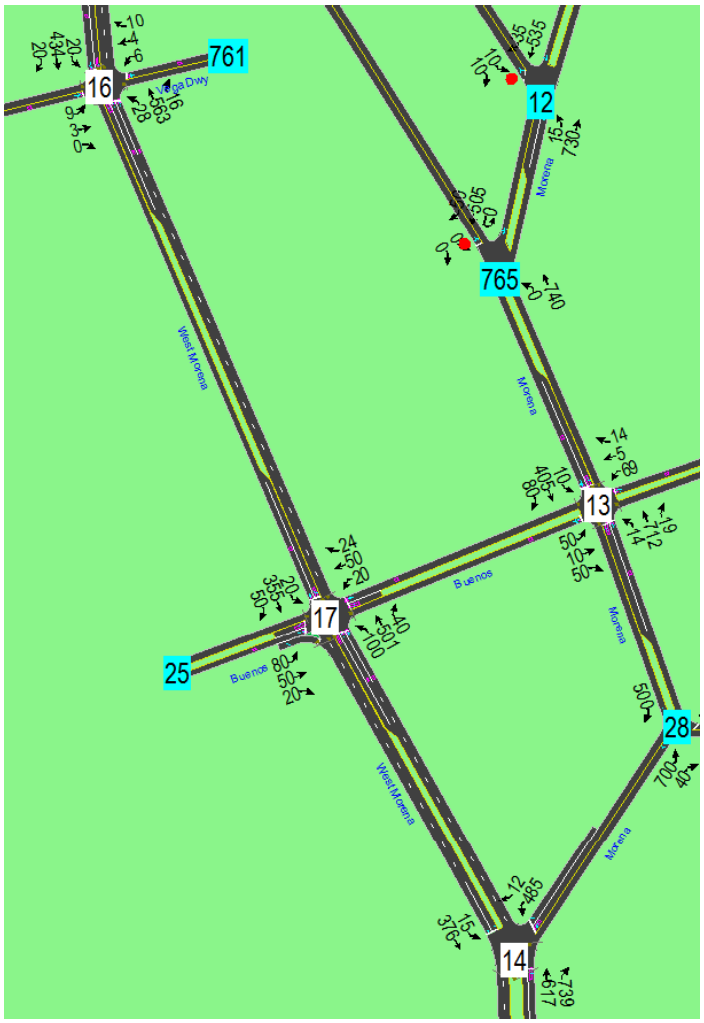
Preferred Alternative with Mid-term Mobility Network (Year 2035) – AM Peak Hour

Intersections 1-8

Intersection Turning Movements

Preferred Alternative with Mid-term Mobility Network (Year 2035) – AM Peak Hour

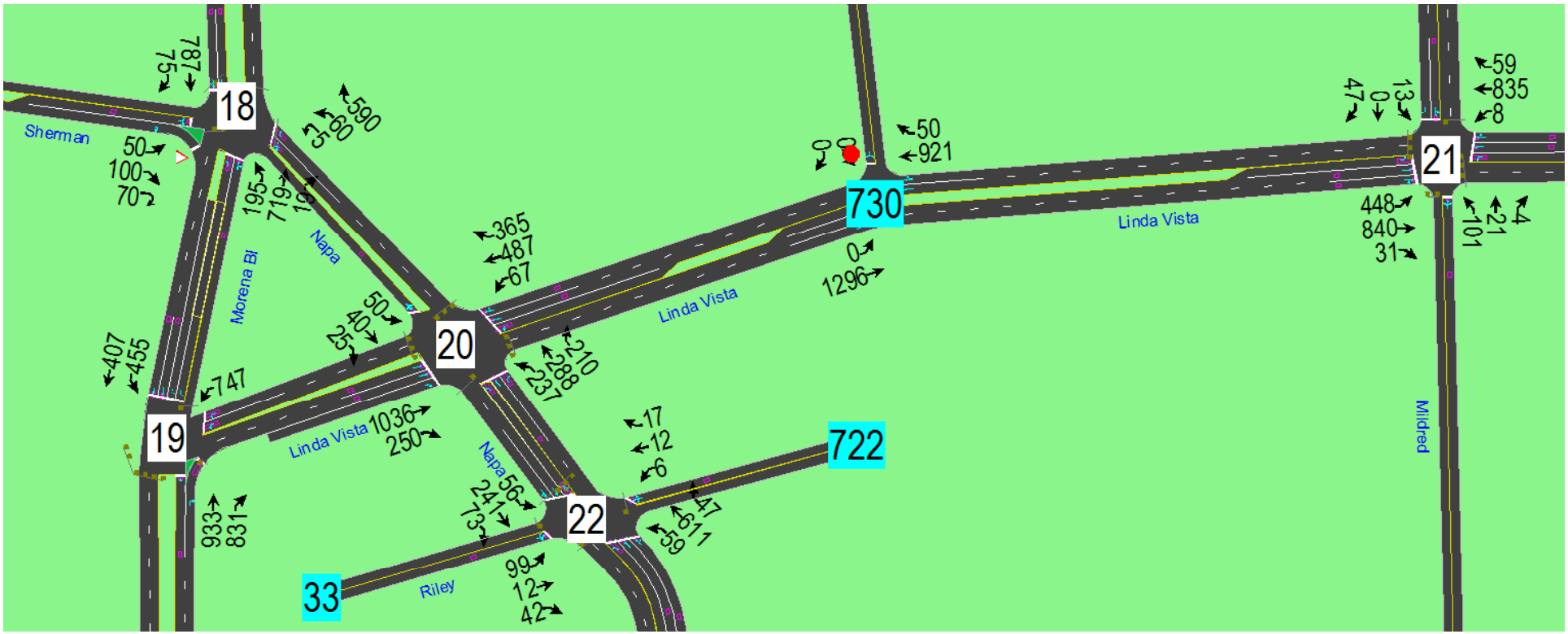




Intersections 9-17

Intersection Turning Movements

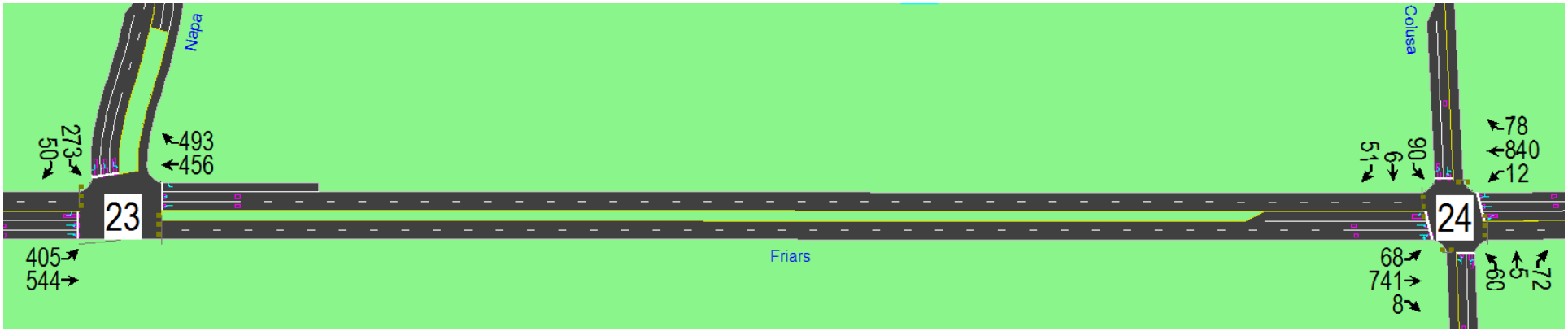
Preferred Alternative with Mid-term Mobility Network (Year 2035) – AM Peak Hour



Intersections 18-22

Intersection Turning Movements

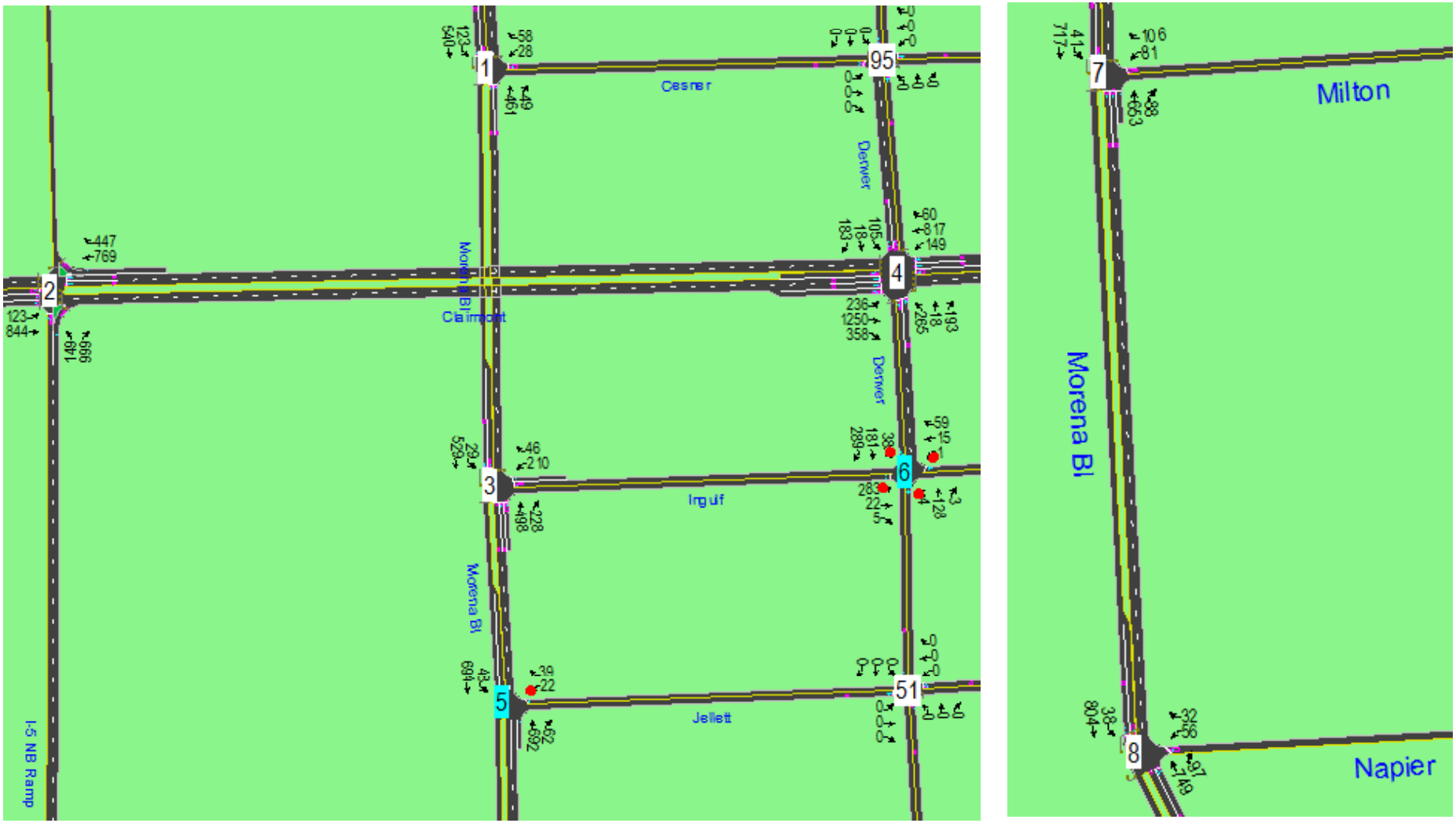
Preferred Alternative with Mid-term Mobility Network (Year 2035) – AM Peak Hour



Intersections 23-24

Intersection Turning Movements

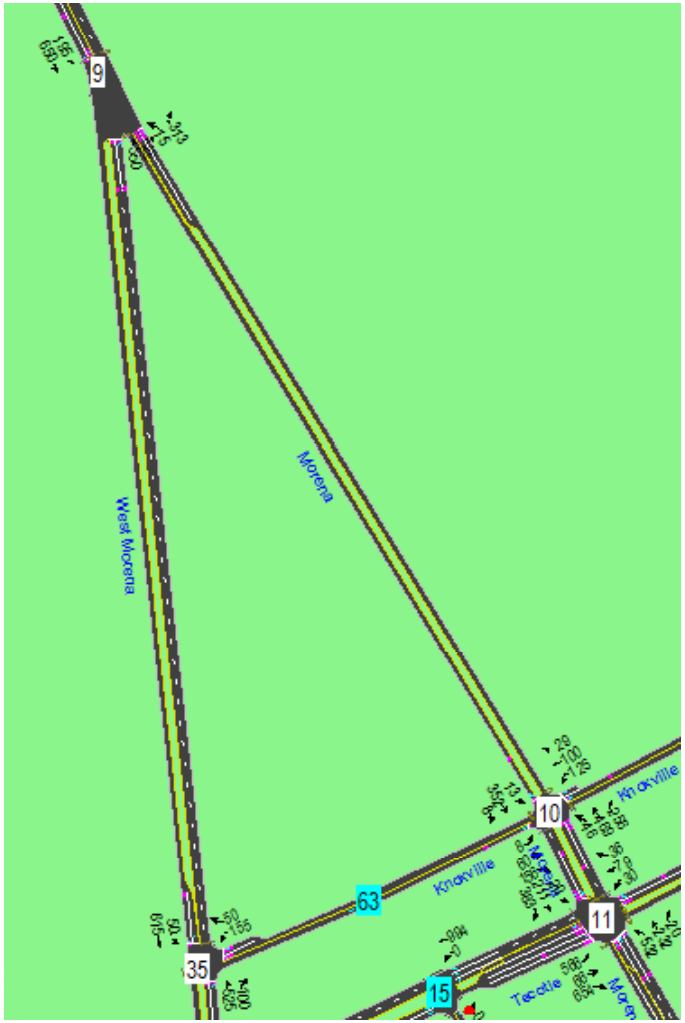
Preferred Alternative with Mid-term Mobility Network (Year 2035) – PM Peak Hour

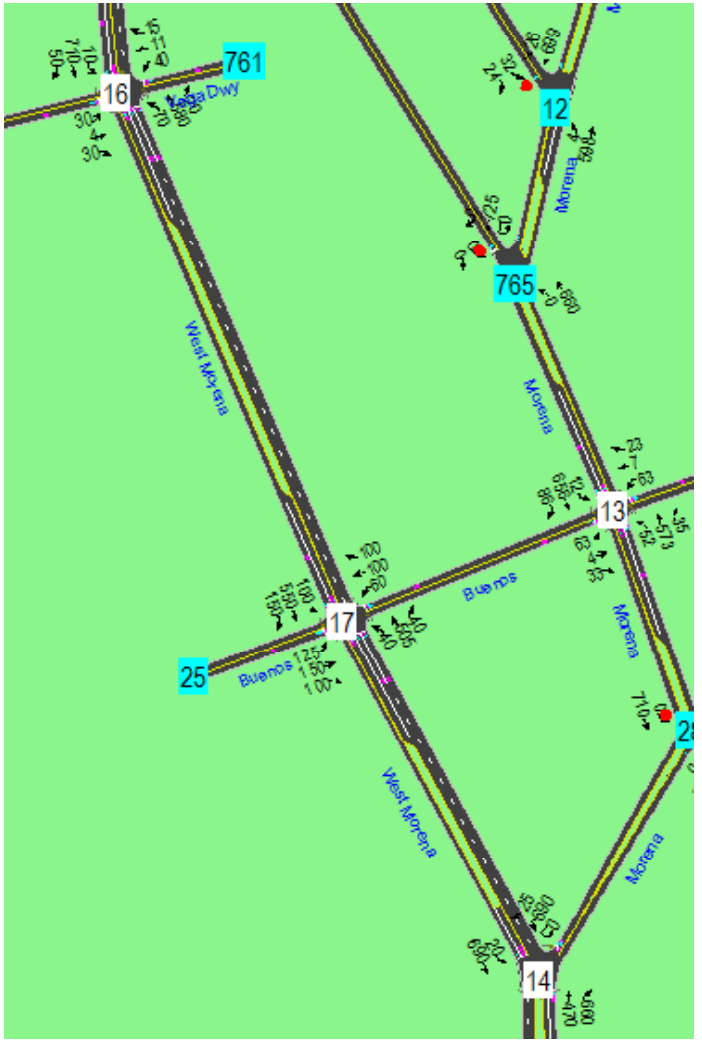


Intersections 1-8

Intersection Turning Movements

Preferred Alternative with Mid-term Mobility Network (Year 2035) – PM Peak Hour





Intersections 9-17

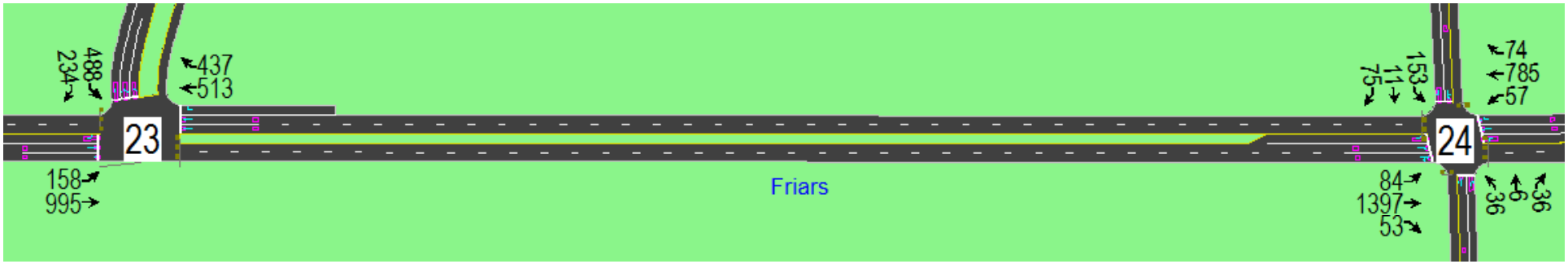
Intersection Turning Movements

Preferred Alternative with Mid-term Mobility Network (Year 2035) – PM Peak Hour

Intersections 18-22

Intersection Turning Movements

Preferred Alternative with Mid-term Mobility Network (Year 2035) – PM Peak Hour

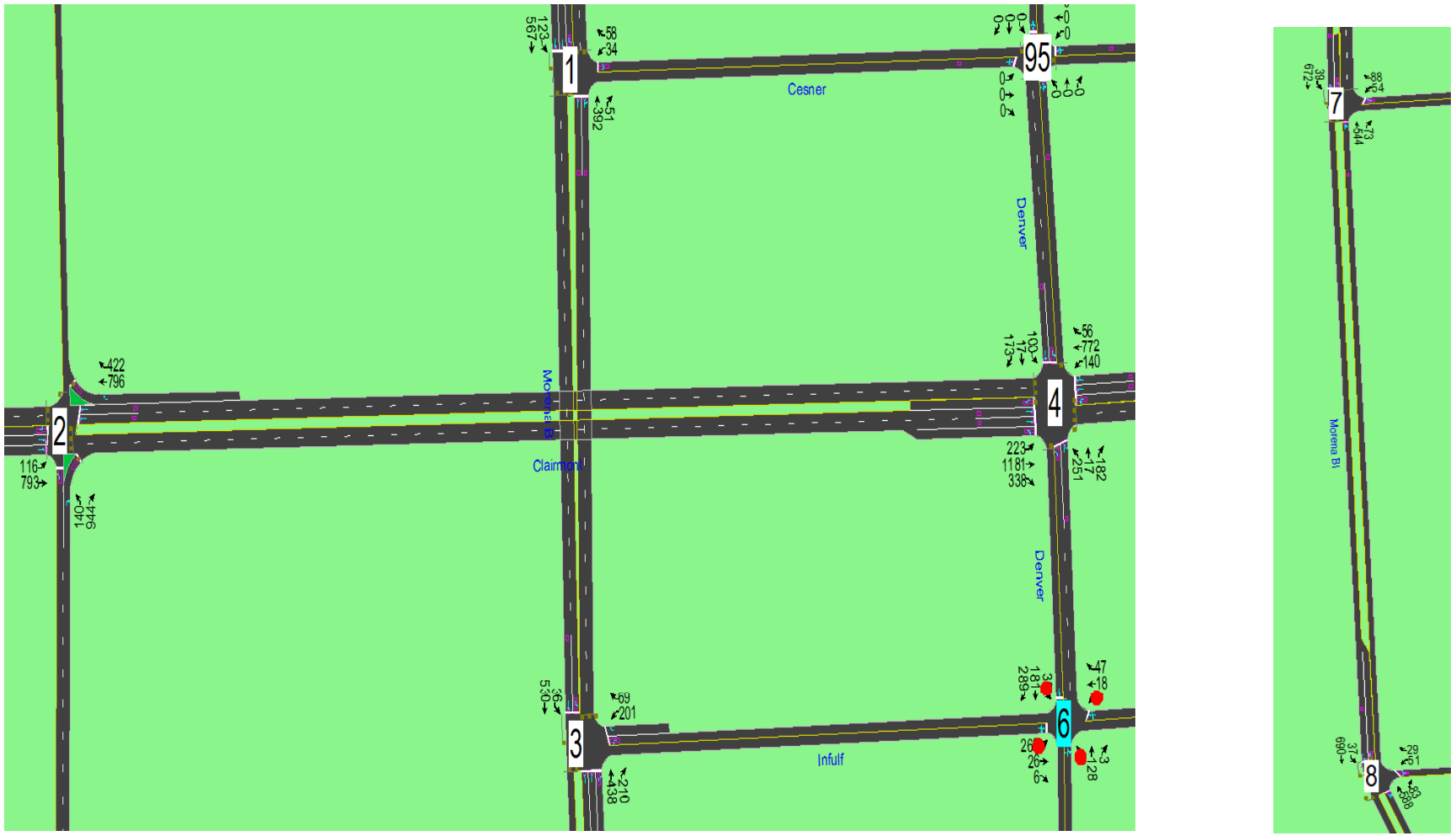


Intersections 23-24

Intersection Turning Movements

Morena Blvd Station Area Plan

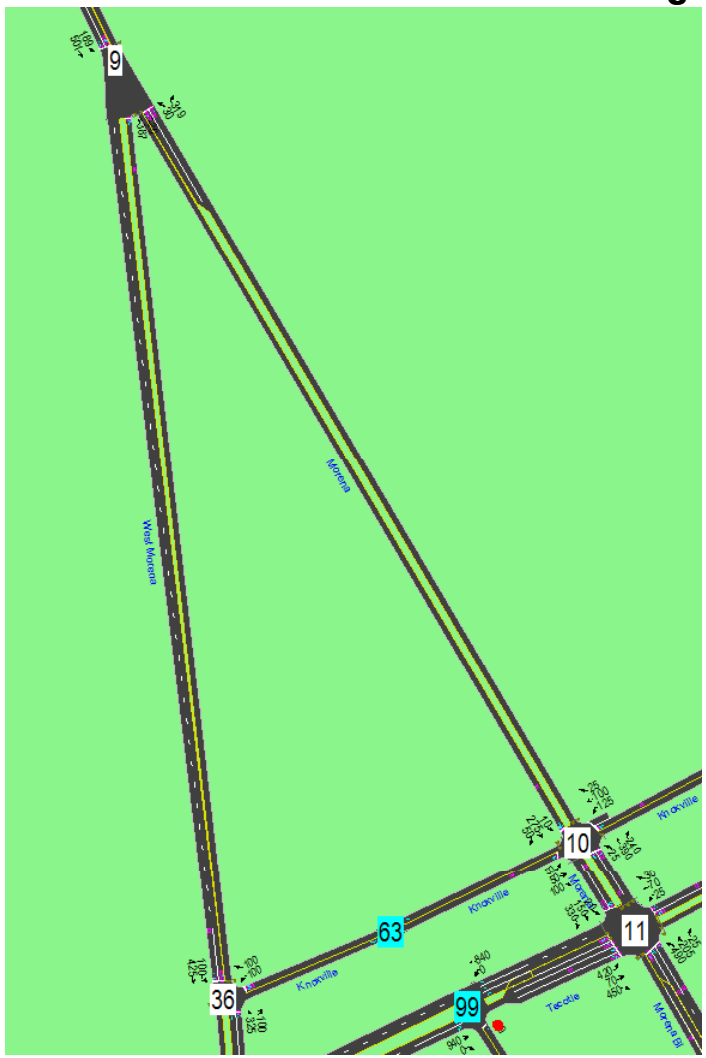
Preferred Alternative with Long-term Mobility Network (Year 2035) – AM Peak Hour

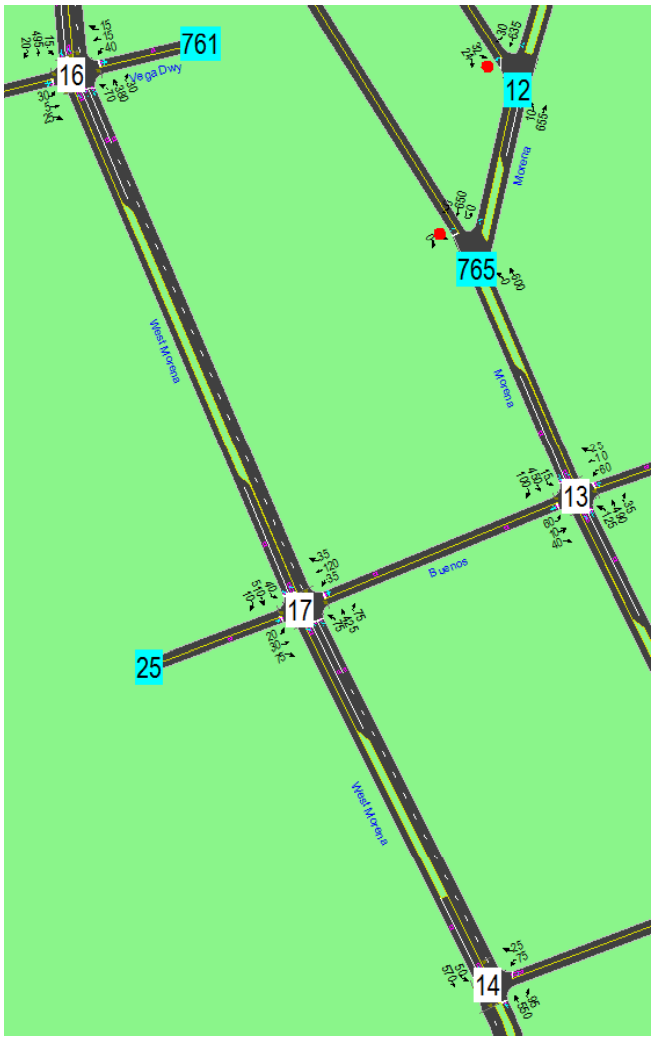


Intersections 1-8

Intersection Turning Movements

Preferred Alternative with Long-term Mobility Network (Year 2035) – AM Peak Hour



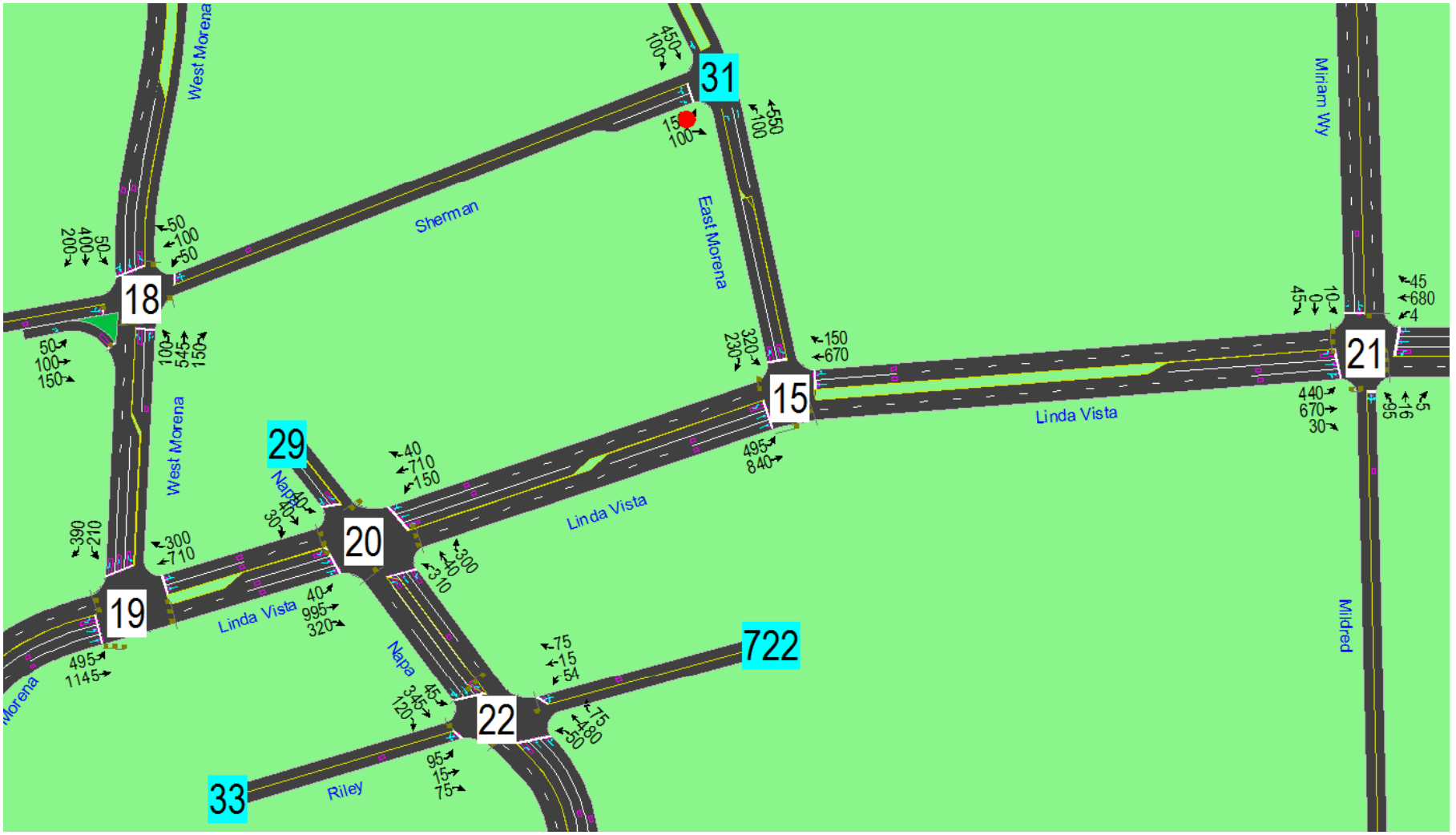


Intersections 9-14 & 16-17

Intersection Turning Movements

Morena Blvd Station Area Plan

Preferred Alternative with Long-term Mobility Network (Year 2035) – AM Peak Hour

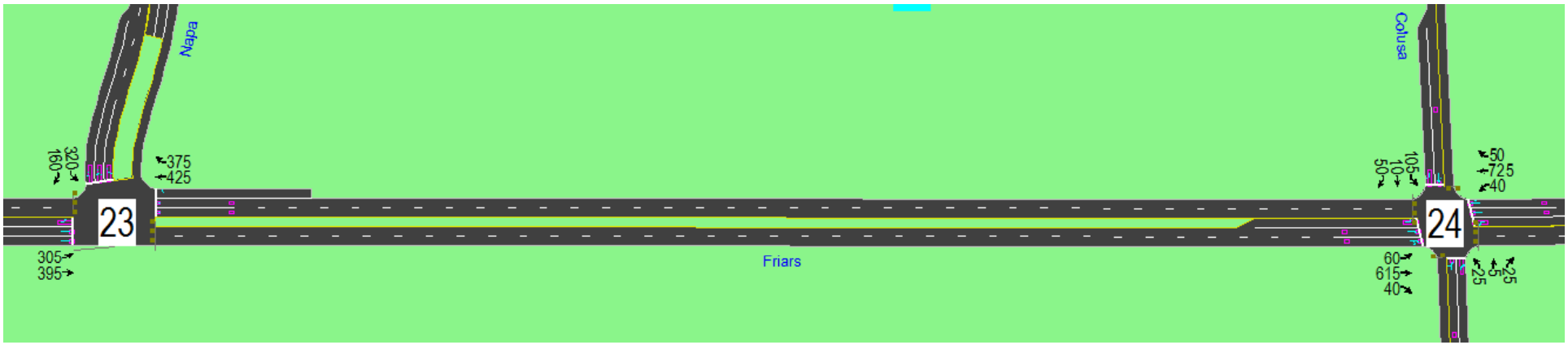


Intersections 15 & 18-22

Intersection Turning Movements

Morena Blvd Station Area Plan

Preferred Alternative with Long-term Mobility Network (Year 2035) – AM Peak Hour

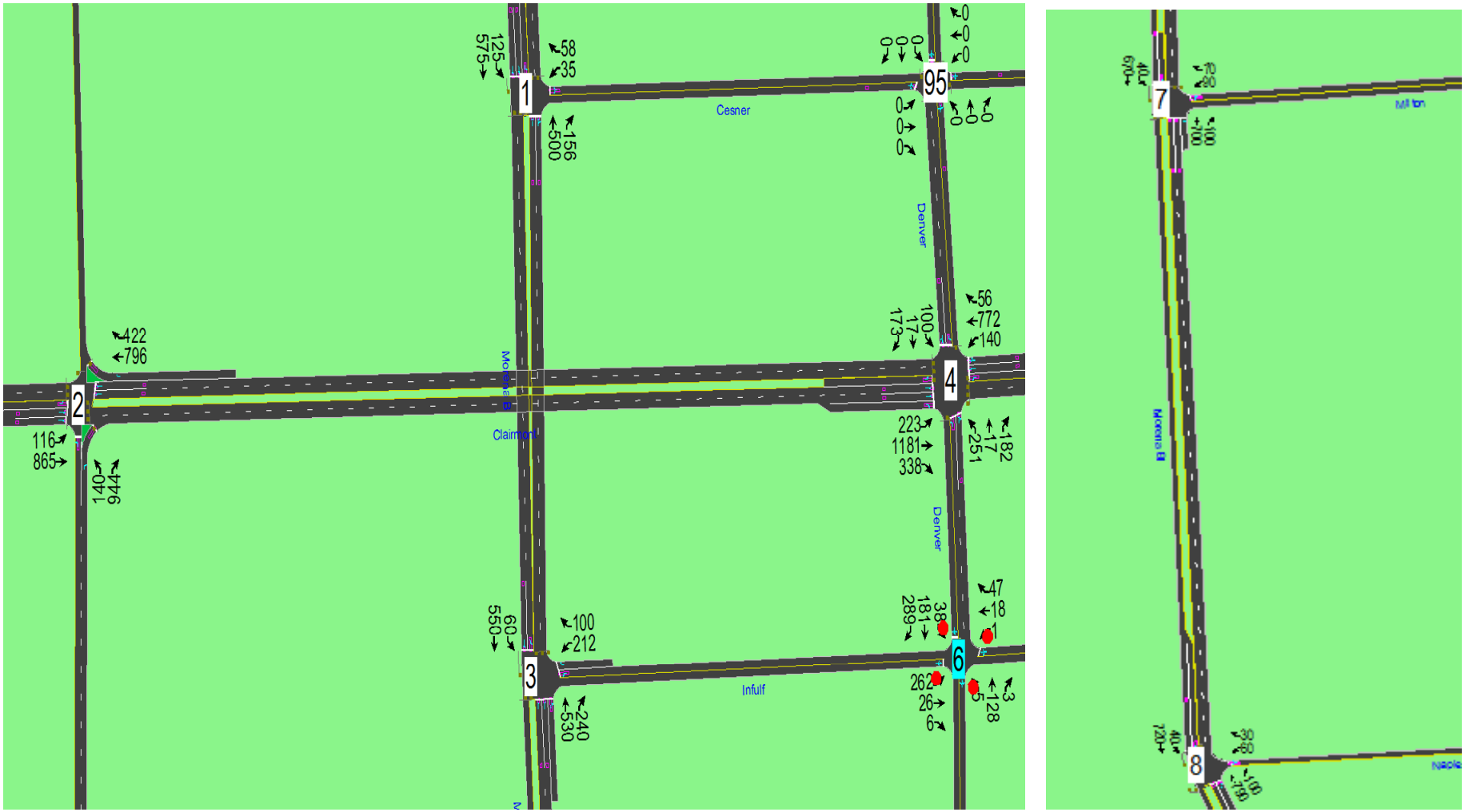


Intersections 23-24

Intersection Turning Movements

Morena Blvd Station Area Plan

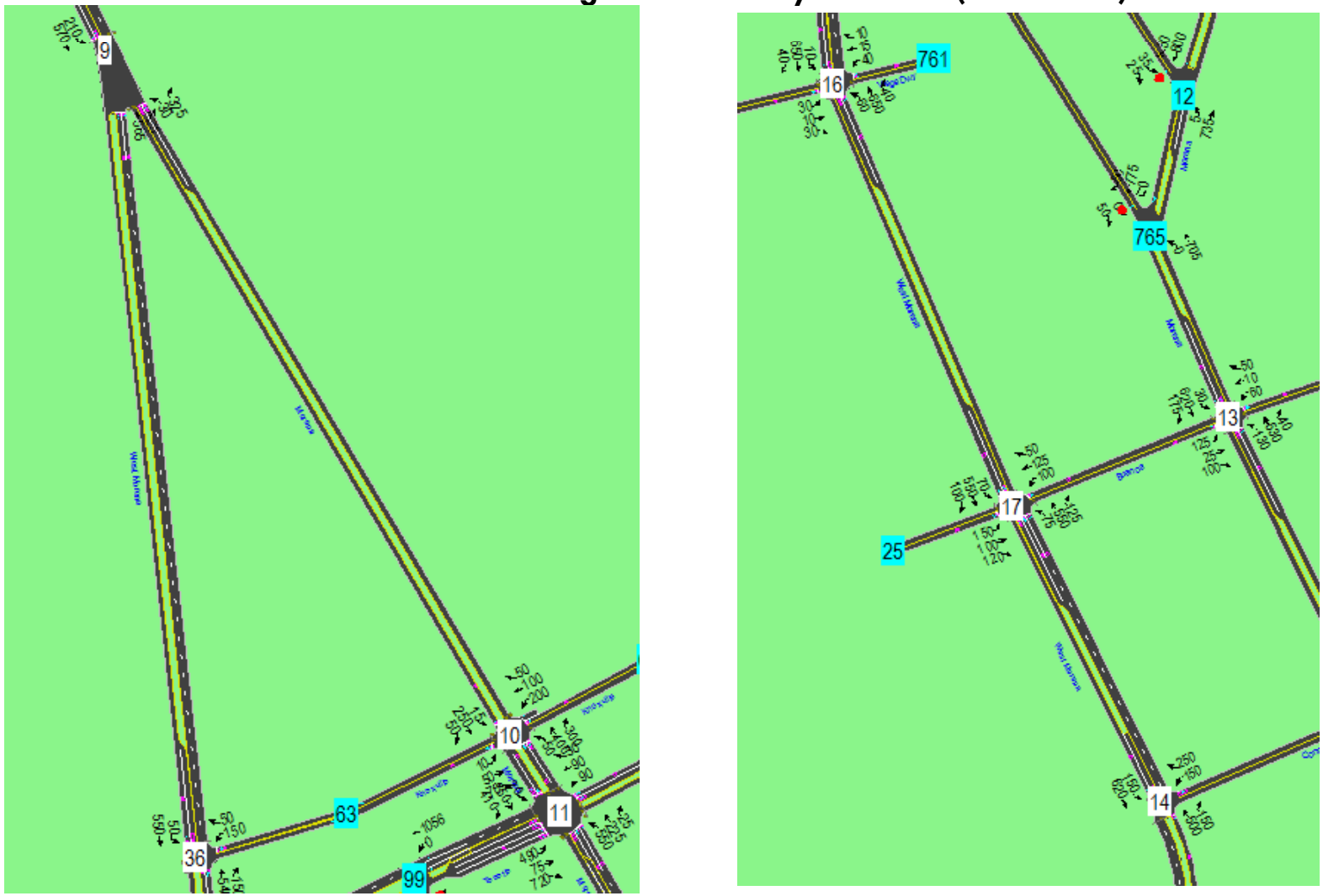
Preferred Alternative with Long-term Mobility Network (Year 2035) – PM Peak Hour



Intersections 1-8

Intersection Turning Movements

Preferred Alternative with Long-term Mobility Network (Year 2035) – PM Peak Hour

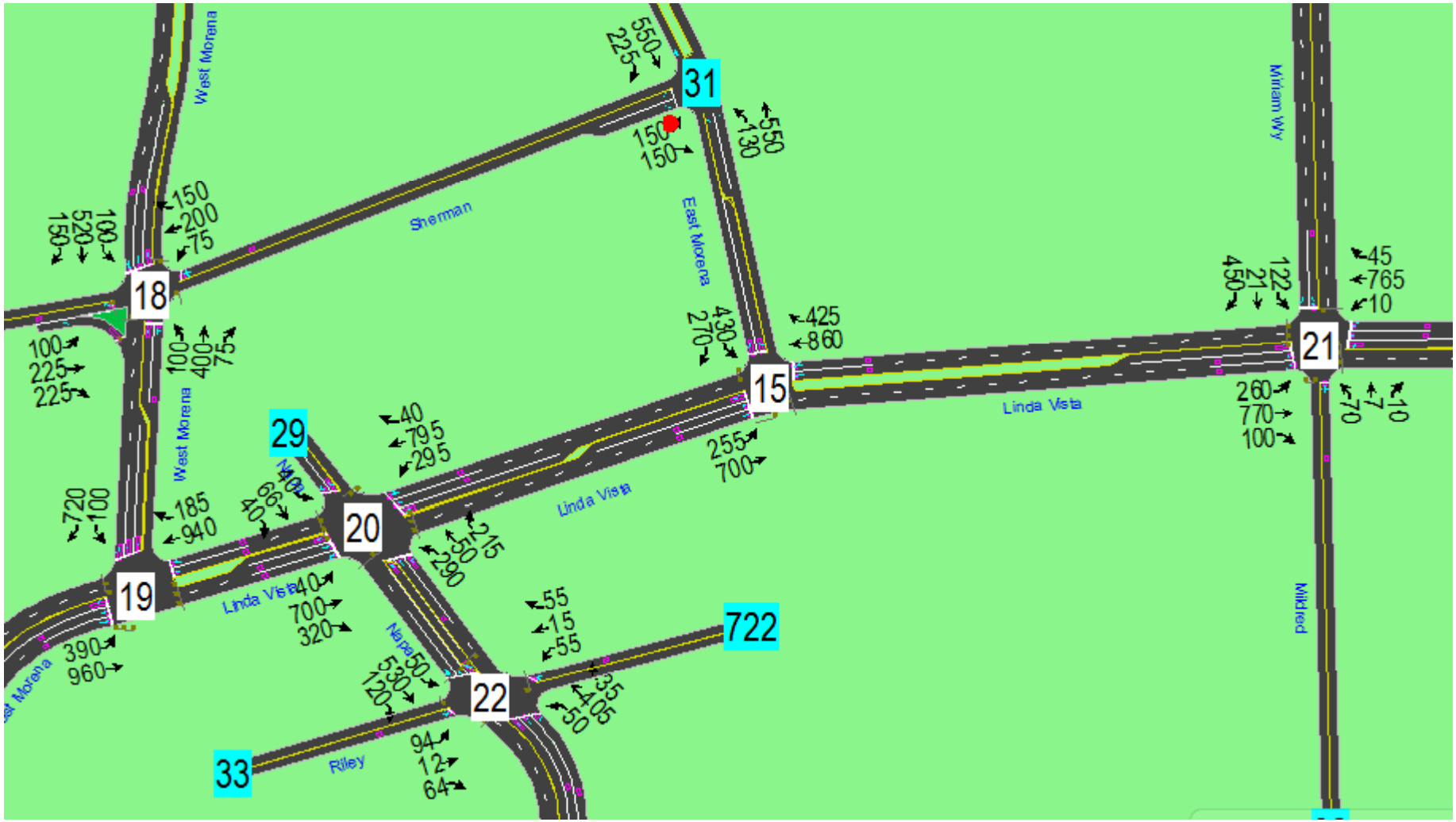


Intersections 9-14 & 16-17

Intersection Turning Movements

Morena Blvd Station Area Plan

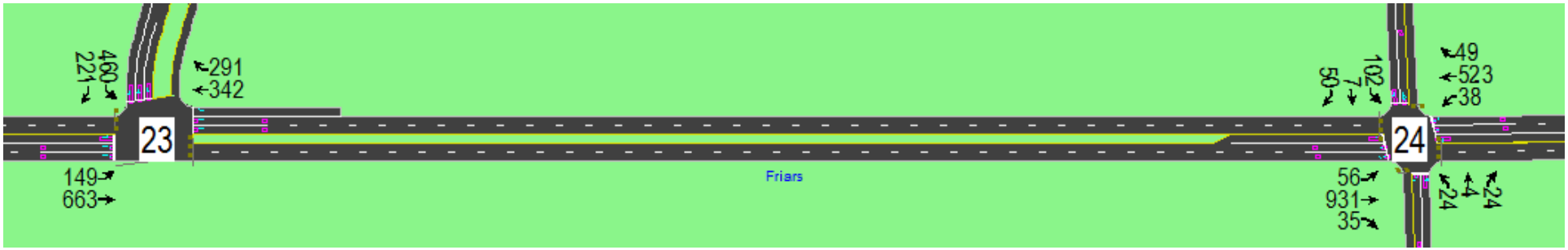
Preferred Alternative with Long-term Mobility Network (Year 2035) – PM Peak Hour



Intersections 15 & 18-22

Intersection Turning Movements

Preferred Alternative with Long-term Mobility Network (Year 2035) – PM Peak Hour



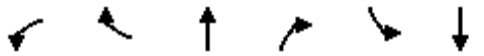
Intersections 23-24

Intersection Turning Movements

Morena Blvd Station Area Planning Study

Appendix E:

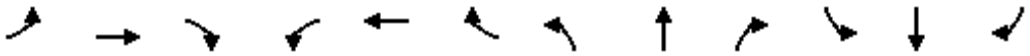
LOS Reports - Adopted Community Plan



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	37	62	527	37	44	307
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		6.0		4.4	5.9
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.92		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1655		3496		1770	3539
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1655		3496		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	103%	110%	110%	103%
Adj. Flow (vph)	44	74	590	44	53	344
RTOR Reduction (vph)	68	0	2	0	0	0
Lane Group Flow (vph)	50	0	632	0	53	344
Confl. Peds. (#/hr)				3		
Confl. Bikes (#/hr)		2	6			4
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	5.9		49.8		4.6	58.9
Effective Green, g (s)	5.9		49.8		4.6	58.9
Actuated g/C Ratio	0.08		0.66		0.06	0.78
Clearance Time (s)	4.4		6.0		4.4	5.9
Vehicle Extension (s)	2.0		4.4		2.0	4.2
Lane Grp Cap (vph)	130		2318		108	2775
v/s Ratio Prot	c0.03		c0.18		c0.03	0.10
v/s Ratio Perm						
v/c Ratio	0.38		0.27		0.49	0.12
Uniform Delay, d1	32.9		5.2		34.1	1.9
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.7		0.3		1.3	0.1
Delay (s)	33.6		5.5		35.4	2.0
Level of Service	C		A		D	A
Approach Delay (s)	33.6		5.5			6.5
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	75.1	Sum of lost time (s)	14.8
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	250	336	0	0	837	657	34	0	311	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0	5.5		5.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		0.99			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1770	3539			3539	1583	1770		1564			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1770	3539			3539	1583	1770		1564			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	140%	140%	140%	140%	140%	140%	140%	140%	140%	140%	140%	140%
Adj. Flow (vph)	361	485	0	0	1208	948	49	0	449	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	433	0	0	0	0	0	0
Lane Group Flow (vph)	361	485	0	0	1208	515	49	0	449	0	0	0
Confl. Peds. (#/hr)						6			1			
Confl. Bikes (#/hr)		4			1							
Turn Type	Prot	NA			NA	Prot	Prot		custom			
Protected Phases	7	4			8	8	2		2			
Permitted Phases									4			
Actuated Green, G (s)	18.3	48.5			25.2	25.2	6.9		55.4			
Effective Green, g (s)	18.3	48.5			25.2	25.2	6.9		55.4			
Actuated g/C Ratio	0.28	0.74			0.38	0.38	0.10		0.84			
Clearance Time (s)	5.0	5.0			5.0	5.0	5.5		5.5			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0			
Lane Grp Cap (vph)	491	2604			1353	605	185		1445			
v/s Ratio Prot	c0.20	0.14			c0.34	0.33	0.03		c0.03			
v/s Ratio Perm									0.25			
v/c Ratio	0.74	0.19			0.89	0.85	0.26		0.31			
Uniform Delay, d1	21.6	2.7			19.1	18.6	27.2		1.1			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	4.9	0.0			7.7	10.7	0.3		0.0			
Delay (s)	26.5	2.7			26.8	29.4	27.4		1.2			
Level of Service	C	A			C	C	C		A			
Approach Delay (s)		12.8			27.9			3.8			0.0	
Approach LOS		B			C			A			A	

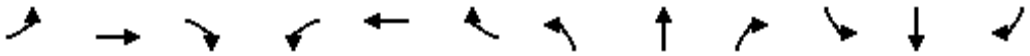
Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	15.5
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	85	36	526	149	13	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		5.3	5.3	4.4	5.0
Lane Util. Factor	0.97		0.95	1.00	1.00	0.95
Frpb, ped/bikes	0.99		1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.96		1.00	0.85	1.00	1.00
Flt Protected	0.97		1.00	1.00	0.95	1.00
Satd. Flow (prot)	2980		3185	1393	1593	3185
Flt Permitted	0.97		1.00	1.00	0.95	1.00
Satd. Flow (perm)	2980		3185	1393	1593	3185
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (vph)	174%	174%	106%	174%	174%	106%
Adj. Flow (vph)	164	70	620	288	25	392
RTOR Reduction (vph)	62	0	0	71	0	0
Lane Group Flow (vph)	172	0	620	217	25	392
Confl. Peds. (#/hr)				1		
Confl. Bikes (#/hr)		1	5	1		4
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	8.5		50.4	50.4	2.7	57.8
Effective Green, g (s)	8.5		50.4	50.4	2.7	57.8
Actuated g/C Ratio	0.11		0.66	0.66	0.04	0.76
Clearance Time (s)	4.9		5.3	5.3	4.4	5.0
Vehicle Extension (s)	2.0		4.2	4.2	2.0	4.0
Lane Grp Cap (vph)	332		2106	921	56	2415
v/s Ratio Prot	c0.06		c0.19		c0.02	0.12
v/s Ratio Perm				0.16		
v/c Ratio	0.52		0.29	0.24	0.45	0.16
Uniform Delay, d1	31.9		5.4	5.2	36.0	2.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6		0.4	0.6	2.1	0.1
Delay (s)	32.5		5.8	5.8	38.1	2.7
Level of Service	C		A	A	D	A
Approach Delay (s)	32.5		5.8			4.8
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	76.2	Sum of lost time (s)	14.6
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



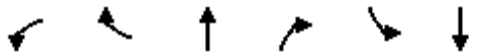
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	362	133	77	899	24	286	15	90	30	12	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	5.1	4.4	4.4		4.4	4.9		4.4	4.9	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1593	3185	1377	1593	3170		1593	1437		1593	1415	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1593	3185	1377	1593	3170		1593	1437		1593	1415	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor (vph)	140%	140%	140%	140%	140%	140%	140%	140%	140%	140%	140%	140%
Adj. Flow (vph)	150	517	190	110	1284	34	409	21	129	43	17	360
RTOR Reduction (vph)	0	0	126	0	1	0	0	91	0	0	259	0
Lane Group Flow (vph)	150	517	64	110	1317	0	409	59	0	43	118	0
Confl. Peds. (#/hr)			4			5			9			3
Confl. Bikes (#/hr)			3		2	1					2	1
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	11.8	29.7	29.7	8.7	27.3		16.0	25.9		4.5	14.4	
Effective Green, g (s)	11.8	29.7	29.7	8.7	27.3		16.0	25.9		4.5	14.4	
Actuated g/C Ratio	0.13	0.34	0.34	0.10	0.31		0.18	0.30		0.05	0.16	
Clearance Time (s)	4.4	5.1	5.1	4.4	4.4		4.4	4.9		4.4	4.9	
Vehicle Extension (s)	2.0	4.3	4.3	2.0	3.9		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	214	1079	466	158	987		290	424		81	232	
v/s Ratio Prot	c0.09	c0.16		0.07	c0.42		c0.26	0.04		0.03	c0.08	
v/s Ratio Perm			0.05									
v/c Ratio	0.70	0.48	0.14	0.70	1.33		1.41	0.14		0.53	0.51	
Uniform Delay, d1	36.2	22.8	20.1	38.2	30.1		35.8	22.7		40.5	33.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.2	1.5	0.6	10.2	157.2		204.0	0.1		3.3	0.6	
Delay (s)	44.4	24.4	20.7	48.4	187.4		239.8	22.7		43.8	34.0	
Level of Service	D	C	C	D	F		F	C		D	C	
Approach Delay (s)		27.1			176.7			181.5			35.0	
Approach LOS		C			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	120.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	87.6	Sum of lost time (s)	18.8
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	88	71	629	103	59	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1		5.4		4.4	5.3
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.94		0.98		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1703		3449		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1703		3449		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	117%	117%	117%	117%	117%	117%
Adj. Flow (vph)	108	87	775	127	73	418
RTOR Reduction (vph)	38	0	9	0	0	0
Lane Group Flow (vph)	157	0	893	0	73	418
Confl. Peds. (#/hr)				7	7	
Confl. Bikes (#/hr)			8			2
Parking (#/hr)				0		
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	9.6		28.8		4.5	37.8
Effective Green, g (s)	9.6		28.8		4.5	37.8
Actuated g/C Ratio	0.17		0.50		0.08	0.65
Clearance Time (s)	5.1		5.4		4.4	5.3
Vehicle Extension (s)	2.0		4.0		2.0	4.0
Lane Grp Cap (vph)	282		1718		137	2314
v/s Ratio Prot	c0.09		c0.26		c0.04	0.12
v/s Ratio Perm						
v/c Ratio	0.56		0.52		0.53	0.18
Uniform Delay, d1	22.2		9.8		25.6	3.9
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	1.4		0.4		2.0	0.1
Delay (s)	23.5		10.2		27.6	4.0
Level of Service	C		B		C	A
Approach Delay (s)	23.5		10.2			7.5
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	14.9
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	33	25	713	24	4	414
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		5.4		4.4	5.3
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.94		0.99		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1706		3517		1765	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1706		3517		1765	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (vph)	124%	124%	117%	124%	124%	124%
Adj. Flow (vph)	45	34	927	33	6	570
RTOR Reduction (vph)	31	0	2	0	0	0
Lane Group Flow (vph)	48	0	958	0	6	570
Confl. Peds. (#/hr)				6	6	
Confl. Bikes (#/hr)			8			5
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	4.9		33.1		0.8	38.4
Effective Green, g (s)	4.9		33.1		0.8	38.4
Actuated g/C Ratio	0.09		0.62		0.01	0.72
Clearance Time (s)	4.9		5.4		4.4	5.3
Vehicle Extension (s)	2.0		4.3		2.0	4.0
Lane Grp Cap (vph)	156		2175		26	2540
v/s Ratio Prot	c0.03		c0.27		0.00	c0.16
v/s Ratio Perm						
v/c Ratio	0.31		0.44		0.23	0.22
Uniform Delay, d1	22.7		5.3		26.0	2.5
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.4		0.2		1.7	0.1
Delay (s)	23.1		5.6		27.7	2.6
Level of Service	C		A		C	A
Approach Delay (s)	23.1		5.6			2.9
Approach LOS	C		A			A

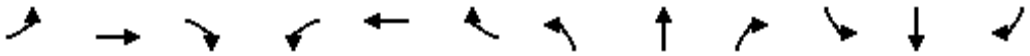
Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	53.5	Sum of lost time (s)	14.7
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	450	21	92	334	8	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	5.5	5.5	5.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3514		1770	3539	1770	1552
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3514		1770	3539	1770	1552
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor (vph)	120%	115%	115%	140%	115%	115%
Adj. Flow (vph)	614	27	120	531	10	366
RTOR Reduction (vph)	3	0	0	0	0	306
Lane Group Flow (vph)	638	0	120	531	10	60
Confl. Peds. (#/hr)		1	1			10
Confl. Bikes (#/hr)	5			5		
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	13.9		6.5	25.9	7.2	7.2
Effective Green, g (s)	13.9		6.5	25.9	7.2	7.2
Actuated g/C Ratio	0.32		0.15	0.59	0.16	0.16
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	1107		260	2078	288	253
v/s Ratio Prot	c0.18		c0.07	0.15	0.01	
v/s Ratio Perm						c0.04
v/c Ratio	0.58		0.46	0.26	0.03	0.24
Uniform Delay, d1	12.6		17.2	4.4	15.5	16.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		0.5	0.0	0.0	0.2
Delay (s)	13.1		17.7	4.4	15.5	16.2
Level of Service	B		B	A	B	B
Approach Delay (s)	13.1			6.9	16.2	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	44.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

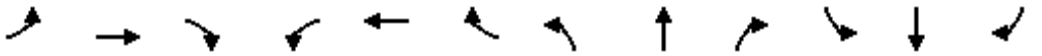
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	0	9	448	1	28	27	329	275	11	178	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5	4.5		4.5	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frpb, ped/bikes		0.99			1.00			1.00	0.96		1.00	
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	
Frt		0.88			0.99			1.00	0.85		0.99	
Flt Protected		1.00			0.96			0.99	1.00		1.00	
Satd. Flow (prot)		1607			1761			1846	1517		1835	
Flt Permitted		0.96			0.71			0.89	1.00		0.97	
Satd. Flow (perm)		1554			1317			1657	1517		1780	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor (vph)	300%	300%	300%	115%	300%	115%	300%	115%	115%	115%	130%	300%
Adj. Flow (vph)	3	0	31	599	3	37	94	440	368	15	269	24
RTOR Reduction (vph)	0	17	0	0	4	0	0	0	231	0	6	0
Lane Group Flow (vph)	0	17	0	0	635	0	0	534	137	0	302	0
Confl. Peds. (#/hr)	4		1	1		4	2		13	13		2
Confl. Bikes (#/hr)				2	3			2	1		1	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		25.5			25.5			20.5	20.5		20.5	
Effective Green, g (s)		25.5			25.5			20.5	20.5		20.5	
Actuated g/C Ratio		0.46			0.46			0.37	0.37		0.37	
Clearance Time (s)		4.5			4.5			4.5	4.5		4.5	
Vehicle Extension (s)		2.0			2.0			2.0	2.0		2.0	
Lane Grp Cap (vph)		720			610			617	565		663	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.48			c0.32	0.09		0.17	
v/c Ratio		0.02			1.04			0.87	0.24		0.46	
Uniform Delay, d1		8.0			14.8			16.0	11.9		13.0	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.0			47.4			15.0	1.0		2.3	
Delay (s)		8.0			62.1			31.0	12.9		15.3	
Level of Service		A			E			C	B		B	
Approach Delay (s)		8.0			62.1			23.6			15.3	
Approach LOS		A			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

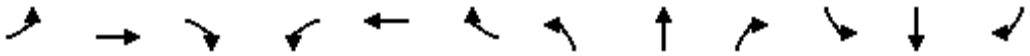
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	431	59	333	10	24	11	386	195	31	18	132	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		0.91	0.91			0.95	0.95
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00			0.99	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99			0.91	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98			1.00	1.00
Satd. Flow (prot)	3433	1863	1547	1770	1762		1610	3257			1599	1485
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98			1.00	1.00
Satd. Flow (perm)	3433	1863	1547	1770	1762		1610	3257			1599	1485
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor (vph)	129%	100%	84%	100%	100%	100%	92%	92%	110%	129%	110%	129%
Adj. Flow (vph)	598	63	301	11	26	12	382	193	37	25	156	662
RTOR Reduction (vph)	0	0	225	0	11	0	0	7	0	0	41	286
Lane Group Flow (vph)	598	63	76	11	27	0	202	403	0	0	392	124
Confl. Peds. (#/hr)						5			12			
Confl. Bikes (#/hr)			2			1		5	1	1	1	1
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4									6
Actuated Green, G (s)	15.4	21.2	21.2	0.7	7.0		15.0	15.0			25.2	25.2
Effective Green, g (s)	15.4	21.2	21.2	0.7	7.0		15.0	15.0			25.2	25.2
Actuated g/C Ratio	0.18	0.25	0.25	0.01	0.08		0.18	0.18			0.30	0.30
Clearance Time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	632	472	392	14	147		288	584			481	447
v/s Ratio Prot	c0.17	0.03		0.01	0.02		c0.13	0.12			c0.25	
v/s Ratio Perm			c0.05									0.08
v/c Ratio	0.95	0.13	0.19	0.79	0.18		0.70	0.69			0.81	0.28
Uniform Delay, d1	33.7	24.1	24.5	41.4	35.6		32.2	32.1			27.0	22.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	22.9	0.0	0.1	123.8	0.2		6.2	2.8			9.7	0.1
Delay (s)	56.6	24.2	24.6	165.2	35.9		38.4	35.0			36.7	22.4
Level of Service	E	C	C	F	D		D	C			D	C
Approach Delay (s)		44.5			64.9			36.1			29.7	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	21.5
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



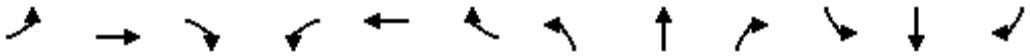
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	5	25	63	4	13	13	647	17	4	368	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.98		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1676			1737		1765	1854		1767	1831	
Flt Permitted		0.86			0.73		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1464			1324		1765	1854		1767	1831	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	23	5	27	69	4	14	14	711	19	4	404	43
RTOR Reduction (vph)	0	24	0	0	12	0	0	1	0	0	4	0
Lane Group Flow (vph)	0	31	0	0	75	0	14	729	0	4	443	0
Confl. Peds. (#/hr)	7		4	4		7	3		2	2		3
Confl. Bikes (#/hr)	1	4			2							
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		7.1			7.1		0.8	32.9		0.8	32.9	
Effective Green, g (s)		7.1			7.1		0.8	32.9		0.8	32.9	
Actuated g/C Ratio		0.13			0.13		0.01	0.60		0.01	0.60	
Clearance Time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		188			170		25	1109		25	1095	
v/s Ratio Prot							c0.01	c0.39		0.00	0.24	
v/s Ratio Perm		0.02			c0.06							
v/c Ratio		0.17			0.44		0.56	0.66		0.16	0.40	
Uniform Delay, d1		21.3			22.1		26.9	7.3		26.8	5.9	
Progression Factor		1.00			1.00		0.64	2.29		1.00	1.00	
Incremental Delay, d2		0.2			0.7		13.3	2.5		1.1	1.1	
Delay (s)		21.5			22.8		30.4	19.3		27.9	7.0	
Level of Service		C			C		C	B		C	A	
Approach Delay (s)		21.5			22.8			19.5			7.2	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	582	697	458	4	0	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0			5.0
Lane Util. Factor	0.91	0.91	0.95			0.88
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	0.99	1.00			1.00
Satd. Flow (prot)	1610	3357	3535			2787
Flt Permitted	0.95	0.99	1.00			1.00
Satd. Flow (perm)	1610	3357	3535			2787
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor (vph)	110%	110%	121%	121%	121%	122%
Adj. Flow (vph)	719	861	623	5	0	487
RTOR Reduction (vph)	0	0	1	0	0	88
Lane Group Flow (vph)	510	1070	627	0	0	399
Confl. Peds. (#/hr)				1		
Confl. Bikes (#/hr)		2	2			8
Turn Type	Split	NA	NA			Prot
Protected Phases	2	2	4			6
Permitted Phases						
Actuated Green, G (s)	30.5	30.5	14.5			30.5
Effective Green, g (s)	30.5	30.5	14.5			30.5
Actuated g/C Ratio	0.55	0.55	0.26			0.55
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	2.0	2.0	2.0			2.0
Lane Grp Cap (vph)	892	1861	931			1545
v/s Ratio Prot	0.32	c0.32	c0.18			0.14
v/s Ratio Perm						
v/c Ratio	0.57	0.57	0.67			0.26
Uniform Delay, d1	8.0	8.0	18.1			6.4
Progression Factor	1.05	0.95	0.93			1.00
Incremental Delay, d2	2.5	1.2	1.5			0.0
Delay (s)	10.8	8.8	18.4			6.4
Level of Service	B	A	B			A
Approach Delay (s)		9.5	18.4		6.4	
Approach LOS		A	B		A	

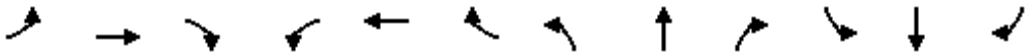
Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	1	2	3	4	5	14	458	8	10	362	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.91	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.98			0.94		1.00	1.00		1.00	1.00	
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1761			1738		1770	3528		1770	5077	
Flt Permitted		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1817			1760		1770	3528		1770	5077	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	200%	200%	100%	200%	200%	200%	160%	130%	160%	160%	130%	100%
Adj. Flow (vph)	7	2	2	7	9	11	24	647	14	17	512	5
RTOR Reduction (vph)	0	2	0	0	11	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	9	0	0	16	0	24	660	0	17	517	0
Confl. Bikes (#/hr)								7			8	3
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		0.9			0.9		1.3	22.1		0.8	21.6	
Effective Green, g (s)		0.9			0.9		1.3	22.1		0.8	21.6	
Actuated g/C Ratio		0.02			0.02		0.03	0.55		0.02	0.54	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		40			39		57	1934		35	2721	
v/s Ratio Prot							0.01	c0.19		0.01	c0.10	
v/s Ratio Perm		0.00			c0.01							
v/c Ratio		0.23			0.42		0.42	0.34		0.49	0.19	
Uniform Delay, d1		19.4			19.4		19.1	5.1		19.5	4.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			2.6		1.8	0.0		3.8	0.0	
Delay (s)		20.4			22.1		21.0	5.1		23.4	4.8	
Level of Service		C			C		C	A		C	A	
Approach Delay (s)		20.4			22.1			5.7			5.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	40.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	13	30	11	25	8	94	473	39	20	335	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9		4.4	4.9		4.4	4.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	1801	1561	1766	1762		1770	3485		1770	4819	
Flt Permitted	0.71	1.00	1.00	0.74	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1275	1801	1561	1378	1762		1770	3485		1770	4819	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor (vph)	300%	170%	100%	170%	170%	300%	130%	110%	130%	200%	116%	100%
Adj. Flow (vph)	82	25	34	21	48	27	139	591	58	45	442	57
RTOR Reduction (vph)	0	0	29	0	23	0	0	4	0	0	11	0
Lane Group Flow (vph)	82	25	5	21	52	0	139	645	0	45	488	0
Confl. Peds. (#/hr)			3	3			1		1	1		1
Confl. Bikes (#/hr)								1			7	1
Parking (#/hr)											0	
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								
Actuated Green, G (s)	10.9	10.9	10.9	10.9	10.9		10.0	47.1		4.3	41.4	
Effective Green, g (s)	10.9	10.9	10.9	10.9	10.9		10.0	47.1		4.3	41.4	
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14		0.13	0.62		0.06	0.54	
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9		4.4	4.9		4.4	4.9	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	3.6		2.0	4.3	
Lane Grp Cap (vph)	181	256	222	196	251		231	2145		99	2607	
v/s Ratio Prot		0.01			0.03		c0.08	c0.19		0.03	0.10	
v/s Ratio Perm	c0.06		0.00	0.02								
v/c Ratio	0.45	0.10	0.02	0.11	0.21		0.60	0.30		0.45	0.19	
Uniform Delay, d1	30.1	28.5	28.2	28.6	29.0		31.4	6.9		35.0	9.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.1	0.0	0.1	0.1		3.0	0.4		1.2	0.2	
Delay (s)	30.7	28.6	28.2	28.7	29.1		34.4	7.3		36.2	9.1	
Level of Service	C	C	C	C	C		C	A		D	A	
Approach Delay (s)		29.7			29.0			12.1			11.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	14.2
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	EBR2	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR
Lane Configurations												
Volume (vph)	24	11	42	130	678	10	429	350	45	4	14	557
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.4	5.3		4.4	5.3			4.9	4.4
Lane Util. Factor	1.00	1.00		1.00	0.95		0.97	0.95			1.00	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.85		1.00	1.00		1.00	0.97			0.86	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1770	1583		1770	3530		3433	3409			1593	1504
Flt Permitted	0.26	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	493	1583		1770	3530		3433	3409			1593	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	200%	100%	200%	125%	110%	100%	115%	100%	200%	100%	100%	100%
Adj. Flow (vph)	52	12	91	177	811	11	536	380	98	4	15	605
RTOR Reduction (vph)	0	89	0	0	0	0	0	20	0	0	255	15
Lane Group Flow (vph)	52	14	0	177	822	0	536	458	0	0	60	294
Confl. Peds. (#/hr)			16	5		15			5	16		
Confl. Bikes (#/hr)					2	2	7	7			3	
Turn Type	Perm	Prot		Prot	NA		Prot	NA		Perm	Prot	pm+ov
Protected Phases		4		5	2		1	6			8	1
Permitted Phases	4									8		8
Actuated Green, G (s)	15.1	15.1		20.1	58.3		22.0	60.2			15.1	37.1
Effective Green, g (s)	15.1	15.1		20.1	58.3		22.0	60.2			15.1	37.1
Actuated g/C Ratio	0.14	0.14		0.18	0.53		0.20	0.55			0.14	0.34
Clearance Time (s)	4.9	4.9		4.4	5.3		4.4	5.3			4.9	4.4
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	67	217		323	1870		686	1865			218	507
v/s Ratio Prot		0.01		0.10	c0.23		c0.16	0.13				0.12
v/s Ratio Perm	c0.11										0.04	0.08
v/c Ratio	0.78	0.07		0.55	0.44		0.78	0.25			0.27	0.58
Uniform Delay, d1	45.8	41.3		40.8	15.8		41.7	13.0			42.5	30.0
Progression Factor	1.00	1.00		1.32	1.03		1.00	0.84			3.97	1.15
Incremental Delay, d2	39.0	0.0		0.8	0.0		5.0	0.3			0.2	0.7
Delay (s)	84.8	41.4		54.6	16.3		46.7	11.2			168.9	35.4
Level of Service	F	D		D	B		D	B			F	D
Approach Delay (s)	55.9				23.1			30.0			102.8	
Approach LOS	E				C			C			F	

Intersection Summary			
HCM 2000 Control Delay	45.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.6
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

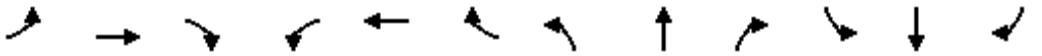
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	705	0	853	784	0	384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2		5.5	5.5		5.3
Lane Util. Factor	0.97		0.95	1.00		0.95
Frpb, ped/bikes	1.00		1.00	0.98		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	0.85		1.00
Flt Protected	0.95		1.00	1.00		1.00
Satd. Flow (prot)	3433		3539	1560		3539
Flt Permitted	0.95		1.00	1.00		1.00
Satd. Flow (perm)	3433		3539	1560		3539
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor (vph)	115%	100%	100%	125%	100%	115%
Adj. Flow (vph)	911	0	958	1101	0	496
RTOR Reduction (vph)	0	0	0	607	0	0
Lane Group Flow (vph)	911	0	958	494	0	496
Confl. Bikes (#/hr)			2	6	8	
Turn Type	Prot		NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases				2		
Actuated Green, G (s)	19.9		24.4	24.4		24.6
Effective Green, g (s)	19.9		24.4	24.4		24.6
Actuated g/C Ratio	0.36		0.44	0.44		0.45
Clearance Time (s)	5.2		5.5	5.5		5.3
Vehicle Extension (s)	3.6		3.9	3.9		4.7
Lane Grp Cap (vph)	1242		1570	692		1582
v/s Ratio Prot	c0.27		0.27			0.14
v/s Ratio Perm				c0.32		
v/c Ratio	0.73		0.61	0.71		0.31
Uniform Delay, d1	15.2		11.7	12.5		9.8
Progression Factor	1.08		1.00	1.00		1.03
Incremental Delay, d2	1.6		1.8	6.2		0.5
Delay (s)	18.0		13.4	18.7		10.6
Level of Service	B		B	B		B
Approach Delay (s)	18.0		16.2			10.6
Approach LOS	B		B			B

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	27	639	139	61	451	281	322	140	26	232	272	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9		4.9	4.9		4.9	4.9	4.9
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	0.99		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99		0.95	0.99	1.00
Satd. Flow (prot)	1770	3390		1770	3255		1681	1723		1681	1759	1519
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.95	0.99	1.00
Satd. Flow (perm)	1770	3390		1770	3255		1681	1723		1681	1759	1519
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor (vph)	125%	100%	125%	100%	100%	100%	88%	150%	88%	125%	88%	100%
Adj. Flow (vph)	40	761	207	73	537	335	337	250	27	345	285	179
RTOR Reduction (vph)	0	19	0	0	68	0	0	3	0	0	0	140
Lane Group Flow (vph)	40	949	0	73	804	0	303	308	0	307	323	39
Confl. Peds. (#/hr)			26			19			42			16
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	5			1			4	4		3	3	
Permitted Phases		2			6							3
Actuated Green, G (s)	4.9	37.0		6.9	39.0		22.8	22.8		24.2	24.2	24.2
Effective Green, g (s)	4.9	37.0		6.9	39.0		22.8	22.8		24.2	24.2	24.2
Actuated g/C Ratio	0.04	0.34		0.06	0.35		0.21	0.21		0.22	0.22	0.22
Clearance Time (s)	4.4	4.9		4.4	4.9		4.9	4.9		4.9	4.9	4.9
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	78	1140		111	1154		348	357		369	386	334
v/s Ratio Prot	0.02			c0.04			c0.18	0.18		0.18	c0.18	
v/s Ratio Perm		c0.28			0.25							0.03
v/c Ratio	0.51	0.83		0.66	0.70		0.87	0.86		0.83	0.84	0.12
Uniform Delay, d1	51.4	33.6		50.4	30.4		42.2	42.1		41.0	41.0	34.4
Progression Factor	0.98	1.01		0.73	1.31		1.57	1.58		1.15	1.15	2.31
Incremental Delay, d2	1.2	2.6		8.9	1.3		23.2	21.8		13.3	13.1	0.1
Delay (s)	51.6	36.7		45.5	41.0		89.3	88.2		60.5	60.5	79.5
Level of Service	D	D		D	D		F	F		E	E	E
Approach Delay (s)		37.3			41.4			88.8			64.7	
Approach LOS		D			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.1
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	439	646	30	4	668	45	95	16	3	10	0	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	5.6			4.9			4.9	4.4
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			1.00	1.00
Frt	1.00	0.99		1.00	0.99			1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96			0.95	1.00
Satd. Flow (prot)	1770	3511		1770	3503			1766			1765	1574
Flt Permitted	0.95	1.00		0.95	1.00			0.75			0.75	1.00
Satd. Flow (perm)	1770	3511		1770	3503			1385			1395	1574
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor (vph)	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%
Adj. Flow (vph)	502	738	34	5	763	51	109	18	3	11	0	50
RTOR Reduction (vph)	0	3	0	0	4	0	0	1	0	0	0	19
Lane Group Flow (vph)	502	769	0	5	810	0	0	129	0	0	11	31
Confl. Peds. (#/hr)	2		4	4		2	8		3	3		8
Confl. Bikes (#/hr)		9	1		6		1	21	1			
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases							2			6		6
Actuated Green, G (s)	43.5	35.1		45.3	36.2			15.4			15.4	58.9
Effective Green, g (s)	43.5	35.1		45.3	36.2			15.4			15.4	58.9
Actuated g/C Ratio	0.40	0.32		0.41	0.33			0.14			0.14	0.54
Clearance Time (s)	4.4	4.9		4.4	5.6			4.9			4.9	4.4
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Lane Grp Cap (vph)	699	1120		728	1152			193			195	842
v/s Ratio Prot	c0.28	0.22		0.00	c0.23							0.01
v/s Ratio Perm								c0.09			0.01	0.01
v/c Ratio	0.72	0.69		0.01	0.70			0.67			0.06	0.04
Uniform Delay, d1	28.1	32.7		19.1	32.2			44.9			41.0	12.1
Progression Factor	1.45	0.66		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	2.3	1.1		0.0	3.6			6.6			0.0	0.0
Delay (s)	43.1	22.6		19.1	35.8			51.5			41.0	12.1
Level of Service	D	C		B	D			D			D	B
Approach Delay (s)		30.6			35.7			51.5			17.3	
Approach LOS		C			D			D			B	

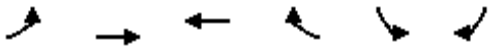
Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	99	12	28	3	6	16	53	227	69	54	555	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.91		1.00	0.97		1.00	0.99	
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1734			1671		1770	3387		1770	3492	
Flt Permitted		0.77			0.95		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1383			1601		1770	3387		1770	3492	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	116	14	33	4	7	19	62	267	81	64	653	51
RTOR Reduction (vph)	0	23	0	0	15	0	0	39	0	0	9	0
Lane Group Flow (vph)	0	140	0	0	15	0	62	309	0	64	695	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1			5	2	
Permitted Phases	4			8				6				
Actuated Green, G (s)		10.4			10.4		6.2	24.8		4.8	23.4	
Effective Green, g (s)		10.4			10.4		6.2	24.8		4.8	23.4	
Actuated g/C Ratio		0.19			0.19		0.11	0.45		0.09	0.43	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		261			302		199	1527		154	1485	
v/s Ratio Prot							0.04			c0.04	c0.20	
v/s Ratio Perm		c0.10			0.01			0.09				
v/c Ratio		0.54			0.05		0.31	0.20		0.42	0.47	
Uniform Delay, d1		20.1			18.3		22.4	9.1		23.8	11.3	
Progression Factor		1.00			1.00		0.99	1.31		1.00	1.00	
Incremental Delay, d2		1.1			0.0		0.2	0.2		0.7	1.1	
Delay (s)		21.2			18.3		22.4	12.2		24.4	12.4	
Level of Service		C			B		C	B		C	B	
Approach Delay (s)		21.2			18.3			13.7			13.4	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

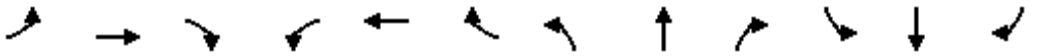
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	285	340	285	347	192	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	5.6	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.95	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.98	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3185	3185	1350	3042	1277
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3185	3185	1350	3042	1277
Peak-hour factor, PHF	0.78	0.78	0.92	0.92	0.78	0.78
Growth Factor (vph)	100%	150%	200%	115%	166%	100%
Adj. Flow (vph)	365	654	620	434	409	45
RTOR Reduction (vph)	0	0	0	302	1	31
Lane Group Flow (vph)	365	654	620	132	413	9
Confl. Peds. (#/hr)				23	10	
Confl. Bikes (#/hr)	5		3		2	3
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	6	6
Actuated Green, G (s)	21.7	49.7	24.0	24.0	18.4	18.4
Effective Green, g (s)	21.7	49.7	24.0	24.0	18.4	18.4
Actuated g/C Ratio	0.27	0.63	0.30	0.30	0.23	0.23
Clearance Time (s)	4.4	6.0	5.6	5.6	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	4.2	5.0	5.0
Lane Grp Cap (vph)	437	2003	967	410	708	297
v/s Ratio Prot	c0.23	0.21	c0.19			
v/s Ratio Perm				0.10	c0.14	0.01
v/c Ratio	0.84	0.33	0.64	0.32	0.58	0.03
Uniform Delay, d1	27.0	6.8	23.8	21.2	26.9	23.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.4	0.2	1.7	0.7	1.9	0.1
Delay (s)	39.4	7.0	25.5	21.9	28.8	23.5
Level of Service	D	A	C	C	C	C
Approach Delay (s)		18.6	24.0		28.3	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	405	5	8	694	52	40	3	48	60	4	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7		4.4	6.0			4.9	4.9		4.9	4.9
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.98			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1770	3530		1770	3461			1771	1583		1779	1553
Flt Permitted	0.95	1.00		0.95	1.00			0.64	1.00		0.67	1.00
Satd. Flow (perm)	1770	3530		1770	3461			1181	1583		1242	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.92	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor (vph)	200%	180%	200%	200%	120%	200%	200%	200%	200%	200%	200%	200%
Adj. Flow (vph)	106	858	12	19	905	122	94	7	113	141	9	80
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	91	0	0	64
Lane Group Flow (vph)	106	870	0	19	1019	0	0	101	22	0	150	16
Confl. Peds. (#/hr)	18		10	18		10	8					8
Confl. Bikes (#/hr)		7			5							1
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	6.7	33.5		1.1	27.6			12.2	12.2		12.2	12.2
Effective Green, g (s)	6.7	33.5		1.1	27.6			12.2	12.2		12.2	12.2
Actuated g/C Ratio	0.11	0.54		0.02	0.45			0.20	0.20		0.20	0.20
Clearance Time (s)	4.4	5.7		4.4	6.0			4.9	4.9		4.9	4.9
Vehicle Extension (s)	2.0	6.1		2.0	6.4			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	191	1913		31	1545			233	312		245	306
v/s Ratio Prot	c0.06	0.25		0.01	c0.29							
v/s Ratio Perm								0.09	0.01		c0.12	0.01
v/c Ratio	0.55	0.45		0.61	0.66			0.43	0.07		0.61	0.05
Uniform Delay, d1	26.1	8.6		30.1	13.4			21.8	20.2		22.6	20.1
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.0	0.5		22.6	1.8			0.5	0.0		3.2	0.0
Delay (s)	28.1	9.1		52.8	15.2			22.2	20.2		25.8	20.1
Level of Service	C	A		D	B			C	C		C	C
Approach Delay (s)		11.2			15.9			21.2			23.8	
Approach LOS		B			B			C			C	

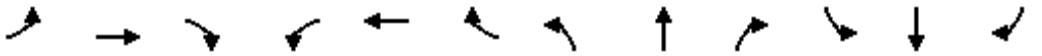
Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	61.8	Sum of lost time (s)	15.3
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	12	15	707	34	19	403
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	16	845	41	23	482
Pedestrians			6			6
Lane Width (ft)			12.0			12.0
Walking Speed (ft/s)			4.0			4.0
Percent Blockage			1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1175			441
pX, platoon unblocked	0.90	0.90			0.90	
vC, conflicting volume	1158	449			886	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	954	166			652	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	98			97	
cM capacity (veh/h)	224	760			838	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	29	564	322	23	241	241
Volume Left	13	0	0	23	0	0
Volume Right	16	0	41	0	0	0
cSH	368	1700	1700	838	1700	1700
Volume to Capacity	0.08	0.33	0.19	0.03	0.14	0.14
Queue Length 95th (ft)	6	0	0	2	0	0
Control Delay (s)	15.6	0.0	0.0	9.4	0.0	0.0
Lane LOS	C			A		
Approach Delay (s)	15.6	0.0		0.4		
Approach LOS	C					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	181	17	6	3	23	70	0	168	3	12	118	106
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	354	33	12	6	45	137	0	328	6	23	231	207

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	399	188	334	254	207
Volume Left (vph)	354	6	0	23	0
Volume Right (vph)	12	137	6	0	207
Hadj (s)	0.19	-0.40	0.02	0.08	-0.67
Departure Headway (s)	7.2	7.4	7.3	7.6	6.9
Degree Utilization, x	0.79	0.38	0.68	0.54	0.40
Capacity (veh/h)	481	427	464	437	492
Control Delay (s)	32.4	14.8	24.2	18.1	13.1
Approach Delay (s)	32.4	14.8	24.2	15.8	
Approach LOS	D	B	C	C	

Intersection Summary				
Delay	22.5			
Level of Service	C			
Intersection Capacity Utilization	67.7%	ICU Level of Service	C	
Analysis Period (min)	15			

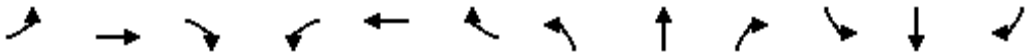
Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (veh/h)	14	616	417	31	7	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	16	779	479	36	8	7
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		748	779			
pX, platoon unblocked					0.78	
vC, conflicting volume	517				1310	499
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	517				1257	499
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				94	99
cM capacity (veh/h)	1047				145	570

Direction, Lane #	NB 1	NB 2	SB 1	SE 1
Volume Total	16	779	515	15
Volume Left	16	0	0	8
Volume Right	0	0	36	7
cSH	1047	1700	1700	221
Volume to Capacity	0.02	0.46	0.30	0.07
Queue Length 95th (ft)	1	0	0	5
Control Delay (s)	8.5	0.0	0.0	22.5
Lane LOS	A			C
Approach Delay (s)	0.2		0.0	22.5
Approach LOS				C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	28	58	384	41	123	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.98		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1642		3470		1770	3539
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1642		3470		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	103%	110%	110%	103%
Adj. Flow (vph)	33	69	430	49	147	605
RTOR Reduction (vph)	62	0	5	0	0	0
Lane Group Flow (vph)	40	0	474	0	147	605
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	7.7		40.1		10.3	55.9
Effective Green, g (s)	7.7		40.1		10.3	55.9
Actuated g/C Ratio	0.10		0.54		0.14	0.76
Clearance Time (s)	5.0		5.0		5.5	5.0
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	171		1890		247	2687
v/s Ratio Prot	c0.02		c0.14		c0.08	0.17
v/s Ratio Perm						
v/c Ratio	0.24		0.25		0.60	0.23
Uniform Delay, d1	30.2		8.8		29.7	2.6
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.3		0.3		2.6	0.2
Delay (s)	30.5		9.1		32.3	2.8
Level of Service	C		A		C	A
Approach Delay (s)	30.5		9.1			8.5
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	73.6	Sum of lost time (s)	15.5
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

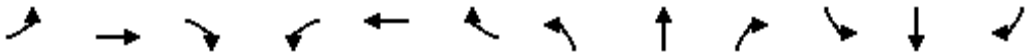


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	721	0	0	663	352	117	0	787	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5		5.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1593	3185			3185	1425	1593		1397			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1593	3185			3185	1425	1593		1397			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor (vph)	140%	140%	140%	140%	135%	140%	140%	140%	130%	140%	140%	140%
Adj. Flow (vph)	141	1051	0	0	932	513	171	0	1066	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	305	0	0	0	0	0	0
Lane Group Flow (vph)	141	1051	0	0	932	208	171	0	1066	0	0	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA			NA	Prot	Prot		custom			
Protected Phases	7	4			8	8	2		2			
Permitted Phases									4			
Actuated Green, G (s)	11.4	42.1			25.2	25.2	25.9		68.0			
Effective Green, g (s)	11.4	42.1			25.2	25.2	25.9		68.0			
Actuated g/C Ratio	0.14	0.53			0.32	0.32	0.33		0.86			
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5		5.5			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0			
Lane Grp Cap (vph)	229	1697			1015	454	522		1397			
v/s Ratio Prot	0.09	0.33			0.29	0.15	0.11		c0.25			
v/s Ratio Perm									0.51			
v/c Ratio	0.62	0.62			0.92	0.46	0.33		0.76			
Uniform Delay, d1	31.7	12.9			25.9	21.5	20.0		2.2			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	3.4	0.5			12.5	0.3	0.1		2.3			
Delay (s)	35.2	13.3			38.4	21.7	20.1		4.5			
Level of Service	D	B			D	C	C		A			
Approach Delay (s)		15.9			32.5			6.7			0.0	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	111.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	175	23	398	175	29	529
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	5.5	5.5	5.5
Lane Util. Factor	0.97		0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00		1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	0.85	1.00	1.00
Flt Protected	0.96		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3384		3539	1515	1770	3539
Flt Permitted	0.96		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3384		3539	1515	1770	3539
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	174%	174%	106%	174%	174%	100%
Adj. Flow (vph)	314	41	435	314	52	545
RTOR Reduction (vph)	14	0	0	131	0	0
Lane Group Flow (vph)	341	0	435	183	52	545
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	12.3		46.7	46.7	4.6	56.8
Effective Green, g (s)	12.3		46.7	46.7	4.6	56.8
Actuated g/C Ratio	0.15		0.58	0.58	0.06	0.71
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	519		2063	883	101	2509
v/s Ratio Prot	c0.10		0.12		c0.03	c0.15
v/s Ratio Perm				0.12		
v/c Ratio	0.66		0.21	0.21	0.51	0.22
Uniform Delay, d1	31.9		7.9	7.9	36.7	4.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3		0.2	0.5	1.8	0.2
Delay (s)	34.2		8.2	8.5	38.5	4.2
Level of Service	C		A	A	D	A
Approach Delay (s)	34.2		8.3			7.2
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	80.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

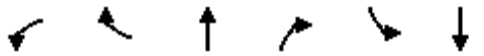


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	186	984	282	117	643	47	209	14	152	83	14	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1593	3185	1358	1593	3143		1583	1419		1583	1420	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.53	1.00		0.51	1.00	
Satd. Flow (perm)	1593	3185	1358	1593	3143		877	1419		849	1420	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	140%	140%	140%	140%	140%	140%	140%	140%	140%	140%	140%	140%
Adj. Flow (vph)	274	1450	416	172	948	69	308	21	224	122	21	212
RTOR Reduction (vph)	0	0	171	0	5	0	0	150	0	0	142	0
Lane Group Flow (vph)	274	1450	245	172	1012	0	308	95	0	122	91	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)	15.0	35.0	35.0	13.2	33.2		31.0	31.0		31.0	31.0	
Effective Green, g (s)	15.0	35.0	35.0	13.2	33.2		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.16	0.37	0.37	0.14	0.35		0.33	0.33		0.33	0.33	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	253	1183	504	223	1107		288	466		279	467	
v/s Ratio Prot	c0.17	c0.46		0.11	0.32			0.07			0.06	
v/s Ratio Perm			0.18				c0.35			0.14		
v/c Ratio	1.08	1.23	0.49	0.77	0.91		1.07	0.20		0.44	0.19	
Uniform Delay, d1	39.6	29.6	22.7	39.0	29.1		31.6	22.7		24.8	22.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	80.5	109.2	0.3	13.9	11.2		72.7	0.1		0.4	0.1	
Delay (s)	120.1	138.8	23.0	53.0	40.4		104.3	22.8		25.2	22.7	
Level of Service	F	F	C	D	D		F	C		C	C	
Approach Delay (s)		113.9			42.2			68.2			23.6	
Approach LOS		F			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	80.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	94.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	54	88	544	73	37	640
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5		5.5	5.5
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.92		0.98		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1654		3460		1770	3539
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1654		3460		1770	3539
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	117%	117%	113%	117%	117%	113%
Adj. Flow (vph)	65	106	634	88	45	746
RTOR Reduction (vph)	74	0	8	0	0	0
Lane Group Flow (vph)	97	0	714	0	45	746
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	8.2		20.2		2.3	28.0
Effective Green, g (s)	8.2		20.2		2.3	28.0
Actuated g/C Ratio	0.17		0.43		0.05	0.59
Clearance Time (s)	5.5		5.5		5.5	5.5
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	287		1480		86	2099
v/s Ratio Prot	c0.06		c0.21		0.03	c0.21
v/s Ratio Perm						
v/c Ratio	0.34		0.48		0.52	0.36
Uniform Delay, d1	17.1		9.7		21.9	4.9
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.3		0.1		2.6	0.0
Delay (s)	17.4		9.8		24.5	5.0
Level of Service	B		A		C	A
Approach Delay (s)	17.4		9.8			6.1
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	47.2	Sum of lost time (s)	16.5
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	51	29	576	81	36	670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5		5.5	5.5
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.96		0.98		1.00	1.00
Flt Protected	0.96		1.00		0.95	1.00
Satd. Flow (prot)	1722		3459		1770	3539
Flt Permitted	0.96		1.00		0.95	1.00
Satd. Flow (perm)	1722		3459		1770	3539
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	180%	117%	117%	117%	117%	112%
Adj. Flow (vph)	95	35	695	98	43	774
RTOR Reduction (vph)	17	0	9	0	0	0
Lane Group Flow (vph)	113	0	784	0	43	774
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	7.3		23.9		2.3	31.7
Effective Green, g (s)	7.3		23.9		2.3	31.7
Actuated g/C Ratio	0.15		0.48		0.05	0.63
Clearance Time (s)	5.5		5.5		5.5	5.5
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	251		1653		81	2243
v/s Ratio Prot	c0.07		c0.23		0.02	c0.22
v/s Ratio Perm						
v/c Ratio	0.45		0.47		0.53	0.35
Uniform Delay, d1	19.5		8.8		23.3	4.3
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.5		0.1		3.3	0.0
Delay (s)	20.0		8.9		26.6	4.3
Level of Service	B		A		C	A
Approach Delay (s)	20.0		8.9			5.5
Approach LOS	B		A			A

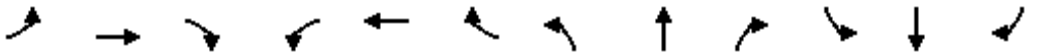
Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	387	26	191	501	15	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	5.5	5.5	5.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3498		1770	3539	1770	1551
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3498		1770	3539	1770	1551
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Growth Factor (vph)	124%	124%	115%	124%	124%	115%
Adj. Flow (vph)	485	33	222	628	19	364
RTOR Reduction (vph)	5	0	0	0	0	309
Lane Group Flow (vph)	513	0	222	628	19	55
Confl. Peds. (#/hr)		10	10		10	10
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	12.6		11.3	29.4	7.2	7.2
Effective Green, g (s)	12.6		11.3	29.4	7.2	7.2
Actuated g/C Ratio	0.26		0.24	0.62	0.15	0.15
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	925		420	2185	267	234
v/s Ratio Prot	c0.15		c0.13	0.18	0.01	
v/s Ratio Perm						c0.04
v/c Ratio	0.55		0.53	0.29	0.07	0.24
Uniform Delay, d1	15.1		15.8	4.2	17.3	17.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.6	0.0	0.0	0.2
Delay (s)	15.5		16.4	4.3	17.4	18.0
Level of Service	B		B	A	B	B
Approach Delay (s)	15.5			7.4	17.9	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	47.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	6	33	206	1	24	23	391	284	11	293	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frpb, ped/bikes		0.98			1.00	0.96		1.00	0.96		1.00	
Flpb, ped/bikes		1.00			0.99	1.00		1.00	1.00		1.00	
Frt		0.90			1.00	0.85		1.00	0.85		1.00	
Flt Protected		0.99			0.95	1.00		1.00	1.00		1.00	
Satd. Flow (prot)		1636			1756	1522		1853	1521		1849	
Flt Permitted		0.95			0.68	1.00		0.96	1.00		0.98	
Satd. Flow (perm)		1564			1260	1522		1791	1521		1817	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	115%	129%	129%	129%	200%	115%	129%	88%	129%	115%	88%	115%
Adj. Flow (vph)	8	8	44	274	2	28	31	355	378	13	266	8
RTOR Reduction (vph)	0	32	0	0	0	20	0	0	157	0	1	0
Lane Group Flow (vph)	0	28	0	0	276	8	0	386	221	0	286	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)		18.3			18.3	18.3		39.7	39.7		39.7	
Effective Green, g (s)		18.3			18.3	18.3		39.7	39.7		39.7	
Actuated g/C Ratio		0.27			0.27	0.27		0.58	0.58		0.58	
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)		2.0			2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)		420			339	409		1045	887		1060	
v/s Ratio Prot												
v/s Ratio Perm		0.02			c0.22	0.00		c0.22	0.15		0.16	
v/c Ratio		0.07			0.81	0.02		0.37	0.25		0.27	
Uniform Delay, d1		18.5			23.3	18.3		7.5	6.9		7.0	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.0			13.2	0.0		1.0	0.7		0.6	
Delay (s)		18.5			36.5	18.3		8.5	7.6		7.6	
Level of Service		B			D	B		A	A		A	
Approach Delay (s)		18.5			34.8			8.0			7.6	
Approach LOS		B			C			A			A	

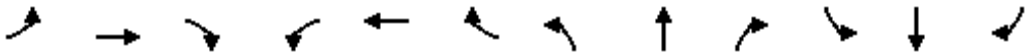
Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	472	55	545	25	66	30	443	193	17	17	176	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		0.91	0.91			0.95	0.95
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00			0.99	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99			0.94	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (prot)	3433	1863	1530	1770	1761		1610	3280			1639	1465
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (perm)	3433	1863	1530	1770	1761		1610	3280			1639	1465
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	115%	100%	84%	100%	100%	100%	84%	84%	84%	100%	84%	115%
Adj. Flow (vph)	596	60	503	27	73	33	409	178	16	19	162	403
RTOR Reduction (vph)	0	0	343	0	18	0	0	3	0	0	25	219
Lane Group Flow (vph)	596	60	160	27	88	0	204	396	0	0	281	59
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4									6
Actuated Green, G (s)	17.9	25.8	25.8	1.3	9.7		15.0	15.0			17.3	17.3
Effective Green, g (s)	17.9	25.8	25.8	1.3	9.7		15.0	15.0			17.3	17.3
Actuated g/C Ratio	0.22	0.32	0.32	0.02	0.12		0.19	0.19			0.21	0.21
Clearance Time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	759	594	487	28	211		298	608			350	313
v/s Ratio Prot	c0.17	0.03		0.02	c0.05		c0.13	0.12			c0.17	
v/s Ratio Perm			0.10									0.04
v/c Ratio	0.79	0.10	0.33	0.96	0.42		0.68	0.65			0.80	0.19
Uniform Delay, d1	29.7	19.4	21.0	39.8	33.0		30.7	30.5			30.2	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	4.9	0.0	0.1	153.1	0.5		5.1	1.9			11.8	0.1
Delay (s)	34.6	19.4	21.1	192.8	33.5		35.9	32.4			42.0	26.2
Level of Service	C	B	C	F	C		D	C			D	C
Approach Delay (s)		28.0			65.8			33.6			34.5	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	80.9	Sum of lost time (s)	21.5
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

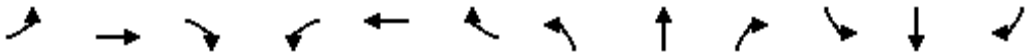


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	4	30	57	6	21	26	521	32	11	596	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.96			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.97			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1689			1729		1770	1838		1770	1839	
Flt Permitted		0.79			0.72		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1377			1288		1770	1838		1770	1839	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	150%	150%	150%	150%	150%	84%	110%	94%	110%	84%	84%	84%
Adj. Flow (vph)	93	7	49	93	10	19	31	532	38	10	544	39
RTOR Reduction (vph)	0	32	0	0	12	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	117	0	0	110	0	31	568	0	10	581	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		9.9			9.9		2.6	42.7		1.2	41.3	
Effective Green, g (s)		9.9			9.9		2.6	42.7		1.2	41.3	
Actuated g/C Ratio		0.15			0.15		0.04	0.63		0.02	0.61	
Clearance Time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		200			187		67	1154		31	1116	
v/s Ratio Prot							c0.02	0.31		0.01	c0.32	
v/s Ratio Perm		0.09			c0.09							
v/c Ratio		0.59			0.59		0.46	0.49		0.32	0.52	
Uniform Delay, d1		27.1			27.1		32.0	6.8		33.0	7.7	
Progression Factor		1.01			1.00		0.86	1.24		1.00	1.00	
Incremental Delay, d2		2.7			3.0		1.6	1.3		2.2	1.7	
Delay (s)		30.1			30.2		29.0	9.7		35.2	9.4	
Level of Service		C			C		C	A		D	A	
Approach Delay (s)		30.1			30.2			10.7			9.8	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

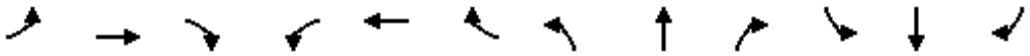
Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	447	620	682	17	0	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0			5.0
Lane Util. Factor	0.91	0.91	0.95			0.88
Frpb, ped/bikes	1.00	1.00	1.00			0.97
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	0.99	1.00			1.00
Satd. Flow (prot)	1608	3345	3521			2707
Flt Permitted	1.00	0.95	1.00			1.00
Satd. Flow (perm)	1693	3236	3521			2707
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	111%	111%	102%	121%	121%	130%
Adj. Flow (vph)	522	724	732	22	0	846
RTOR Reduction (vph)	0	0	4	0	0	82
Lane Group Flow (vph)	261	985	750	0	0	764
Confl. Peds. (#/hr)	10			10	10	10
Turn Type	Perm	NA	NA			Perm
Protected Phases		2	4			
Permitted Phases	2					6
Actuated Green, G (s)	38.1	38.1	19.9			38.1
Effective Green, g (s)	38.1	38.1	19.9			38.1
Actuated g/C Ratio	0.56	0.56	0.29			0.56
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	2.0	2.0	2.0			2.0
Lane Grp Cap (vph)	948	1813	1030			1516
v/s Ratio Prot			c0.21			
v/s Ratio Perm	0.15	c0.30				0.28
v/c Ratio	0.28	0.54	0.73			0.50
Uniform Delay, d1	7.8	9.5	21.6			9.2
Progression Factor	0.84	0.85	1.00			1.55
Incremental Delay, d2	0.7	1.1	2.2			0.1
Delay (s)	7.2	9.1	23.8			14.3
Level of Service	A	A	C			B
Approach Delay (s)		8.7	23.8		14.3	
Approach LOS		A	C		B	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	4	20	36	11	5	67	323	17	9	493	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99		1.00	1.00		0.99	1.00	
Frt		0.95			0.99		1.00	0.99		1.00	1.00	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1696			1765		1770	3496		1756	3520	
Flt Permitted		0.79			0.74		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1376			1352		1770	3496		1756	3520	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	160%	160%	160%	160%	160%	160%	160%	120%	160%	120%	120%	120%
Adj. Flow (vph)	44	7	34	61	19	8	113	408	29	11	623	19
RTOR Reduction (vph)	0	29	0	0	4	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	56	0	0	84	0	113	433	0	11	640	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		7.0			7.0		6.4	27.4		0.8	21.8	
Effective Green, g (s)		7.0			7.0		6.4	27.4		0.8	21.8	
Actuated g/C Ratio		0.14			0.14		0.12	0.53		0.02	0.42	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		186			183		219	1852		27	1484	
v/s Ratio Prot							c0.06	0.12		0.01	c0.18	
v/s Ratio Perm		0.04			c0.06							
v/c Ratio		0.30			0.46		0.52	0.23		0.41	0.43	
Uniform Delay, d1		20.1			20.6		21.2	6.5		25.2	10.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.7		0.9	0.0		3.6	0.1	
Delay (s)		20.5			21.3		22.1	6.5		28.8	10.6	
Level of Service		C			C		C	A		C	B	
Approach Delay (s)		20.5			21.3			9.7			10.9	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	51.7	Sum of lost time (s)	16.5
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	28	82	32	19	34	45	372	34	39	507	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9		4.4	5.8		4.4	5.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.91			0.95		1.00	0.99		1.00	1.00	
Flt Protected		1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1663			1707		1770	3483		1770	3532	
Flt Permitted		0.97			0.67		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1615			1172		1770	3483		1770	3532	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor (vph)	167%	167%	167%	167%	167%	167%	120%	120%	120%	167%	120%	167%
Adj. Flow (vph)	20	50	147	57	34	61	58	480	44	70	654	7
RTOR Reduction (vph)	0	120	0	0	50	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	97	0	0	102	0	58	518	0	70	661	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		12.4			12.4		4.7	35.2		5.3	36.1	
Effective Green, g (s)		12.4			12.4		4.7	35.2		5.3	36.1	
Actuated g/C Ratio		0.18			0.18		0.07	0.52		0.08	0.53	
Clearance Time (s)		4.9			4.9		4.4	5.8		4.4	5.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		294			213		122	1802		137	1875	
v/s Ratio Prot							0.03	0.15		c0.04	c0.19	
v/s Ratio Perm		0.06			c0.09							
v/c Ratio		0.33			0.48		0.48	0.29		0.51	0.35	
Uniform Delay, d1		24.2			24.9		30.5	9.3		30.1	9.2	
Progression Factor		1.00			1.26		1.31	0.88		1.00	1.00	
Incremental Delay, d2		0.2			0.6		1.0	0.4		1.3	0.5	
Delay (s)		24.4			32.0		40.9	8.5		31.4	9.7	
Level of Service		C			C		D	A		C	A	
Approach Delay (s)		24.4			32.0			11.7			11.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	EBR2	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR
Lane Configurations												
Volume (vph)	100	33	160	70	375	16	685	656	100	15	12	568
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.4	5.3		4.4	5.3			4.9	4.4
Lane Util. Factor	1.00	1.00		1.00	0.95		0.97	0.95			1.00	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99			0.98	0.99
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00			0.99	1.00
Frt	1.00	0.85		1.00	0.99		1.00	0.98			0.87	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1758	1583		1770	3515		3433	3455			1573	1495
Flt Permitted	0.27	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (perm)	491	1583		1770	3515		3433	3455			1556	1495
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor (vph)	100%	200%	100%	110%	110%	100%	95%	111%	100%	100%	300%	110%
Adj. Flow (vph)	102	67	163	79	421	16	664	743	102	15	37	638
RTOR Reduction (vph)	0	71	0	0	3	0	0	9	0	0	148	62
Lane Group Flow (vph)	102	159	0	79	434	0	664	836	0	0	197	283
Confl. Peds. (#/hr)	10	10	10	10		10	10		10	10	10	10
Turn Type	Perm	Prot		Prot	NA		Prot	NA		Perm	Prot	pm+ov
Protected Phases		4		5	2		1	6			8	1
Permitted Phases	4									8		8
Actuated Green, G (s)	36.1	36.1		26.5	21.6		63.7	58.8			36.1	99.8
Effective Green, g (s)	36.1	36.1		26.5	21.6		63.7	58.8			36.1	99.8
Actuated g/C Ratio	0.27	0.27		0.19	0.16		0.47	0.43			0.27	0.73
Clearance Time (s)	4.9	4.9		4.4	5.3		4.4	5.3			4.9	4.4
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	130	420		344	558		1607	1493			413	1097
v/s Ratio Prot		0.10		c0.04	c0.12		0.19	c0.24				0.12
v/s Ratio Perm	c0.21										0.13	0.07
v/c Ratio	0.78	0.38		0.23	0.78		0.41	0.56			0.48	0.26
Uniform Delay, d1	46.3	40.8		46.1	54.9		23.8	28.9			42.0	5.9
Progression Factor	1.00	1.00		0.75	0.78		0.94	0.97			2.07	0.11
Incremental Delay, d2	24.2	0.2		0.1	10.0		0.7	1.3			0.2	0.0
Delay (s)	70.6	41.0		34.7	52.6		23.2	29.2			87.2	0.7
Level of Service	E	D		C	D		C	C			F	A
Approach Delay (s)	50.1				49.9			26.6			44.0	
Approach LOS	D				D			C			D	

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	136.0	Sum of lost time (s)	14.6
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

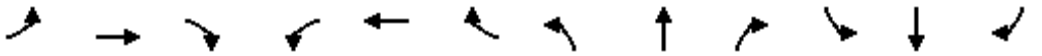
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	873	0	504	848	0	821
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	5.5		5.5
Lane Util. Factor	0.97		0.95	1.00		0.95
Frpb, ped/bikes	1.00		1.00	0.98		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	0.85		1.00
Flt Protected	0.95		1.00	1.00		1.00
Satd. Flow (prot)	3433		3539	1546		3539
Flt Permitted	0.95		1.00	1.00		1.00
Satd. Flow (perm)	3433		3539	1546		3539
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor (vph)	110%	100%	100%	110%	100%	110%
Adj. Flow (vph)	1000	0	525	972	0	941
RTOR Reduction (vph)	0	0	0	515	0	0
Lane Group Flow (vph)	1000	0	525	457	0	941
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases				2		
Actuated Green, G (s)	25.0		32.0	32.0		32.0
Effective Green, g (s)	25.0		32.0	32.0		32.0
Actuated g/C Ratio	0.37		0.47	0.47		0.47
Clearance Time (s)	5.5		5.5	5.5		5.5
Vehicle Extension (s)	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)	1262		1665	727		1665
v/s Ratio Prot	c0.29		0.15			0.27
v/s Ratio Perm				c0.30		
v/c Ratio	0.79		0.32	0.63		0.57
Uniform Delay, d1	19.2		11.2	13.5		13.0
Progression Factor	2.07		1.00	1.00		1.64
Incremental Delay, d2	1.7		0.5	4.1		1.2
Delay (s)	41.4		11.7	17.6		22.5
Level of Service	D		B	B		C
Approach Delay (s)	41.4		15.6			22.5
Approach LOS	D		B			C

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

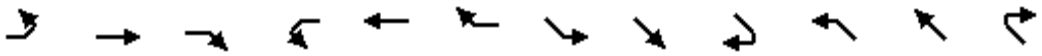
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	37	638	219	204	657	358	452	266	24	230	193	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99		0.95	0.99	1.00
Satd. Flow (prot)	1770	3374		1770	3314		1681	1742		1681	1760	1539
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.95	0.99	1.00
Satd. Flow (perm)	1770	3374		1770	3314		1681	1742		1681	1760	1539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	96%	96%	96%	96%	98%	96%	88%	115%	88%	125%	125%	125%
Adj. Flow (vph)	38	652	224	208	685	366	423	325	22	306	257	169
RTOR Reduction (vph)	0	25	0	0	47	0	0	1	0	0	0	135
Lane Group Flow (vph)	38	851	0	208	1004	0	381	388	0	275	288	34
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	7			3			6	6		5	5	
Permitted Phases		4			8							5
Actuated Green, G (s)	6.5	36.1		14.2	43.8		38.7	38.7		27.0	27.0	27.0
Effective Green, g (s)	6.5	36.1		14.2	43.8		38.7	38.7		27.0	27.0	27.0
Actuated g/C Ratio	0.05	0.27		0.10	0.32		0.28	0.28		0.20	0.20	0.20
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	84	895		184	1067		478	495		333	349	305
v/s Ratio Prot	0.02			c0.12			c0.23	0.22		0.16	c0.16	
v/s Ratio Perm		0.25			c0.30							0.02
v/c Ratio	0.45	0.95		1.13	0.94		0.80	0.78		0.83	0.83	0.11
Uniform Delay, d1	63.0	49.1		60.9	44.8		45.0	44.8		52.2	52.2	44.7
Progression Factor	1.01	0.99		1.00	1.00		1.07	1.07		1.22	1.22	2.62
Incremental Delay, d2	0.8	13.2		105.8	15.2		12.2	11.0		14.3	13.7	0.1
Delay (s)	64.4	61.7		166.7	60.0		60.4	59.0		78.1	77.5	117.1
Level of Service	E	E		F	E		E	E		E	E	F
Approach Delay (s)		61.8			77.6			59.7			86.9	
Approach LOS		E			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	71.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	136.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	256	824	94	5	773	42	68	7	10	122	21	446
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			4.9			5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			0.99	1.00
Frt	1.00	0.98		1.00	0.99			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96			0.96	1.00
Satd. Flow (prot)	1770	3472		1762	3508			1748			1776	1552
Flt Permitted	0.95	1.00		0.95	1.00			0.67			0.75	1.00
Satd. Flow (perm)	1770	3472		1762	3508			1219			1381	1552
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%
Adj. Flow (vph)	270	869	99	5	815	44	72	7	11	129	22	471
RTOR Reduction (vph)	0	8	0	0	5	0	0	9	0	0	0	375
Lane Group Flow (vph)	270	960	0	5	854	0	0	81	0	0	151	96
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	11.7	32.0		0.9	21.2			12.4			12.3	12.3
Effective Green, g (s)	11.7	32.0		0.9	21.2			12.4			12.3	12.3
Actuated g/C Ratio	0.19	0.53		0.01	0.35			0.21			0.20	0.20
Clearance Time (s)	5.0	5.0		5.0	5.0			4.9			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Lane Grp Cap (vph)	344	1845		26	1235			251			282	317
v/s Ratio Prot	c0.15	0.28		0.00	c0.24							
v/s Ratio Perm								0.07			c0.11	0.06
v/c Ratio	0.78	0.52		0.19	0.69			0.32			0.54	0.30
Uniform Delay, d1	23.1	9.1		29.3	16.7			20.3			21.4	20.3
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	10.3	0.1		1.3	1.4			0.3			1.0	0.2
Delay (s)	33.4	9.3		30.6	18.1			20.6			22.4	20.5
Level of Service	C	A		C	B			C			C	C
Approach Delay (s)		14.5			18.1			20.6			21.0	
Approach LOS		B			B			C			C	

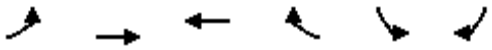
Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	94	12	64	54	15	53	44	552	119	47	407	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.94		1.00	0.97		1.00	0.98	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1700			1695		1770	3420		1770	3471	
Flt Permitted		0.79			0.79		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1378			1360		1770	3420		1770	3471	
Peak-hour factor, PHF	0.97	0.97	0.97	0.98	0.97	0.98	0.98	0.98	0.97	0.97	0.98	0.98
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	120%	120%	200%
Adj. Flow (vph)	97	12	66	55	15	54	45	563	123	58	498	57
RTOR Reduction (vph)	0	42	0	0	44	0	0	17	0	0	8	0
Lane Group Flow (vph)	0	133	0	0	80	0	45	669	0	58	547	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1			5	2	
Permitted Phases	4			8				6				
Actuated Green, G (s)		12.0			12.0		6.3	36.3		4.7	34.7	
Effective Green, g (s)		12.0			12.0		6.3	36.3		4.7	34.7	
Actuated g/C Ratio		0.18			0.18		0.09	0.53		0.07	0.51	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		243			240		163	1825		122	1771	
v/s Ratio Prot							0.03			c0.03	0.16	
v/s Ratio Perm		c0.10			0.06			c0.20				
v/c Ratio		0.55			0.33		0.28	0.37		0.48	0.31	
Uniform Delay, d1		25.5			24.5		28.7	9.2		30.5	9.7	
Progression Factor		1.00			1.00		1.08	1.25		1.00	1.00	
Incremental Delay, d2		1.4			0.3		0.1	0.2		1.1	0.5	
Delay (s)		26.9			24.8		31.2	11.7		31.5	10.1	
Level of Service		C			C		C	B		C	B	
Approach Delay (s)		26.9			24.8			12.9			12.2	
Approach LOS		C			C			B			B	

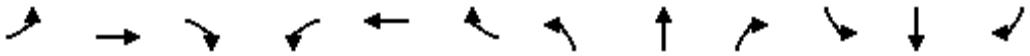
Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	149	663	342	291	460	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3185	3185	1379	3041	1271
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3185	3185	1379	3041	1271
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	110%	150%	150%	150%	100%	100%
Adj. Flow (vph)	173	1047	540	459	484	233
RTOR Reduction (vph)	0	0	0	329	4	155
Lane Group Flow (vph)	173	1047	540	130	503	55
Confl. Peds. (#/hr)	10			10	10	10
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	6	6
Actuated Green, G (s)	11.6	33.2	16.6	16.6	15.4	15.4
Effective Green, g (s)	11.6	33.2	16.6	16.6	15.4	15.4
Actuated g/C Ratio	0.20	0.57	0.28	0.28	0.26	0.26
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	315	1804	902	390	799	334
v/s Ratio Prot	0.11	c0.33	0.17			
v/s Ratio Perm				0.09	c0.17	0.04
v/c Ratio	0.55	0.58	0.60	0.33	0.63	0.17
Uniform Delay, d1	21.1	8.2	18.1	16.6	19.1	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.3	0.7	0.2	1.1	0.1
Delay (s)	22.2	8.5	18.8	16.8	20.2	16.7
Level of Service	C	A	B	B	C	B
Approach Delay (s)		10.5	17.9		19.2	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	58.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	931	35	38	523	49	24	4	24	102	7	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.99	1.00
Frt	1.00	1.00		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1593	3521		1770	3480			1776	1547		1762	1547
Flt Permitted	0.95	1.00		0.95	1.00			0.57	1.00		0.70	1.00
Satd. Flow (perm)	1593	3521		1770	3480			1054	1547		1284	1547
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	110%	150%	110%	150%	150%	150%	200%	200%	200%	200%	200%	200%
Adj. Flow (vph)	66	1486	41	61	835	78	51	9	51	217	15	106
RTOR Reduction (vph)	0	2	0	0	6	0	0	0	40	0	0	82
Lane Group Flow (vph)	66	1525	0	61	907	0	0	60	11	0	232	24
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Parking (#/hr)	0											
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	6.8	45.8		6.3	45.3			19.2	19.2		19.2	19.2
Effective Green, g (s)	6.8	45.8		6.3	45.3			19.2	19.2		19.2	19.2
Actuated g/C Ratio	0.08	0.53		0.07	0.52			0.22	0.22		0.22	0.22
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	125	1868		129	1826			234	344		285	344
v/s Ratio Prot	c0.04	c0.43		0.03	0.26							
v/s Ratio Perm								0.06	0.01		c0.18	0.02
v/c Ratio	0.53	0.82		0.47	0.50			0.26	0.03		0.81	0.07
Uniform Delay, d1	38.2	16.8		38.4	13.2			27.7	26.3		31.9	26.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.9	4.1		1.0	0.1			0.2	0.0		15.4	0.0
Delay (s)	40.1	20.9		39.4	13.3			27.9	26.3		47.2	26.5
Level of Service	D	C		D	B			C	C		D	C
Approach Delay (s)		21.6			14.9			27.1			40.7	
Approach LOS		C			B			C			D	

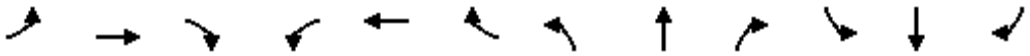
Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	86.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	20	26	577	31	44	620
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	23	30	787	35	50	845
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1175			441
pX, platoon unblocked	0.98	0.96			0.96	
vC, conflicting volume	1327	411			822	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1128	314			741	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	96			94	
cM capacity (veh/h)	182	657			831	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	52	525	298	50	423	423
Volume Left	23	0	0	50	0	0
Volume Right	30	0	35	0	0	0
cSH	308	1700	1700	831	1700	1700
Volume to Capacity	0.17	0.31	0.18	0.06	0.25	0.25
Queue Length 95th (ft)	15	0	0	5	0	0
Control Delay (s)	19.0	0.0	0.0	9.6	0.0	0.0
Lane LOS	C			A		
Approach Delay (s)	19.0	0.0		0.5		
Approach LOS	C					

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	218	22	5	1	15	39	4	107	3	32	151	241
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	355	36	8	2	24	63	7	174	5	52	246	392

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	399	90	186	690
Volume Left (vph)	355	2	7	52
Volume Right (vph)	8	63	5	392
Hadj (s)	0.20	-0.39	0.03	-0.29
Departure Headway (s)	6.7	7.1	6.9	5.8
Degree Utilization, x	0.74	0.18	0.35	1.0
Capacity (veh/h)	525	464	487	613
Control Delay (s)	26.4	11.5	13.6	90.4
Approach Delay (s)	26.4	11.5	13.6	90.4
Approach LOS	D	B	B	F

Intersection Summary				
Delay		56.1		
Level of Service		F		
Intersection Capacity Utilization		78.3%	ICU Level of Service	D
Analysis Period (min)		15		

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (veh/h)	4	598	699	26	32	24
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	650	760	28	35	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		748	431			
pX, platoon unblocked	0.78				0.85	0.78
vC, conflicting volume	788				1433	774
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	583				1023	565
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				84	94
cM capacity (veh/h)	770				221	407

Direction, Lane #	NB 1	NB 2	SB 1	SE 1
Volume Total	4	650	788	61
Volume Left	4	0	0	35
Volume Right	0	0	28	26
cSH	770	1700	1700	275
Volume to Capacity	0.01	0.38	0.46	0.22
Queue Length 95th (ft)	0	0	0	21
Control Delay (s)	9.7	0.0	0.0	21.8
Lane LOS	A			C
Approach Delay (s)	0.1		0.0	21.8
Approach LOS				C

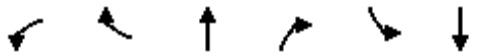
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

Morena Blvd Station Area Planning Study

Appendix E:

LOS Reports - Preferred Alternative

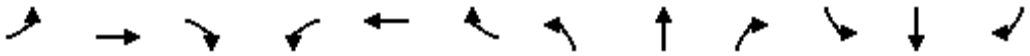
Mid-term



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	37	62	527	37	44	307
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		6.0		4.4	5.9
Lane Util. Factor	1.00		0.95		1.00	1.00
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.92		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1655		3495		1770	1863
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1655		3495		1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	92%	100%	100%	95%
Adj. Flow (vph)	40	67	527	40	48	317
RTOR Reduction (vph)	62	0	2	0	0	0
Lane Group Flow (vph)	45	0	565	0	48	317
Confl. Peds. (#/hr)				3		
Confl. Bikes (#/hr)		2	6			4
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	5.7		49.9		4.4	58.8
Effective Green, g (s)	5.7		49.9		4.4	58.8
Actuated g/C Ratio	0.08		0.67		0.06	0.79
Clearance Time (s)	4.4		6.0		4.4	5.9
Vehicle Extension (s)	2.0		4.4		2.0	4.2
Lane Grp Cap (vph)	126		2331		104	1464
v/s Ratio Prot	c0.03		c0.16		c0.03	0.17
v/s Ratio Perm						
v/c Ratio	0.36		0.24		0.46	0.22
Uniform Delay, d1	32.8		4.9		34.1	2.1
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.6		0.2		1.2	0.3
Delay (s)	33.4		5.2		35.2	2.4
Level of Service	C		A		D	A
Approach Delay (s)	33.4		5.2			6.7
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	74.8	Sum of lost time (s)	14.8
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



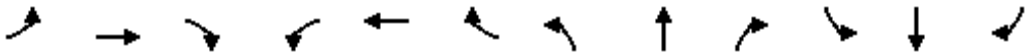
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	250	336	0	0	837	657	34	0	311	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0	5.5		5.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		0.99			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1770	3539			3539	1583	1770		1565			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1770	3539			3539	1583	1770		1565			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	130%	130%	130%	130%	130%	130%	130%	130%	130%	130%	130%	130%
Adj. Flow (vph)	335	450	0	0	1122	881	46	0	417	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	432	0	0	0	0	0	0
Lane Group Flow (vph)	335	450	0	0	1122	449	46	0	417	0	0	0
Confl. Peds. (#/hr)						6			1			
Confl. Bikes (#/hr)		4			1							
Turn Type	Prot	NA			NA	Prot	Prot		custom			
Protected Phases	7	4			8	8	2		2			
Permitted Phases									4			
Actuated Green, G (s)	16.7	46.9			25.2	25.2	6.6		53.5			
Effective Green, g (s)	16.7	46.9			25.2	25.2	6.6		53.5			
Actuated g/C Ratio	0.26	0.73			0.39	0.39	0.10		0.84			
Clearance Time (s)	5.0	5.0			5.0	5.0	5.5		5.5			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0			
Lane Grp Cap (vph)	461	2593			1393	623	182		1442			
v/s Ratio Prot	c0.19	0.13			c0.32	0.28	0.03		c0.03			
v/s Ratio Perm									0.24			
v/c Ratio	0.73	0.17			0.81	0.72	0.25		0.29			
Uniform Delay, d1	21.6	2.6			17.2	16.4	26.4		1.1			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	4.8	0.0			3.3	3.5	0.3		0.0			
Delay (s)	26.4	2.6			20.5	19.9	26.7		1.2			
Level of Service	C	A			C	B	C		A			
Approach Delay (s)		12.8			20.3			3.7			0.0	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	64.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	85	36	526	149	100	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10
Total Lost time (s)	4.9	4.9	5.3	5.3	4.4	5.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1486	1312	2888	1300	1486	1292
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1486	1312	2888	1300	1486	1292
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (vph)	120%	150%	106%	112%	100%	105%
Adj. Flow (vph)	113	60	620	185	111	388
RTOR Reduction (vph)	0	50	0	93	0	0
Lane Group Flow (vph)	113	10	620	92	111	388
Confl. Peds. (#/hr)				1		
Confl. Bikes (#/hr)		1	5	1		4
Heavy Vehicles (%)	2%	2%	5%	2%	2%	5%
Parking (#/hr)						10
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	11.3	11.3	32.9	32.9	7.7	45.3
Effective Green, g (s)	11.3	11.3	32.9	32.9	7.7	45.3
Actuated g/C Ratio	0.17	0.17	0.49	0.49	0.12	0.68
Clearance Time (s)	4.9	4.9	5.3	5.3	4.4	5.0
Vehicle Extension (s)	2.0	2.0	4.2	4.2	2.0	4.0
Lane Grp Cap (vph)	252	222	1428	643	172	880
v/s Ratio Prot	c0.08		0.21		c0.07	c0.30
v/s Ratio Perm		0.01		0.07		
v/c Ratio	0.45	0.05	0.43	0.14	0.65	0.44
Uniform Delay, d1	24.8	23.1	10.8	9.1	28.1	4.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	1.0	0.5	6.1	1.6
Delay (s)	25.3	23.1	11.8	9.6	34.2	6.4
Level of Service	C	C	B	A	C	A
Approach Delay (s)	24.5		11.3			12.6
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	66.5	Sum of lost time (s)	14.6
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	362	133	77	899	24	286	15	90	30	12	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	5.1	4.4	4.4		4.4	4.9		4.4	4.9	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1593	3185	1378	1593	3170		1593	1437		1593	1415	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1593	3185	1378	1593	3170		1593	1437		1593	1415	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor (vph)	127%	127%	127%	127%	127%	127%	127%	127%	127%	127%	127%	127%
Adj. Flow (vph)	136	469	172	100	1165	31	371	19	117	39	16	327
RTOR Reduction (vph)	0	0	113	0	1	0	0	83	0	0	265	0
Lane Group Flow (vph)	136	469	59	100	1195	0	371	53	0	39	78	0
Confl. Peds. (#/hr)			4			5			9			3
Confl. Bikes (#/hr)			3		2	1					2	1
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	10.9	29.2	29.2	8.3	27.3		16.0	24.6		4.4	13.0	
Effective Green, g (s)	10.9	29.2	29.2	8.3	27.3		16.0	24.6		4.4	13.0	
Actuated g/C Ratio	0.13	0.34	0.34	0.10	0.32		0.19	0.29		0.05	0.15	
Clearance Time (s)	4.4	5.1	5.1	4.4	4.4		4.4	4.9		4.4	4.9	
Vehicle Extension (s)	2.0	4.3	4.3	2.0	3.9		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	203	1090	471	155	1014		298	414		82	215	
v/s Ratio Prot	c0.09	c0.15		0.06	c0.38		c0.23	0.04		0.02	c0.05	
v/s Ratio Perm			0.04									
v/c Ratio	0.67	0.43	0.13	0.65	1.18		1.24	0.13		0.48	0.36	
Uniform Delay, d1	35.5	21.6	19.3	37.1	29.0		34.6	22.4		39.3	32.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.4	0.4	0.2	6.7	90.6		135.3	0.1		1.6	0.4	
Delay (s)	41.8	22.1	19.5	43.8	119.6		169.9	22.5		40.9	32.8	
Level of Service	D	C	B	D	F		F	C		D	C	
Approach Delay (s)		25.0			113.7			130.4			33.6	
Approach LOS		C			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	82.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	85.3	Sum of lost time (s)	18.8
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	88	71	629	103	59	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10
Total Lost time (s)	5.1		5.4	5.4	4.4	5.3
Lane Util. Factor	1.00		0.95	1.00	1.00	1.00
Frpb, ped/bikes	1.00		1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.94		1.00	0.85	1.00	1.00
Flt Protected	0.97		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1590		3303	1433	1652	1739
Flt Permitted	0.97		1.00	1.00	0.95	1.00
Satd. Flow (perm)	1590		3303	1433	1652	1739
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	105%	105%	105%	112%	105%	105%
Adj. Flow (vph)	97	78	695	121	65	375
RTOR Reduction (vph)	36	0	0	29	0	0
Lane Group Flow (vph)	139	0	695	92	65	375
Confl. Peds. (#/hr)				7	7	
Confl. Bikes (#/hr)			8			2
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	9.1		24.2	24.2	4.2	32.9
Effective Green, g (s)	9.1		24.2	24.2	4.2	32.9
Actuated g/C Ratio	0.17		0.46	0.46	0.08	0.63
Clearance Time (s)	5.1		5.4	5.4	4.4	5.3
Vehicle Extension (s)	2.0		4.0	4.0	2.0	4.0
Lane Grp Cap (vph)	276		1525	661	132	1091
v/s Ratio Prot	c0.09		c0.21		0.04	c0.22
v/s Ratio Perm				0.06		
v/c Ratio	0.50		0.46	0.14	0.49	0.34
Uniform Delay, d1	19.6		9.6	8.1	23.1	4.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		0.3	0.1	1.1	0.3
Delay (s)	20.1		9.9	8.2	24.1	4.9
Level of Service	C		A	A	C	A
Approach Delay (s)	20.1		9.7			7.7
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	14.9
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	33	25	713	24	4	414
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	10	10
Total Lost time (s)	4.9		5.4	5.4	4.4	5.3
Lane Util. Factor	1.00		0.95	1.00	1.00	1.00
Frpb, ped/bikes	1.00		1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.94		1.00	0.85	1.00	1.00
Flt Protected	0.97		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1706		3303	1435	1647	1739
Flt Permitted	0.97		1.00	1.00	0.95	1.00
Satd. Flow (perm)	1706		3303	1435	1647	1739
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (vph)	105%	105%	105%	105%	200%	105%
Adj. Flow (vph)	38	29	832	28	9	483
RTOR Reduction (vph)	27	0	0	5	0	0
Lane Group Flow (vph)	40	0	832	23	9	483
Confl. Peds. (#/hr)				6	6	
Confl. Bikes (#/hr)			8			5
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	3.6		31.6	31.6	0.9	37.0
Effective Green, g (s)	3.6		31.6	31.6	0.9	37.0
Actuated g/C Ratio	0.07		0.62	0.62	0.02	0.73
Clearance Time (s)	4.9		5.4	5.4	4.4	5.3
Vehicle Extension (s)	2.0		4.3	4.3	2.0	4.0
Lane Grp Cap (vph)	120		2054	892	29	1266
v/s Ratio Prot	c0.02		0.25		0.01	c0.28
v/s Ratio Perm				0.02		
v/c Ratio	0.33		0.41	0.03	0.31	0.38
Uniform Delay, d1	22.5		4.9	3.7	24.6	2.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6		0.2	0.0	2.2	0.3
Delay (s)	23.1		5.1	3.7	26.9	2.9
Level of Service	C		A	A	C	A
Approach Delay (s)	23.1		5.0			3.3
Approach LOS	C		A			A

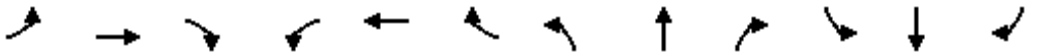
Intersection Summary			
HCM 2000 Control Delay	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	50.8	Sum of lost time (s)	14.7
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	450	21	92	334	8	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10
Total Lost time (s)	5.5		5.5	5.5	5.5	5.5
Lane Util. Factor	0.95		1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3280		1652	1739	1652	1449
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3280		1652	1739	1652	1449
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor (vph)	110%	100%	105%	111%	200%	101%
Adj. Flow (vph)	562	24	110	421	18	321
RTOR Reduction (vph)	3	0	0	0	0	268
Lane Group Flow (vph)	583	0	110	421	18	53
Confl. Peds. (#/hr)		1	1			10
Confl. Bikes (#/hr)	5			5		
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	13.7		6.5	25.7	7.3	7.3
Effective Green, g (s)	13.7		6.5	25.7	7.3	7.3
Actuated g/C Ratio	0.31		0.15	0.58	0.17	0.17
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	1021		244	1015	274	240
v/s Ratio Prot	c0.18		0.07	c0.24	0.01	
v/s Ratio Perm						c0.04
v/c Ratio	0.57		0.45	0.41	0.07	0.22
Uniform Delay, d1	12.7		17.1	5.0	15.5	15.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		0.5	0.1	0.0	0.2
Delay (s)	13.2		17.6	5.1	15.5	16.1
Level of Service	B		B	A	B	B
Approach Delay (s)	13.2			7.7	16.0	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	44.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	30	45	448	50	28	27	329	275	11	178	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5	4.5		4.5	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frpb, ped/bikes		0.99			1.00			1.00	0.96		1.00	
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	
Frt		0.92			0.99			1.00	0.85		0.99	
Flt Protected		1.00			0.96			0.99	1.00		1.00	
Satd. Flow (prot)		1530			1768			1851	1517		1833	
Flt Permitted		1.00			0.70			0.93	1.00		0.97	
Satd. Flow (perm)		1524			1283			1733	1517		1776	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor (vph)	120%	100%	100%	110%	100%	120%	200%	120%	112%	120%	120%	300%
Adj. Flow (vph)	1	35	52	573	58	39	63	459	358	15	248	24
RTOR Reduction (vph)	0	28	0	0	4	0	0	0	225	0	6	0
Lane Group Flow (vph)	0	60	0	0	666	0	0	522	133	0	281	0
Confl. Peds. (#/hr)	4		1	1		4	2		13	13		2
Confl. Bikes (#/hr)				2	3			2	1		1	
Parking (#/hr)		0										
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		25.5			25.5			20.5	20.5		20.5	
Effective Green, g (s)		25.5			25.5			20.5	20.5		20.5	
Actuated g/C Ratio		0.46			0.46			0.37	0.37		0.37	
Clearance Time (s)		4.5			4.5			4.5	4.5		4.5	
Vehicle Extension (s)		2.0			2.0			2.0	2.0		2.0	
Lane Grp Cap (vph)		706			594			645	565		661	
v/s Ratio Prot												
v/s Ratio Perm		0.04			c0.52			c0.30	0.09		0.16	
v/c Ratio		0.09			1.12			0.81	0.24		0.42	
Uniform Delay, d1		8.2			14.8			15.5	11.9		12.9	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.0			74.8			10.5	1.0		2.0	
Delay (s)		8.3			89.5			26.0	12.8		14.9	
Level of Service		A			F			C	B		B	
Approach Delay (s)		8.3			89.5			20.7			14.9	
Approach LOS		A			F			C			B	

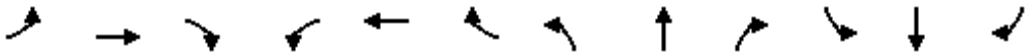
Intersection Summary			
HCM 2000 Control Delay	43.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	431	59	333	10	24	11	386	195	31	18	132	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		0.91	0.91			0.95	0.95
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00			0.99	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99			0.92	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98			1.00	1.00
Satd. Flow (prot)	3433	1863	1547	1770	1764		1610	3265			1610	1485
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98			1.00	1.00
Satd. Flow (perm)	3433	1863	1547	1770	1764		1610	3265			1610	1485
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor (vph)	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	556	76	430	13	31	14	498	252	40	23	170	615
RTOR Reduction (vph)	0	0	325	0	13	0	0	6	0	0	36	275
Lane Group Flow (vph)	556	76	105	13	32	0	259	525	0	0	385	112
Confl. Peds. (#/hr)						5			12			
Confl. Bikes (#/hr)			2			1		5	1	1	1	1
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4									6
Actuated Green, G (s)	15.4	21.3	21.3	0.7	7.1		18.4	18.4			25.1	25.1
Effective Green, g (s)	15.4	21.3	21.3	0.7	7.1		18.4	18.4			25.1	25.1
Actuated g/C Ratio	0.18	0.24	0.24	0.01	0.08		0.21	0.21			0.29	0.29
Clearance Time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	607	456	378	14	143		340	690			464	428
v/s Ratio Prot	c0.16	0.04		0.01	0.02		0.16	c0.16			c0.24	
v/s Ratio Perm			c0.07									0.08
v/c Ratio	0.92	0.17	0.28	0.93	0.22		0.76	0.76			0.83	0.26
Uniform Delay, d1	35.2	25.9	26.6	43.1	37.4		32.2	32.2			29.0	23.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	18.3	0.1	0.1	199.0	0.3		8.8	4.5			11.5	0.1
Delay (s)	53.4	25.9	26.8	242.1	37.7		41.0	36.7			40.4	23.9
Level of Service	D	C	C	F	D		D	D			D	C
Approach Delay (s)		40.7			83.5			38.1			32.5	
Approach LOS		D			F			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



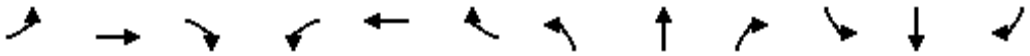
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	10	50	63	4	13	13	647	17	4	368	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.94			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1683			1737		1765	1854		1767	1809	
Flt Permitted		0.85			0.77		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1455			1398		1765	1854		1767	1809	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	100%	100%	100%	110%	120%	110%	110%	110%	110%	250%	110%	205%
Adj. Flow (vph)	55	11	55	76	5	16	16	782	21	11	445	88
RTOR Reduction (vph)	0	47	0	0	14	0	0	1	0	0	8	0
Lane Group Flow (vph)	0	75	0	0	83	0	16	802	0	11	525	0
Confl. Peds. (#/hr)	7		4	4		7	3		2	2		3
Confl. Bikes (#/hr)	1	4			2							
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		8.5			8.5		0.8	31.5		0.8	31.5	
Effective Green, g (s)		8.5			8.5		0.8	31.5		0.8	31.5	
Actuated g/C Ratio		0.15			0.15		0.01	0.57		0.01	0.57	
Clearance Time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		224			216		25	1061		25	1036	
v/s Ratio Prot							c0.01	c0.43		0.01	0.29	
v/s Ratio Perm		0.05			c0.06							
v/c Ratio		0.33			0.39		0.64	0.76		0.44	0.51	
Uniform Delay, d1		20.7			20.9		27.0	8.9		26.9	7.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.4		35.0	5.0		4.4	1.8	
Delay (s)		21.0			21.3		61.9	13.9		31.3	8.8	
Level of Service		C			C		E	B		C	A	
Approach Delay (s)		21.0			21.3			14.8			9.3	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (vph)	582	697	15	355	458	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1511
Flt Permitted	1.00	1.00	0.20	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	364	1801	1711	1511
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor (vph)	106%	106%	100%	106%	106%	300%
Adj. Flow (vph)	693	830	17	423	545	13
RTOR Reduction (vph)	0	429	0	0	0	8
Lane Group Flow (vph)	693	401	17	423	545	5
Confl. Peds. (#/hr)		2				1
Confl. Bikes (#/hr)		10		8	2	
Turn Type	NA	Prot	Perm	NA	Prot	Perm
Protected Phases	2	2		6	4	
Permitted Phases			6			4
Actuated Green, G (s)	29.0	29.0	29.0	29.0	21.0	21.0
Effective Green, g (s)	29.0	29.0	29.0	29.0	21.0	21.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.35	0.35
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	870	739	175	870	598	528
v/s Ratio Prot	c0.38	0.26		0.23	c0.32	
v/s Ratio Perm			0.05			0.00
v/c Ratio	0.80	0.54	0.10	0.49	0.91	0.01
Uniform Delay, d1	13.0	10.9	8.4	10.5	18.6	12.7
Progression Factor	0.99	2.44	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.9	2.2	0.1	0.2	17.9	0.0
Delay (s)	18.9	28.7	8.5	10.6	36.5	12.7
Level of Service	B	C	A	B	D	B
Approach Delay (s)	24.2			10.5	36.0	
Approach LOS	C			B	D	

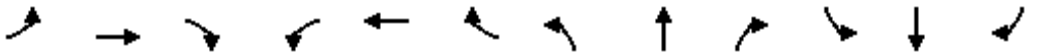
Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	1	0	3	4	5	14	458	8	10	362	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	10	12	10
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		1.00			0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.96			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1794			1710		1652	3290		1652	1848	
Flt Permitted		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1863			1737		1652	3290		1652	1848	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	300%	300%	200%	200%	100%	200%	200%	123%	200%	200%	120%	200%
Adj. Flow (vph)	10	3	0	7	4	11	30	612	17	22	472	22
RTOR Reduction (vph)	0	0	0	0	11	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	13	0	0	11	0	30	628	0	22	493	0
Confl. Bikes (#/hr)								7			8	3
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		0.9			0.9		3.0	28.8		1.0	26.8	
Effective Green, g (s)		0.9			0.9		3.0	28.8		1.0	26.8	
Actuated g/C Ratio		0.02			0.02		0.06	0.61		0.02	0.57	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		35			33		105	2007		35	1049	
v/s Ratio Prot							0.02	c0.19		0.01	c0.27	
v/s Ratio Perm		c0.01			0.01							
v/c Ratio		0.37			0.34		0.29	0.31		0.63	0.47	
Uniform Delay, d1		22.9			22.9		21.1	4.4		22.9	6.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.4			2.2		0.5	0.0		22.7	0.1	
Delay (s)		25.3			25.1		21.6	4.5		45.6	6.1	
Level of Service		C			C		C	A		D	A	
Approach Delay (s)		25.3			25.1			5.2			7.8	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	47.2	Sum of lost time (s)	16.5
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	50	20	11	25	8	94	473	40	20	335	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	12	12	10	10	10	10	10	10
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9		4.4	4.9		4.4	4.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	1621	1561	1766	1773		1652	3099		1652	1702	
Flt Permitted	0.70	1.00	1.00	0.72	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1265	1621	1561	1338	1773		1652	3099		1652	1702	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor (vph)	100%	100%	100%	180%	200%	300%	106%	106%	100%	100%	106%	100%
Adj. Flow (vph)	91	57	23	22	57	27	113	570	45	23	404	57
RTOR Reduction (vph)	0	0	20	0	22	0	0	3	0	0	4	0
Lane Group Flow (vph)	91	57	3	22	62	0	113	612	0	23	457	0
Confl. Peds. (#/hr)			3	3			1		1	1		1
Confl. Bikes (#/hr)								1			7	1
Parking (#/hr)		0						0				
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								
Actuated Green, G (s)	10.9	10.9	10.9	10.9	10.9		7.9	47.9		2.4	42.4	
Effective Green, g (s)	10.9	10.9	10.9	10.9	10.9		7.9	47.9		2.4	42.4	
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14		0.10	0.64		0.03	0.56	
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9		4.4	4.9		4.4	4.9	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	3.6		2.0	4.3	
Lane Grp Cap (vph)	182	234	225	193	256		173	1968		52	957	
v/s Ratio Prot		0.04			0.03		c0.07	0.20		0.01	c0.27	
v/s Ratio Perm	c0.07		0.00	0.02								
v/c Ratio	0.50	0.24	0.01	0.11	0.24		0.65	0.31		0.44	0.48	
Uniform Delay, d1	29.7	28.6	27.6	28.1	28.6		32.4	6.2		35.8	9.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.2	0.0	0.1	0.2		6.6	0.4		2.2	1.7	
Delay (s)	30.5	28.8	27.7	28.1	28.8		39.0	6.7		38.0	11.6	
Level of Service	C	C	C	C	C		D	A		D	B	
Approach Delay (s)		29.6			28.6			11.7			12.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	75.4	Sum of lost time (s)	14.2
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	EBR2	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR
Lane Configurations												
Volume (vph)	50	100	70	130	678	10	0	779	45	4	60	557
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	12	12	12
Total Lost time (s)	4.9		4.9	4.4	5.3			5.3			4.9	4.9
Lane Util. Factor	1.00		1.00	1.00	1.00			0.95			1.00	0.95
Frpb, ped/bikes	1.00		0.98	1.00	1.00			1.00			1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00			1.00			1.00	1.00
Frt	0.90		0.85	1.00	1.00			0.99			0.88	0.85
Flt Protected	0.98		1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (prot)	1484		1544	1770	1853			3369			1616	1504
Flt Permitted	0.53		1.00	0.95	1.00			1.00			0.99	1.00
Satd. Flow (perm)	795		1544	1770	1853			3369			1616	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	150%	106%	190%	106%	101%	167%	120%	100%	106%
Adj. Flow (vph)	54	109	76	212	781	21	0	855	82	5	65	642
RTOR Reduction (vph)	0	0	58	0	1	0	0	12	0	0	93	93
Lane Group Flow (vph)	163	0	18	212	801	0	0	925	0	0	266	260
Confl. Peds. (#/hr)			16	5		15			5	16		
Confl. Bikes (#/hr)					2	2	7	7			3	
Parking (#/hr)	0											
Turn Type	Perm		Perm	Prot	NA			NA		Perm	Prot	Perm
Protected Phases				5	2			6			8	
Permitted Phases	4		4							8		8
Actuated Green, G (s)	14.5		14.5	8.6	35.3			22.3			14.5	14.5
Effective Green, g (s)	14.5		14.5	8.6	35.3			22.3			14.5	14.5
Actuated g/C Ratio	0.24		0.24	0.14	0.59			0.37			0.24	0.24
Clearance Time (s)	4.9		4.9	4.4	5.3			5.3			4.9	4.9
Vehicle Extension (s)	2.0		2.0	2.0	2.0			2.0			2.0	2.0
Lane Grp Cap (vph)	192		373	253	1090			1252			390	363
v/s Ratio Prot				0.12	c0.43			0.27				
v/s Ratio Perm	c0.20		0.01								0.16	0.17
v/c Ratio	0.85		0.05	0.84	0.73			0.74			0.68	0.72
Uniform Delay, d1	21.7		17.5	25.0	9.0			16.3			20.7	20.9
Progression Factor	1.00		1.00	1.64	1.48			0.88			1.00	1.00
Incremental Delay, d2	26.9		0.0	2.2	0.4			1.4			3.9	5.6
Delay (s)	48.6		17.5	43.2	13.7			15.7			24.6	26.4
Level of Service	D		B	D	B			B			C	C
Approach Delay (s)	38.7				19.8			15.7			25.5	
Approach LOS	D				B			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	14.6
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

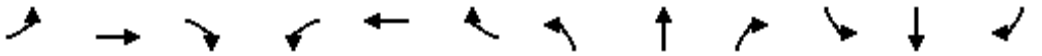
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	705	0	880	784	429	384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Total Lost time (s)	5.0		5.0	5.0	5.0	5.0
Lane Util. Factor	0.97		1.00	1.00	0.97	0.95
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	1.00		1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3090		1676	1425	2987	3079
Flt Permitted	0.95		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3090		1676	1425	2987	3079
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor (vph)	106%	106%	106%	106%	106%	106%
Adj. Flow (vph)	840	0	1048	934	511	457
RTOR Reduction (vph)	0	0	0	2	0	0
Lane Group Flow (vph)	840	0	1048	932	511	457
Confl. Bikes (#/hr)			2	6	8	
Turn Type	Prot		NA	pt+ov	Prot	NA
Protected Phases	8		2	2 8	1	6
Permitted Phases						
Actuated Green, G (s)	29.0		59.0	93.0	17.0	81.0
Effective Green, g (s)	29.0		59.0	93.0	17.0	81.0
Actuated g/C Ratio	0.24		0.49	0.78	0.14	0.68
Clearance Time (s)	5.0		5.0		5.0	5.0
Vehicle Extension (s)	3.6		3.9		2.0	4.7
Lane Grp Cap (vph)	746		824	1104	423	2078
v/s Ratio Prot	c0.27		c0.63	0.65	c0.17	0.15
v/s Ratio Perm						
v/c Ratio	1.13		1.27	0.84	1.21	0.22
Uniform Delay, d1	45.5		30.5	8.8	51.5	7.4
Progression Factor	1.00		1.00	1.00	1.00	1.13
Incremental Delay, d2	73.4		131.8	8.0	109.3	0.1
Delay (s)	118.9		162.3	16.7	160.8	8.5
Level of Service	F		F	B	F	A
Approach Delay (s)	118.9		93.7			88.9
Approach LOS	F		F			F

Intersection Summary			
HCM 2000 Control Delay	98.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	0	1036	250	61	451	281	50	40	25	232	272	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.9	4.4	4.9			4.9		4.9	4.9	4.9
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00		1.00	1.00	1.00
Frpb, ped/bikes		1.00	0.97	1.00	0.98			0.98		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.94			0.97		1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00			0.98		0.95	1.00	1.00
Satd. Flow (prot)		3362	1518	1770	3242			1743		1770	1863	1531
Flt Permitted		1.00	1.00	0.95	1.00			0.70		0.95	1.00	1.00
Satd. Flow (perm)		3362	1518	1770	3242			1254		1770	1863	1531
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor (vph)	106%	100%	100%	110%	108%	130%	100%	100%	100%	102%	106%	140%
Adj. Flow (vph)	0	1233	298	80	580	435	60	48	30	282	343	250
RTOR Reduction (vph)	0	0	141	0	151	0	0	13	0	0	0	106
Lane Group Flow (vph)	0	1233	157	80	864	0	0	125	0	282	343	144
Confl. Peds. (#/hr)			26			19			42			16
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0										
Turn Type		NA	pm+ov	Prot	NA		Perm	NA		Prot	NA	Perm
Protected Phases		2	3	1	6			4		3	8	
Permitted Phases			2				4					8
Actuated Green, G (s)		28.2	42.1	5.4	38.0			13.4		13.9	32.2	32.2
Effective Green, g (s)		28.2	42.1	5.4	38.0			13.4		13.9	32.2	32.2
Actuated g/C Ratio		0.35	0.53	0.07	0.48			0.17		0.17	0.40	0.40
Clearance Time (s)		4.9	4.9	4.4	4.9			4.9		4.9	4.9	4.9
Vehicle Extension (s)		2.0	2.0	2.0	2.0			2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		1185	891	119	1539			210		307	749	616
v/s Ratio Prot		c0.37	0.03	0.05	c0.27					c0.16	0.18	
v/s Ratio Perm			0.07					c0.10				0.09
v/c Ratio		1.04	0.18	0.67	0.56			0.59		0.92	0.46	0.23
Uniform Delay, d1		25.9	9.9	36.4	15.0			30.8		32.5	17.5	15.8
Progression Factor		1.00	1.00	1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2		37.3	0.0	11.1	1.5			3.0		30.3	0.2	0.1
Delay (s)		63.2	9.9	47.6	16.5			33.8		62.8	17.7	15.8
Level of Service		E	A	D	B			C		E	B	B
Approach Delay (s)		52.8			18.8			33.8			31.7	
Approach LOS		D			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	36.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	19.1
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



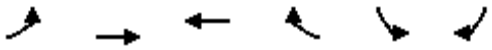
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	439	646	30	4	668	45	95	16	3	10	0	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	5.6			4.9			4.9	4.4
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			1.00	1.00
Frt	1.00	0.99		1.00	0.99			1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96			0.95	1.00
Satd. Flow (prot)	1770	3517		1770	3501			1770			1766	1573
Flt Permitted	0.95	1.00		0.95	1.00			0.76			0.73	1.00
Satd. Flow (perm)	1770	3517		1770	3501			1397			1348	1573
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor (vph)	102%	130%	102%	200%	125%	130%	106%	130%	130%	130%	130%	106%
Adj. Flow (vph)	533	1000	36	10	994	70	120	25	5	15	0	56
RTOR Reduction (vph)	0	2	0	0	5	0	0	2	0	0	0	14
Lane Group Flow (vph)	533	1034	0	10	1059	0	0	148	0	0	15	42
Confl. Peds. (#/hr)	2		4	4		2	8		3	3		8
Confl. Bikes (#/hr)		9	1		6		1	21	1			
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases							2			6		6
Actuated Green, G (s)	29.6	60.7		1.0	31.4			14.3			14.3	43.9
Effective Green, g (s)	29.6	60.7		1.0	31.4			14.3			14.3	43.9
Actuated g/C Ratio	0.33	0.67		0.01	0.35			0.16			0.16	0.49
Clearance Time (s)	4.4	4.9		4.4	5.6			4.9			4.9	4.4
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Lane Grp Cap (vph)	580	2366		19	1218			221			213	765
v/s Ratio Prot	c0.30	0.29		0.01	c0.30							0.02
v/s Ratio Perm								c0.11			0.01	0.01
v/c Ratio	0.92	0.44		0.53	0.87			0.67			0.07	0.05
Uniform Delay, d1	29.1	6.8		44.4	27.5			35.7			32.3	12.2
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	19.3	0.0		11.6	6.6			6.2			0.1	0.0
Delay (s)	48.4	6.9		55.9	34.1			41.9			32.3	12.2
Level of Service	D	A		E	C			D			C	B
Approach Delay (s)		21.0			34.3			41.9			16.5	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.2	Sum of lost time (s)	14.9
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	99	12	28	3	6	16	53	227	69	54	555	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.93		1.00	0.97		1.00	0.99	
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1721			1708		1770	3387		1770	3492	
Flt Permitted		0.78			0.93		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1385			1606		1770	3387		1770	3492	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor (vph)	100%	100%	150%	200%	200%	106%	106%	106%	106%	110%	110%	110%
Adj. Flow (vph)	116	14	49	7	14	20	66	283	86	70	718	56
RTOR Reduction (vph)	0	34	0	0	16	0	0	41	0	0	9	0
Lane Group Flow (vph)	0	145	0	0	25	0	66	328	0	70	765	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1			5	2	
Permitted Phases	4			8				6				
Actuated Green, G (s)		10.5			10.5		6.5	23.3		6.2	23.0	
Effective Green, g (s)		10.5			10.5		6.5	23.3		6.2	23.0	
Actuated g/C Ratio		0.19			0.19		0.12	0.42		0.11	0.42	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		264			306		209	1434		199	1460	
v/s Ratio Prot							0.04			c0.04	c0.22	
v/s Ratio Perm		c0.10			0.02			0.10				
v/c Ratio		0.55			0.08		0.32	0.23		0.35	0.52	
Uniform Delay, d1		20.1			18.3		22.2	10.1		22.5	11.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.3			0.0		0.3	0.4		0.4	1.3	
Delay (s)		21.4			18.3		22.5	10.5		22.9	13.3	
Level of Service		C			B		C	B		C	B	
Approach Delay (s)		21.4			18.3			12.3			14.1	
Approach LOS		C			B			B			B	

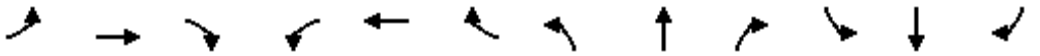
Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	285	340	285	347	192	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	5.6	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.95	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.98	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3185	3185	1347	3039	1277
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3185	3185	1347	3039	1277
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78
Growth Factor (vph)	142%	160%	160%	142%	142%	142%
Adj. Flow (vph)	519	697	585	632	350	64
RTOR Reduction (vph)	0	0	0	410	2	46
Lane Group Flow (vph)	519	697	585	222	354	12
Confl. Peds. (#/hr)				23	10	
Confl. Bikes (#/hr)	5		3		2	3
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	6	6
Actuated Green, G (s)	25.8	54.5	24.7	24.7	17.2	17.2
Effective Green, g (s)	25.8	54.5	24.7	24.7	17.2	17.2
Actuated g/C Ratio	0.31	0.66	0.30	0.30	0.21	0.21
Clearance Time (s)	4.4	6.0	5.6	5.6	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	4.2	5.0	5.0
Lane Grp Cap (vph)	497	2101	952	402	632	265
v/s Ratio Prot	c0.33	0.22	c0.18			
v/s Ratio Perm				0.16	c0.12	0.01
v/c Ratio	1.04	0.33	0.61	0.55	0.56	0.05
Uniform Delay, d1	28.4	6.1	24.9	24.3	29.3	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	52.4	0.2	1.4	2.2	1.9	0.1
Delay (s)	80.8	6.3	26.3	26.5	31.2	26.3
Level of Service	F	A	C	C	C	C
Approach Delay (s)		38.1	26.4		30.5	
Approach LOS		D	C		C	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	82.6	Sum of lost time (s)	14.9
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	405	5	8	694	52	40	3	48	60	4	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7		4.4	6.0			4.9	4.9		4.9	4.9
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00		0.99	1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1770	3532		1755	3483			1771	1583		1779	1553
Flt Permitted	0.95	1.00		0.95	1.00			0.66	1.00		0.68	1.00
Satd. Flow (perm)	1770	3532		1755	3483			1224	1583		1275	1553
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor (vph)	150%	183%	150%	150%	121%	150%	150%	150%	150%	150%	150%	150%
Adj. Flow (vph)	79	872	9	14	988	92	71	5	85	106	7	60
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	69	0	0	49
Lane Group Flow (vph)	79	881	0	14	1075	0	0	76	16	0	113	11
Confl. Peds. (#/hr)	18		10	18		10	8					8
Confl. Bikes (#/hr)		7			5							1
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	4.3	30.5		0.9	26.8			10.6	10.6		10.6	10.6
Effective Green, g (s)	4.3	30.5		0.9	26.8			10.6	10.6		10.6	10.6
Actuated g/C Ratio	0.08	0.54		0.02	0.47			0.19	0.19		0.19	0.19
Clearance Time (s)	4.4	5.7		4.4	6.0			4.9	4.9		4.9	4.9
Vehicle Extension (s)	2.0	6.1		2.0	6.4			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	133	1889		27	1637			227	294		237	288
v/s Ratio Prot	c0.04	c0.25		0.01	c0.31							
v/s Ratio Perm								0.06	0.01		c0.09	0.01
v/c Ratio	0.59	0.47		0.52	0.66			0.33	0.05		0.48	0.04
Uniform Delay, d1	25.5	8.2		27.8	11.6			20.1	19.1		20.7	19.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	4.7	0.5		6.8	1.6			0.3	0.0		0.6	0.0
Delay (s)	30.2	8.7		34.7	13.2			20.5	19.1		21.3	19.0
Level of Service	C	A		C	B			C	B		C	B
Approach Delay (s)		10.5			13.5			19.7			20.5	
Approach LOS		B			B			B			C	

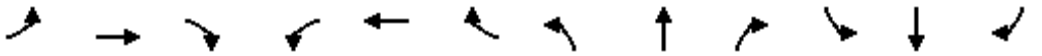
Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	12	15	707	34	19	403
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	18	768	41	43	442
Pedestrians			6			6
Lane Width (ft)			10.0			10.0
Walking Speed (ft/s)			4.0			4.0
Percent Blockage			0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1175			441
pX, platoon unblocked	0.96	0.93			0.93	
vC, conflicting volume	1324	411			809	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	206			636	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	98			95	
cM capacity (veh/h)	203	739			874	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	32	512	297	43	442
Volume Left	14	0	0	43	0
Volume Right	18	0	41	0	0
cSH	340	1700	1700	874	1700
Volume to Capacity	0.09	0.30	0.17	0.05	0.26
Queue Length 95th (ft)	8	0	0	4	0
Control Delay (s)	16.7	0.0	0.0	9.3	0.0
Lane LOS	C			A	
Approach Delay (s)	16.7	0.0		0.8	
Approach LOS	C				

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	181	17	6	3	23	70	0	168	3	12	118	106
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	258	23	13	3	26	100	0	240	3	17	168	151

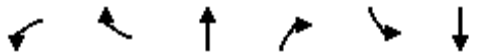
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	295	129	243	186	151
Volume Left (vph)	258	3	0	17	0
Volume Right (vph)	13	100	3	0	151
Hadj (s)	0.18	-0.43	0.03	0.08	-0.67
Departure Headway (s)	5.9	5.7	5.9	6.3	5.5
Degree Utilization, x	0.48	0.20	0.40	0.32	0.23
Capacity (veh/h)	572	555	564	539	610
Control Delay (s)	14.2	10.1	12.7	11.0	8.9
Approach Delay (s)	14.2	10.1	12.7	10.1	
Approach LOS	B	B	B	B	

Intersection Summary				
Delay	11.9			
Level of Service	B			
Intersection Capacity Utilization	48.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (veh/h)	14	730	535	35	7	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	18	839	615	40	12	11
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		748	779			
pX, platoon unblocked					0.67	
vC, conflicting volume	657				1512	637
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	657				1517	637
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				87	98
cM capacity (veh/h)	929				86	476

Direction, Lane #	NB 1	NB 2	SB 1	SE 1
Volume Total	18	839	655	23
Volume Left	18	0	0	12
Volume Right	0	0	40	11
cSH	929	1700	1700	144
Volume to Capacity	0.02	0.49	0.39	0.16
Queue Length 95th (ft)	1	0	0	14
Control Delay (s)	9.0	0.0	0.0	34.7
Lane LOS	A			D
Approach Delay (s)	0.2		0.0	34.7
Approach LOS				D

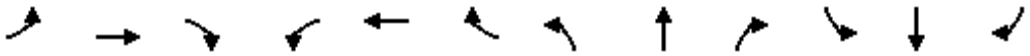
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	28	58	384	41	123	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	12
Total Lost time (s)	5.0		5.0		5.5	5.0
Lane Util. Factor	1.00		0.95		1.00	1.00
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1642		3243		1770	1863
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1642		3243		1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	120%	120%	100%	100%
Adj. Flow (vph)	30	63	501	53	134	587
RTOR Reduction (vph)	57	0	5	0	0	0
Lane Group Flow (vph)	36	0	549	0	134	587
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	7.6		43.3		8.4	57.2
Effective Green, g (s)	7.6		43.3		8.4	57.2
Actuated g/C Ratio	0.10		0.58		0.11	0.76
Clearance Time (s)	5.0		5.0		5.5	5.0
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	166		1877		198	1424
v/s Ratio Prot	c0.02		0.17		c0.08	c0.32
v/s Ratio Perm						
v/c Ratio	0.22		0.29		0.68	0.41
Uniform Delay, d1	30.9		8.0		31.9	3.0
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.2		0.4		7.0	0.9
Delay (s)	31.1		8.4		38.9	3.9
Level of Service	C		A		D	A
Approach Delay (s)	31.1		8.4			10.4
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	74.8	Sum of lost time (s)	15.5
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



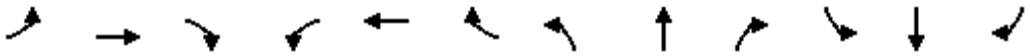
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	721	0	0	663	352	117	0	787	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5		5.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1593	3185			3185	1425	1593		1398			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1593	3185			3185	1425	1593		1398			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor (vph)	127%	117%	127%	127%	116%	127%	127%	127%	127%	100%	100%	100%
Adj. Flow (vph)	128	879	0	0	801	466	155	0	1041	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	305	0	0	0	0	0	0
Lane Group Flow (vph)	128	879	0	0	801	161	155	0	1041	0	0	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA			NA	Prot	Prot		custom			
Protected Phases	7	4			8	8	2		2			
Permitted Phases									4			
Actuated Green, G (s)	8.7	40.0			25.8	25.8	23.6		63.6			
Effective Green, g (s)	8.7	40.0			25.8	25.8	23.6		63.6			
Actuated g/C Ratio	0.12	0.54			0.35	0.35	0.32		0.85			
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5		5.5			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0			
Lane Grp Cap (vph)	185	1707			1101	492	503		1398			
v/s Ratio Prot	0.08	0.28			0.25	0.11	0.10		c0.24			
v/s Ratio Perm									0.51			
v/c Ratio	0.69	0.51			0.73	0.33	0.31		0.74			
Uniform Delay, d1	31.7	11.1			21.3	18.0	19.3		2.2			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	8.7	0.1			2.1	0.1	0.1		1.9			
Delay (s)	40.3	11.2			23.4	18.1	19.4		4.1			
Level of Service	D	B			C	B	B		A			
Approach Delay (s)		14.9			21.5			6.1			0.0	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	74.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	104.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	175	23	398	175	29	529
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	11
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.96	1.00	0.89	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1652	1425	3209	1277	1604	1749
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1652	1425	3209	1277	1604	1749
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	120%	200%	125%	130%	100%	100%
Adj. Flow (vph)	216	47	513	235	30	545
RTOR Reduction (vph)	0	36	0	125	0	0
Lane Group Flow (vph)	216	11	513	110	30	545
Confl. Peds. (#/hr)	10	30		30		
Confl. Bikes (#/hr)				50		
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	14.1	14.1	29.0	29.0	2.1	36.6
Effective Green, g (s)	14.1	14.1	29.0	29.0	2.1	36.6
Actuated g/C Ratio	0.23	0.23	0.47	0.47	0.03	0.59
Clearance Time (s)	5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	377	325	1508	600	54	1037
v/s Ratio Prot	c0.13		0.16		0.02	c0.31
v/s Ratio Perm		0.01		0.09		
v/c Ratio	0.57	0.03	0.34	0.18	0.56	0.53
Uniform Delay, d1	21.1	18.5	10.3	9.5	29.3	7.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.0	0.6	0.7	6.8	1.9
Delay (s)	22.4	18.5	10.9	10.2	36.2	9.3
Level of Service	C	B	B	B	D	A
Approach Delay (s)	21.7		10.7			10.7
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	61.7	Sum of lost time (s)	16.5
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	186	984	282	117	643	47	209	14	152	83	14	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1593	3185	1359	1593	3143		1583	1419		1583	1420	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.55	1.00		0.54	1.00	
Satd. Flow (perm)	1593	3185	1359	1593	3143		918	1419		893	1420	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	127%	127%	127%	127%	127%	127%	127%	127%	127%	127%	127%	127%
Adj. Flow (vph)	249	1315	377	156	860	63	279	19	203	111	19	193
RTOR Reduction (vph)	0	0	167	0	5	0	0	140	0	0	133	0
Lane Group Flow (vph)	249	1315	210	156	918	0	279	82	0	111	79	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)	15.1	35.2	35.2	12.4	32.5		28.2	28.2		28.2	28.2	
Effective Green, g (s)	15.1	35.2	35.2	12.4	32.5		28.2	28.2		28.2	28.2	
Actuated g/C Ratio	0.17	0.39	0.39	0.14	0.36		0.31	0.31		0.31	0.31	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	264	1234	526	217	1124		285	440		277	441	
v/s Ratio Prot	c0.16	c0.41		0.10	0.29			0.06			0.06	
v/s Ratio Perm			0.15				c0.30			0.12		
v/c Ratio	0.94	1.07	0.40	0.72	0.82		0.98	0.19		0.40	0.18	
Uniform Delay, d1	37.4	27.8	20.1	37.5	26.4		31.0	22.9		24.6	22.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	39.6	45.1	0.2	9.1	4.5		46.8	0.1		0.3	0.1	
Delay (s)	77.0	72.9	20.3	46.6	30.9		77.8	23.0		25.0	22.9	
Level of Service	E	E	C	D	C		E	C		C	C	
Approach Delay (s)		63.2			33.2			53.5			23.6	
Approach LOS		E			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	50.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	90.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	54	88	544	73	37	640
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	10	11
Total Lost time (s)	5.5		5.5	5.5	5.5	5.5
Lane Util. Factor	1.00		0.95	1.00	1.00	1.00
Frpb, ped/bikes	0.99		1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.92		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1555		3421	1425	1652	1801
Flt Permitted	0.98		1.00	1.00	0.95	1.00
Satd. Flow (perm)	1555		3421	1425	1652	1801
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	150%	120%	120%	120%	112%	112%
Adj. Flow (vph)	84	109	673	90	43	739
RTOR Reduction (vph)	57	0	0	22	0	0
Lane Group Flow (vph)	136	0	673	68	43	739
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	10.6		25.4	25.4	2.6	33.5
Effective Green, g (s)	10.6		25.4	25.4	2.6	33.5
Actuated g/C Ratio	0.19		0.46	0.46	0.05	0.61
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	299		1577	656	77	1094
v/s Ratio Prot	c0.09		0.20		0.03	c0.41
v/s Ratio Perm				0.05		
v/c Ratio	0.45		0.43	0.10	0.56	0.68
Uniform Delay, d1	19.7		10.0	8.4	25.7	7.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.1	0.0	4.9	1.3
Delay (s)	20.1		10.0	8.4	30.6	8.5
Level of Service	C		B	A	C	A
Approach Delay (s)	20.1		9.8			9.7
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	55.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

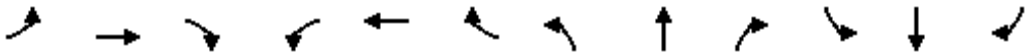
c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	51	29	576	81	36	670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5		5.5	5.5
Lane Util. Factor	1.00		0.95		1.00	1.00
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.95		0.98		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1703		3464		1770	1863
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1703		3464		1770	1863
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	110%	110%	130%	120%	105%	120%
Adj. Flow (vph)	58	33	772	100	39	829
RTOR Reduction (vph)	27	0	7	0	0	0
Lane Group Flow (vph)	64	0	865	0	39	829
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	6.5		30.4		2.5	38.4
Effective Green, g (s)	6.5		30.4		2.5	38.4
Actuated g/C Ratio	0.12		0.54		0.04	0.69
Clearance Time (s)	5.5		5.5		5.5	5.5
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	198		1883		79	1279
v/s Ratio Prot	c0.04		0.25		0.02	c0.45
v/s Ratio Perm						
v/c Ratio	0.32		0.46		0.49	0.65
Uniform Delay, d1	22.7		7.8		26.1	4.9
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.3		0.1		1.8	0.9
Delay (s)	23.0		7.8		27.8	5.8
Level of Service	C		A		C	A
Approach Delay (s)	23.0		7.8			6.8
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	16.5
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	550	25	195	650	15	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	5.5	5.5	5.5
Lane Util. Factor	0.95		1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3336		1770	1863	1770	1551
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3336		1770	1863	1770	1551
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	556	25	197	657	15	316
RTOR Reduction (vph)	3	0	0	0	0	269
Lane Group Flow (vph)	578	0	197	657	15	47
Confl. Peds. (#/hr)		10	10		10	10
Parking (#/hr)	0					
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	13.9		10.7	30.1	7.1	7.1
Effective Green, g (s)	13.9		10.7	30.1	7.1	7.1
Actuated g/C Ratio	0.29		0.22	0.62	0.15	0.15
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	962		392	1163	260	228
v/s Ratio Prot	0.17		0.11	c0.35	0.01	
v/s Ratio Perm						c0.03
v/c Ratio	0.60		0.50	0.56	0.06	0.20
Uniform Delay, d1	14.8		16.4	5.3	17.7	18.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7		0.4	0.4	0.0	0.2
Delay (s)	15.5		16.8	5.6	17.7	18.2
Level of Service	B		B	A	B	B
Approach Delay (s)	15.5			8.2	18.2	
Approach LOS	B			A	B	

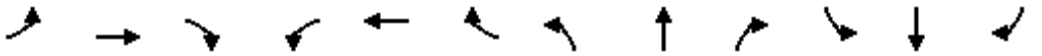
Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	48.2	Sum of lost time (s)	16.5
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	50	130	125	100	24	23	391	284	11	293	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frpb, ped/bikes		0.98			1.00	0.96		1.00	0.96		1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.91			1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00			0.97	1.00		1.00	1.00		1.00	
Satd. Flow (prot)		1657			1806	1522		1668	1521		1851	
Flt Permitted		0.98			0.61	1.00		0.94	1.00		0.98	
Satd. Flow (perm)		1634			1141	1522		1579	1521		1817	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	120%	120%	120%	100%	100%	120%	200%	120%	90%	120%	120%	120%
Adj. Flow (vph)	9	62	161	129	103	30	47	484	264	14	362	9
RTOR Reduction (vph)	0	122	0	0	0	23	0	0	103	0	1	0
Lane Group Flow (vph)	0	110	0	0	232	7	0	531	161	0	384	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Parking (#/hr)								0				
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)		16.6			16.6	16.6		41.4	41.4		41.4	
Effective Green, g (s)		16.6			16.6	16.6		41.4	41.4		41.4	
Actuated g/C Ratio		0.24			0.24	0.24		0.61	0.61		0.61	
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)		2.0			2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)		398			278	371		961	926		1106	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.20	0.00		c0.34	0.11		0.21	
v/c Ratio		0.28			0.83	0.02		0.55	0.17		0.35	
Uniform Delay, d1		20.8			24.4	19.5		7.8	5.8		6.6	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.1			18.2	0.0		2.3	0.4		0.9	
Delay (s)		21.0			42.6	19.5		10.1	6.2		7.5	
Level of Service		C			D	B		B	A		A	
Approach Delay (s)		21.0			40.0			8.8			7.5	
Approach LOS		C			D			A			A	

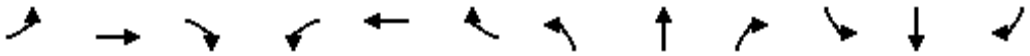
Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



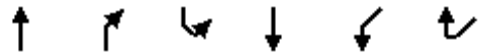
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	472	55	545	25	66	30	443	193	17	17	176	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		0.91	0.91			0.95	0.95
Frpb, ped/bikes	1.00	1.00	0.96	1.00	0.99		1.00	1.00			0.99	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99			0.96	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (prot)	3433	1863	1527	1770	1759		1610	3281			1677	1467
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (perm)	3433	1863	1527	1770	1759		1610	3281			1677	1467
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	622	73	719	33	87	40	584	255	22	22	232	421
RTOR Reduction (vph)	0	0	453	0	17	0	0	3	0	0	14	247
Lane Group Flow (vph)	622	73	266	33	110	0	292	566	0	0	341	73
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4									6
Actuated Green, G (s)	17.2	26.9	26.9	2.2	12.4		20.0	20.0			20.7	20.7
Effective Green, g (s)	17.2	26.9	26.9	2.2	12.4		20.0	20.0			20.7	20.7
Actuated g/C Ratio	0.19	0.29	0.29	0.02	0.14		0.22	0.22			0.23	0.23
Clearance Time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	646	548	449	42	238		352	718			380	332
v/s Ratio Prot	c0.18	0.04		0.02	0.06		c0.18	0.17			c0.20	
v/s Ratio Perm			c0.17									0.05
v/c Ratio	0.96	0.13	0.59	0.79	0.46		0.83	0.79			0.90	0.22
Uniform Delay, d1	36.7	23.6	27.5	44.3	36.4		34.0	33.7			34.3	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	26.1	0.0	1.4	58.6	0.5		14.2	5.3			22.4	0.1
Delay (s)	62.9	23.7	28.9	102.9	36.9		48.2	39.0			56.7	28.8
Level of Service	E	C	C	F	D		D	D			E	C
Approach Delay (s)		43.6			50.5			42.1			43.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	91.3	Sum of lost time (s)	21.5
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



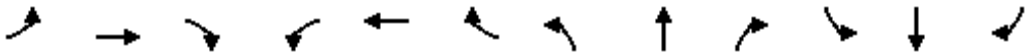
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	4	30	57	6	21	26	521	32	11	596	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.96			0.97		1.00	0.99		1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1688			1707		1770	1841		1770	1822	
Flt Permitted		0.81			0.78		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1406			1383		1770	1841		1770	1822	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	110%	110%	110%	110%	110%	110%	200%	110%	110%	110%	110%	200%
Adj. Flow (vph)	68	5	36	68	7	25	57	623	38	13	713	93
RTOR Reduction (vph)	0	31	0	0	22	0	0	2	0	0	5	0
Lane Group Flow (vph)	0	78	0	0	78	0	57	659	0	13	801	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		8.8			8.8		4.2	43.8		1.2	40.8	
Effective Green, g (s)		8.8			8.8		4.2	43.8		1.2	40.8	
Actuated g/C Ratio		0.13			0.13		0.06	0.64		0.02	0.60	
Clearance Time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		181			178		109	1185		31	1093	
v/s Ratio Prot							c0.03	c0.36		0.01	c0.44	
v/s Ratio Perm		0.06			c0.06							
v/c Ratio		0.43			0.44		0.52	0.56		0.42	0.73	
Uniform Delay, d1		27.3			27.3		30.9	6.7		33.1	9.7	
Progression Factor		1.36			1.00		1.02	0.95		1.00	1.00	
Incremental Delay, d2		0.5			0.6		1.6	1.5		3.3	4.4	
Delay (s)		37.5			28.0		33.3	7.8		36.4	14.1	
Level of Service		D			C		C	A		D	B	
Approach Delay (s)		37.5			28.0			9.8			14.4	
Approach LOS		D			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (vph)	470	660	20	690	690	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.5	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	1.00	1.00	0.95	1.00	0.95	
Satd. Flow (prot)	1863	1530	1770	1863	1767	
Flt Permitted	1.00	1.00	0.95	1.00	0.95	
Satd. Flow (perm)	1863	1530	1770	1863	1767	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	495	695	21	726	726	26
RTOR Reduction (vph)	0	445	0	0	2	0
Lane Group Flow (vph)	495	250	21	726	750	0
Confl. Peds. (#/hr)		10	10		10	10
Parking (#/hr)						
Turn Type	NA	custom	Prot	NA	Prot	
Protected Phases			1		4	
Permitted Phases	2	2		6		
Actuated Green, G (s)	24.5	24.5	1.6	31.6	26.4	
Effective Green, g (s)	24.5	24.5	1.6	31.6	26.4	
Actuated g/C Ratio	0.36	0.36	0.02	0.46	0.39	
Clearance Time (s)	5.0	5.0	5.5	5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	671	551	41	865	686	
v/s Ratio Prot			0.01		c0.42	
v/s Ratio Perm	0.27	0.16		c0.39		
v/c Ratio	0.74	0.45	0.51	0.84	1.09	
Uniform Delay, d1	19.0	16.6	32.8	16.0	20.8	
Progression Factor	1.00	1.00	0.89	1.43	1.00	
Incremental Delay, d2	7.1	2.7	1.8	2.9	62.7	
Delay (s)	26.1	19.3	31.0	25.8	83.5	
Level of Service	C	B	C	C	F	
Approach Delay (s)	22.1			26.0	83.5	
Approach LOS	C			C	F	

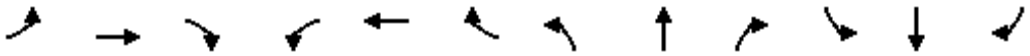
Intersection Summary			
HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	4	30	40	11	15	70	580	20	10	710	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	
Frpb, ped/bikes		0.98			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.94			0.97		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1663			1723		1770	3517		1770	1839	
Flt Permitted		0.84			0.79		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1427			1404		1770	3517		1770	1839	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	4	32	42	12	16	74	611	21	11	747	53
RTOR Reduction (vph)	0	29	0	0	14	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	39	0	0	56	0	74	631	0	11	798	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		7.0			7.0		6.1	46.9		1.0	41.8	
Effective Green, g (s)		7.0			7.0		6.1	46.9		1.0	41.8	
Actuated g/C Ratio		0.10			0.10		0.09	0.66		0.01	0.59	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		139			137		151	2310		24	1076	
v/s Ratio Prot							c0.04	c0.18		0.01	c0.43	
v/s Ratio Perm		0.03			c0.04							
v/c Ratio		0.28			0.41		0.49	0.27		0.46	0.74	
Uniform Delay, d1		29.9			30.2		31.2	5.1		34.9	10.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.7		0.9	0.0		5.0	2.4	
Delay (s)		30.3			31.0		32.1	5.1		39.9	13.3	
Level of Service		C			C		C	A		D	B	
Approach Delay (s)		30.3			31.0			8.0			13.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	16.5
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	150	100	60	100	100	40	505	40	100	550	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9		4.4	5.8		4.4	5.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.95		1.00	0.99		1.00	0.97	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1749			1730		1770	3490		1770	1784	
Flt Permitted		0.75			0.83		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1330			1446		1770	3490		1770	1784	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	134	161	108	65	108	108	43	543	43	108	591	161
RTOR Reduction (vph)	0	24	0	0	41	0	0	7	0	0	10	0
Lane Group Flow (vph)	0	379	0	0	240	0	43	579	0	108	742	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		22.7			22.7		4.3	22.3		7.9	26.2	
Effective Green, g (s)		22.7			22.7		4.3	22.3		7.9	26.2	
Actuated g/C Ratio		0.33			0.33		0.06	0.33		0.12	0.39	
Clearance Time (s)		4.9			4.9		4.4	5.8		4.4	5.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		443			482		111	1144		205	687	
v/s Ratio Prot							0.02	0.17		c0.06	c0.42	
v/s Ratio Perm		c0.29			0.17							
v/c Ratio		0.86			0.50		0.39	0.51		0.53	1.08	
Uniform Delay, d1		21.1			18.1		30.6	18.4		28.3	20.9	
Progression Factor		1.00			1.33		1.43	0.68		1.00	1.00	
Incremental Delay, d2		14.4			0.3		0.7	1.4		1.1	57.8	
Delay (s)		35.5			24.4		44.5	13.9		29.4	78.7	
Level of Service		D			C		D	B		C	E	
Approach Delay (s)		35.5			24.4			16.0			72.5	
Approach LOS		D			C			B			E	

Intersection Summary			
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	EBR2	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR
Lane Configurations												
Volume (vph)	150	100	400	100	414	20	0	1181	200	15	100	568
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		4.9	4.4	5.3			5.3			4.9	4.9
Lane Util. Factor	1.00		0.95	1.00	1.00			0.95			1.00	1.00
Frpb, ped/bikes	0.98		0.98	1.00	1.00			0.99			1.00	0.98
Flpb, ped/bikes	1.00		1.00	1.00	1.00			1.00			0.96	1.00
Frt	0.92		0.85	1.00	0.99			0.98			1.00	0.85
Flt Protected	0.98		1.00	0.95	1.00			1.00			0.95	1.00
Satd. Flow (prot)	1469		1468	1770	1846			3443			1701	1546
Flt Permitted	0.80		1.00	0.95	1.00			1.00			0.95	1.00
Satd. Flow (perm)	1196		1468	1770	1846			3443			1701	1546
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	153	102	408	102	422	20	0	1205	204	15	102	580
RTOR Reduction (vph)	67	0	67	0	1	0	0	14	0	0	0	288
Lane Group Flow (vph)	266	0	263	102	441	0	0	1395	0	0	117	292
Confl. Peds. (#/hr)	10	10	10			10	10		10	10	10	10
Parking (#/hr)	0											
Turn Type	Perm		Perm	Prot	NA			NA		Perm	Prot	Perm
Protected Phases				5	2			6			8	
Permitted Phases	4		4							8		8
Actuated Green, G (s)	23.8		23.8	9.1	58.0			44.5			23.8	23.8
Effective Green, g (s)	23.8		23.8	9.1	58.0			44.5			23.8	23.8
Actuated g/C Ratio	0.26		0.26	0.10	0.63			0.48			0.26	0.26
Clearance Time (s)	4.9		4.9	4.4	5.3			5.3			4.9	4.9
Vehicle Extension (s)	2.0		2.0	2.0	2.0			2.0			2.0	2.0
Lane Grp Cap (vph)	309		379	175	1163			1665			440	399
v/s Ratio Prot				c0.06	0.24			c0.41				
v/s Ratio Perm	c0.22		0.18								0.07	0.19
v/c Ratio	0.86		0.69	0.58	0.38			0.84			0.27	0.73
Uniform Delay, d1	32.5		30.8	39.6	8.3			20.6			27.1	31.2
Progression Factor	1.00		1.00	0.83	1.66			1.00			1.15	1.53
Incremental Delay, d2	20.4		4.4	0.3	0.1			5.2			0.1	4.9
Delay (s)	53.0		35.2	33.1	13.8			25.8			31.4	52.6
Level of Service	D		D	C	B			C			C	D
Approach Delay (s)	44.1				17.4			25.8			49.0	
Approach LOS	D				B			C			D	

Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	92.0	Sum of lost time (s)	14.6
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

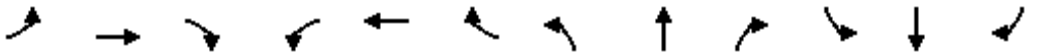
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	873	0	504	848	685	821
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	5.5	5.5	5.5
Lane Util. Factor	0.97		1.00	1.00	0.97	0.95
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	1.00		1.00	0.85	1.00	1.00
Flt Protected	0.95		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433		1863	1583	3433	3539
Flt Permitted	0.95		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433		1863	1583	3433	3539
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor (vph)	106%	106%	106%	106%	106%	106%
Adj. Flow (vph)	964	0	556	936	756	907
RTOR Reduction (vph)	0	0	0	3	0	0
Lane Group Flow (vph)	964	0	556	933	756	907
Confl. Peds. (#/hr)						
Turn Type	Prot		NA	pt+ov	Prot	NA
Protected Phases	8		2	2 8	1	6
Permitted Phases						
Actuated Green, G (s)	27.9		26.5	59.9	21.1	53.1
Effective Green, g (s)	27.9		26.5	59.9	21.1	53.1
Actuated g/C Ratio	0.30		0.29	0.65	0.23	0.58
Clearance Time (s)	5.5		5.5		5.5	5.5
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	1041		536	1030	787	2042
v/s Ratio Prot	0.28		c0.30	c0.59	c0.22	0.26
v/s Ratio Perm						
v/c Ratio	0.93		1.04	0.91	0.96	0.44
Uniform Delay, d1	31.1		32.8	13.6	35.0	11.1
Progression Factor	1.03		1.00	1.00	0.87	0.61
Incremental Delay, d2	10.5		48.9	10.9	16.8	0.4
Delay (s)	42.5		81.6	24.6	47.4	7.2
Level of Service	D		F	C	D	A
Approach Delay (s)	42.5		45.8			25.4
Approach LOS	D		D			C

Intersection Summary			
HCM 2000 Control Delay	36.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	92.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	0	1080	485	204	657	358	75	25	25	230	193	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0			5.0		5.0	5.0	5.0
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00		1.00	1.00	1.00
Frpb, ped/bikes		1.00	0.97	1.00	0.99			1.00		1.00	1.00	0.96
Flpb, ped/bikes		1.00	1.00	1.00	1.00			0.99		0.99	1.00	1.00
Frt		1.00	0.85	1.00	0.94			0.97		1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00			0.97		0.95	1.00	1.00
Satd. Flow (prot)		3185	1386	1593	2962			1565		1579	1676	1371
Flt Permitted		1.00	1.00	0.95	1.00			0.60		0.68	1.00	1.00
Satd. Flow (perm)		3185	1386	1593	2962			964		1123	1676	1371
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	106%	106%	106%	106%	106%	130%	100%	100%	100%	103%	106%	150%
Adj. Flow (vph)	0	1218	547	230	741	495	80	27	27	252	218	203
RTOR Reduction (vph)	0	0	289	0	116	0	0	11	0	0	0	153
Lane Group Flow (vph)	0	1218	258	230	1120	0	0	123	0	252	218	50
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type		NA	Perm	Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4		3	8			6			2	
Permitted Phases			4				6			2		2
Actuated Green, G (s)		39.2	39.2	15.0	59.2			22.8		22.8	22.8	22.8
Effective Green, g (s)		39.2	39.2	15.0	59.2			22.8		22.8	22.8	22.8
Actuated g/C Ratio		0.43	0.43	0.16	0.64			0.25		0.25	0.25	0.25
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0		5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0			2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		1357	590	259	1905			238		278	415	339
v/s Ratio Prot		c0.38		c0.14	0.38						0.13	
v/s Ratio Perm			0.19					0.13		c0.22		0.04
v/c Ratio		0.90	0.44	0.89	0.59			0.52		0.91	0.53	0.15
Uniform Delay, d1		24.5	18.6	37.7	9.4			29.9		33.6	29.9	27.0
Progression Factor		0.95	1.42	1.00	1.00			0.49		1.00	1.00	1.00
Incremental Delay, d2		4.6	1.0	27.8	1.3			0.6		30.0	0.6	0.1
Delay (s)		27.8	27.5	65.5	10.7			15.1		63.6	30.5	27.1
Level of Service		C	C	E	B			B		E	C	C
Approach Delay (s)		27.7			19.3			15.1			41.9	
Approach LOS		C			B			B			D	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	92.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



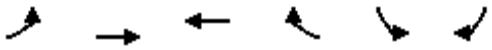
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	256	824	94	5	773	42	68	7	10	122	21	446
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			4.9			5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			0.99	1.00
Frt	1.00	0.99		1.00	0.99			0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.96	1.00
Satd. Flow (prot)	1770	3483		1770	3506			1734			1776	1552
Flt Permitted	0.95	1.00		0.95	1.00			0.68			0.74	1.00
Satd. Flow (perm)	1770	3483		1770	3506			1228			1365	1552
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	106%	130%	106%	200%	121%	130%	106%	106%	200%	106%	106%	106%
Adj. Flow (vph)	298	1177	109	11	1028	60	79	8	22	142	24	520
RTOR Reduction (vph)	0	7	0	0	5	0	0	16	0	0	0	374
Lane Group Flow (vph)	298	1279	0	11	1083	0	0	93	0	0	166	146
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	12.5	32.9		1.0	21.4			13.1			13.0	13.0
Effective Green, g (s)	12.5	32.9		1.0	21.4			13.1			13.0	13.0
Actuated g/C Ratio	0.20	0.53		0.02	0.35			0.21			0.21	0.21
Clearance Time (s)	5.0	5.0		5.0	5.0			4.9			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Lane Grp Cap (vph)	357	1851		28	1212			259			286	325
v/s Ratio Prot	c0.17	0.37		0.01	c0.31							
v/s Ratio Perm								0.08			c0.12	0.09
v/c Ratio	0.83	0.69		0.39	0.89			0.36			0.58	0.45
Uniform Delay, d1	23.7	10.7		30.1	19.2			20.8			22.0	21.3
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	14.7	0.9		3.3	8.5			0.3			1.9	0.4
Delay (s)	38.5	11.7		33.4	27.7			21.1			23.9	21.7
Level of Service	D	B		C	C			C			C	C
Approach Delay (s)		16.7			27.7			21.1			22.2	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	61.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	94	12	64	54	15	53	44	552	119	47	407	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.94		1.00	0.97		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1700			1695		1770	3420		1770	3503	
Flt Permitted		0.79			0.79		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1378			1360		1770	3420		1770	3503	
Peak-hour factor, PHF	0.97	0.97	0.97	0.98	0.97	0.98	0.98	0.98	0.97	0.97	0.98	0.98
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	106%	125%	106%
Adj. Flow (vph)	97	12	66	55	15	54	45	563	123	51	519	30
RTOR Reduction (vph)	0	42	0	0	44	0	0	17	0	0	4	0
Lane Group Flow (vph)	0	133	0	0	80	0	45	669	0	51	545	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1			5	2	
Permitted Phases	4			8				6				
Actuated Green, G (s)		12.0			12.0		6.3	36.5		4.5	34.7	
Effective Green, g (s)		12.0			12.0		6.3	36.5		4.5	34.7	
Actuated g/C Ratio		0.18			0.18		0.09	0.54		0.07	0.51	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		243			240		163	1835		117	1787	
v/s Ratio Prot							0.03			c0.03	0.16	
v/s Ratio Perm		c0.10			0.06			c0.20				
v/c Ratio		0.55			0.33		0.28	0.36		0.44	0.31	
Uniform Delay, d1		25.5			24.5		28.7	9.1		30.5	9.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.4			0.3		0.3	0.6		0.9	0.4	
Delay (s)		26.9			24.8		29.1	9.6		31.5	10.1	
Level of Service		C			C		C	A		C	B	
Approach Delay (s)		26.9			24.8			10.8			11.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

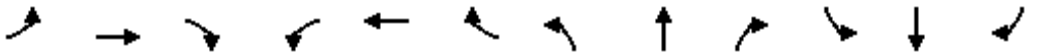
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	149	663	342	291	460	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3185	3185	1378	3040	1271
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3185	3185	1378	3040	1271
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	106%	150%	150%	150%	106%	106%
Adj. Flow (vph)	166	1047	540	459	513	247
RTOR Reduction (vph)	0	0	0	330	4	161
Lane Group Flow (vph)	166	1047	540	129	534	61
Confl. Peds. (#/hr)	10			10	10	10
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	6	6
Actuated Green, G (s)	11.5	33.2	16.7	16.7	16.3	16.3
Effective Green, g (s)	11.5	33.2	16.7	16.7	16.3	16.3
Actuated g/C Ratio	0.19	0.56	0.28	0.28	0.27	0.27
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	307	1777	893	386	832	348
v/s Ratio Prot	0.10	c0.33	0.17			
v/s Ratio Perm				0.09	c0.18	0.05
v/c Ratio	0.54	0.59	0.60	0.33	0.64	0.17
Uniform Delay, d1	21.6	8.7	18.5	17.0	19.0	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.3	0.8	0.2	1.3	0.1
Delay (s)	22.7	9.0	19.3	17.2	20.3	16.6
Level of Service	C	A	B	B	C	B
Approach Delay (s)		10.9	18.3		19.2	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	59.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



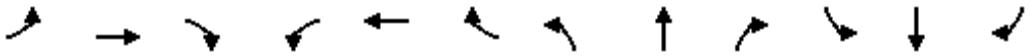
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	931	35	38	523	49	24	4	24	102	7	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.99	1.00
Frt	1.00	0.99		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1770	3515		1770	3483			1776	1552		1767	1552
Flt Permitted	0.95	1.00		0.95	1.00			0.69	1.00		0.71	1.00
Satd. Flow (perm)	1770	3515		1770	3483			1274	1552		1308	1552
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	150%	150%	150%	150%	150%	150%	150%	150%	150%	150%	150%	150%
Adj. Flow (vph)	89	1486	56	61	835	78	38	6	38	163	11	80
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	30	0	0	63
Lane Group Flow (vph)	89	1540	0	61	908	0	0	44	8	0	174	17
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	6.2	28.9		4.2	26.9			12.9	12.9		12.9	12.9
Effective Green, g (s)	6.2	28.9		4.2	26.9			12.9	12.9		12.9	12.9
Actuated g/C Ratio	0.10	0.47		0.07	0.44			0.21	0.21		0.21	0.21
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	179	1665		121	1535			269	328		276	328
v/s Ratio Prot	c0.05	c0.44		0.03	0.26							
v/s Ratio Perm								0.03	0.01		c0.13	0.01
v/c Ratio	0.50	0.92		0.50	0.59			0.16	0.02		0.63	0.05
Uniform Delay, d1	25.9	15.0		27.4	12.9			19.6	19.1		21.9	19.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	9.0		1.2	0.4			0.1	0.0		3.4	0.0
Delay (s)	26.7	24.0		28.6	13.3			19.7	19.1		25.3	19.2
Level of Service	C	C		C	B			B	B		C	B
Approach Delay (s)		24.2			14.3			19.4			23.4	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	30	75	695	75	80	680
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	34	85	790	85	91	773
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1175			441
pX, platoon unblocked	0.81	1.00			1.00	
vC, conflicting volume	1744	395			875	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1789	388			870	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	34	86			88	
cM capacity (veh/h)	52	609			769	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	119	395	395	85	91	773
Volume Left	34	0	0	0	91	0
Volume Right	85	0	0	85	0	0
cSH	150	1700	1700	1700	769	1700
Volume to Capacity	0.80	0.23	0.23	0.05	0.12	0.45
Queue Length 95th (ft)	126	0	0	0	10	0
Control Delay (s)	86.6	0.0	0.0	0.0	10.3	0.0
Lane LOS	F				B	
Approach Delay (s)	86.6	0.0			1.1	
Approach LOS	F					

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	218	22	5	1	15	39	4	107	3	32	151	241
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	304	31	7	1	21	54	6	149	3	45	211	336

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	342	77	158	592
Volume Left (vph)	304	1	6	45
Volume Right (vph)	7	54	3	336
Hadj (s)	0.20	-0.39	0.03	-0.29
Departure Headway (s)	6.4	6.5	6.4	5.3
Degree Utilization, x	0.61	0.14	0.28	0.88
Capacity (veh/h)	539	494	524	664
Control Delay (s)	18.8	10.6	11.9	34.1
Approach Delay (s)	18.8	10.6	11.9	34.1
Approach LOS	C	B	B	D

Intersection Summary			
Delay	25.1		
Level of Service	D		
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (veh/h)	5	735	800	50	35	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	799	870	54	38	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		748	431			
pX, platoon unblocked	0.64				0.75	0.64
vC, conflicting volume	924				1707	897
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	607				1159	564
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				76	92
cM capacity (veh/h)	626				160	338

Direction, Lane #	NB 1	NB 2	SB 1	SE 1
Volume Total	5	799	924	65
Volume Left	5	0	0	38
Volume Right	0	0	54	27
cSH	626	1700	1700	205
Volume to Capacity	0.01	0.47	0.54	0.32
Queue Length 95th (ft)	1	0	0	32
Control Delay (s)	10.8	0.0	0.0	30.5
Lane LOS	B			D
Approach Delay (s)	0.1		0.0	30.5
Approach LOS				D

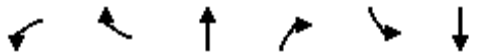
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

Morena Blvd Station Area Planning Study

Appendix E:

LOS Reports - Preferred Alternative

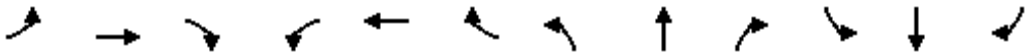
Long-term



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	28	58	384	41	123	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.98		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1653		3289		1770	3539
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1653		3289		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	120%	100%	102%	125%	100%	105%
Adj. Flow (vph)	37	63	426	56	134	616
RTOR Reduction (vph)	55	0	9	0	0	0
Lane Group Flow (vph)	45	0	473	0	134	616
Confl. Peds. (#/hr)	10	10		10	10	
Parking (#/hr)			0			
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	7.7		31.5		7.6	44.6
Effective Green, g (s)	7.7		31.5		7.6	44.6
Actuated g/C Ratio	0.12		0.51		0.12	0.72
Clearance Time (s)	5.0		5.0		5.5	5.0
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	204		1662		215	2533
v/s Ratio Prot	c0.03		c0.14		c0.08	0.17
v/s Ratio Perm						
v/c Ratio	0.22		0.28		0.62	0.24
Uniform Delay, d1	24.6		8.9		26.0	3.0
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.2		0.4		4.0	0.2
Delay (s)	24.8		9.3		30.0	3.3
Level of Service	C		A		C	A
Approach Delay (s)	24.8		9.3			8.0
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	62.3	Sum of lost time (s)	15.5
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

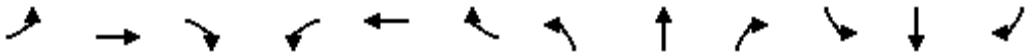


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	721	0	0	663	352	117	0	787	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5		5.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frpb, ped/bikes	1.00	1.00			1.00	0.95	1.00		0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1593	3185			3185	1356	1593		1397			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1593	3185			3185	1356	1593		1397			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor (vph)	120%	110%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	121	826	0	0	829	440	146	0	984	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	276	0	0	0	0	0	0
Lane Group Flow (vph)	121	826	0	0	829	164	146	0	984	0	0	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA			NA	Perm	Prot		custom			
Protected Phases	7	4			8		2		2			
Permitted Phases						8			4			
Actuated Green, G (s)	8.1	39.4			25.8	25.8	19.0		58.4			
Effective Green, g (s)	8.1	39.4			25.8	25.8	19.0		58.4			
Actuated g/C Ratio	0.12	0.57			0.37	0.37	0.27		0.84			
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5		5.5			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0			
Lane Grp Cap (vph)	185	1808			1184	504	436		1397			
v/s Ratio Prot	0.08	0.26			0.26		0.09		c0.19			
v/s Ratio Perm						0.12			0.51			
v/c Ratio	0.65	0.46			0.70	0.32	0.33		0.70			
Uniform Delay, d1	29.3	8.8			18.5	15.6	20.1		2.1			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	6.2	0.1			1.5	0.1	0.2		1.3			
Delay (s)	35.5	8.8			20.1	15.7	20.3		3.5			
Level of Service	D	A			C	B	C		A			
Approach Delay (s)		12.2			18.6			5.7			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	69.4	Sum of lost time (s)	16.5
Intersection Capacity Utilization	99.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	175	23	398	175	30	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	1395	3185	1369	1593	1676
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	1395	3185	1369	1593	1676
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	115%	300%	110%	120%	120%	100%
Adj. Flow (vph)	207	71	451	216	37	546
RTOR Reduction (vph)	0	54	0	109	0	0
Lane Group Flow (vph)	207	17	451	107	37	546
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	16.0	16.0	32.9	32.9	2.7	40.6
Effective Green, g (s)	16.0	16.0	32.9	32.9	2.7	40.6
Actuated g/C Ratio	0.24	0.24	0.49	0.49	0.04	0.61
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	382	335	1573	676	64	1021
v/s Ratio Prot	c0.13		0.14		0.02	c0.33
v/s Ratio Perm		0.01		0.08		
v/c Ratio	0.54	0.05	0.29	0.16	0.58	0.53
Uniform Delay, d1	22.1	19.5	9.9	9.2	31.4	7.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.0	0.5	0.5	7.6	2.0
Delay (s)	22.9	19.5	10.4	9.7	39.0	9.5
Level of Service	C	B	B	A	D	A
Approach Delay (s)	22.1		10.2			11.4
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	66.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	186	984	282	117	643	47	209	14	152	83	14	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1593	3185	1360	1593	3143		1583	1420		1583	1421	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.57	1.00		0.55	1.00	
Satd. Flow (perm)	1593	3185	1360	1593	3143		942	1420		916	1421	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	235	1243	356	148	812	59	264	18	192	105	18	182
RTOR Reduction (vph)	0	0	163	0	5	0	0	135	0	0	128	0
Lane Group Flow (vph)	235	1243	193	148	866	0	264	75	0	105	72	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)	15.2	35.4	35.4	11.9	32.1		26.4	26.4		26.4	26.4	
Effective Green, g (s)	15.2	35.4	35.4	11.9	32.1		26.4	26.4		26.4	26.4	
Actuated g/C Ratio	0.17	0.40	0.40	0.13	0.36		0.30	0.30		0.30	0.30	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	272	1271	542	213	1137		280	422		272	422	
v/s Ratio Prot	c0.15	c0.39		0.09	0.28			0.05			0.05	
v/s Ratio Perm			0.14				c0.28			0.11		
v/c Ratio	0.86	0.98	0.36	0.69	0.76		0.94	0.18		0.39	0.17	
Uniform Delay, d1	35.7	26.3	18.7	36.7	24.9		30.4	23.1		24.7	23.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.9	19.8	0.1	7.7	2.8		38.1	0.1		0.3	0.1	
Delay (s)	58.6	46.1	18.8	44.4	27.7		68.5	23.2		25.1	23.1	
Level of Service	E	D	B	D	C		E	C		C	C	
Approach Delay (s)		42.4			30.1			48.4			23.8	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	88.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	54	88	544	73	37	640
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5		5.5	5.5
Lane Util. Factor	1.00		1.00		1.00	1.00
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.92		0.98		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1653		1825		1770	1863
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1653		1825		1770	1863
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	100%	100%	100%	105%	105%
Adj. Flow (vph)	56	91	561	75	40	693
RTOR Reduction (vph)	80	0	5	0	0	0
Lane Group Flow (vph)	67	0	631	0	40	693
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	6.3		28.6		1.3	35.4
Effective Green, g (s)	6.3		28.6		1.3	35.4
Actuated g/C Ratio	0.12		0.54		0.02	0.67
Clearance Time (s)	5.5		5.5		5.5	5.5
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	197		990		43	1251
v/s Ratio Prot	c0.04		c0.35		0.02	c0.37
v/s Ratio Perm						
v/c Ratio	0.34		0.64		0.93	0.55
Uniform Delay, d1	21.3		8.4		25.7	4.5
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.4		1.0		109.0	0.3
Delay (s)	21.7		9.4		134.7	4.8
Level of Service	C		A		F	A
Approach Delay (s)	21.7		9.4			11.9
Approach LOS	C		A			B

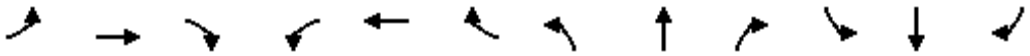
Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	52.7	Sum of lost time (s)	16.5
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	51	29	576	81	36	670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5		5.5	5.5
Lane Util. Factor	1.00		1.00		1.00	1.00
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.95		0.98		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1694		1824		1770	1863
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1694		1824		1770	1863
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	100%	102%	102%	103%	103%
Adj. Flow (vph)	53	30	606	85	38	711
RTOR Reduction (vph)	27	0	5	0	0	0
Lane Group Flow (vph)	56	0	686	0	38	711
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	6.3		34.1		1.4	41.0
Effective Green, g (s)	6.3		34.1		1.4	41.0
Actuated g/C Ratio	0.11		0.58		0.02	0.70
Clearance Time (s)	5.5		5.5		5.5	5.5
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	183		1066		42	1310
v/s Ratio Prot	c0.03		c0.38		0.02	c0.38
v/s Ratio Perm						
v/c Ratio	0.31		0.64		0.90	0.54
Uniform Delay, d1	24.0		8.1		28.4	4.2
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.3		1.0		100.1	0.2
Delay (s)	24.3		9.1		128.5	4.4
Level of Service	C		A		F	A
Approach Delay (s)	24.3		9.1			10.7
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	58.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	387	26	191	501	15	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	5.5	5.5	5.5
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1843		1770	1863	1770	1529
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	1843		1770	1863	1770	1529
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Growth Factor (vph)	100%	100%	99%	100%	200%	102%
Adj. Flow (vph)	391	26	191	506	30	322
RTOR Reduction (vph)	3	0	0	0	0	273
Lane Group Flow (vph)	414	0	191	506	30	49
Confl. Peds. (#/hr)		10	10		10	10
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	16.8		7.9	30.2	7.4	7.4
Effective Green, g (s)	16.8		7.9	30.2	7.4	7.4
Actuated g/C Ratio	0.35		0.16	0.62	0.15	0.15
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	637		287	1157	269	232
v/s Ratio Prot	c0.22		c0.11	0.27	0.02	
v/s Ratio Perm						c0.03
v/c Ratio	0.65		0.67	0.44	0.11	0.21
Uniform Delay, d1	13.4		19.1	4.8	17.8	18.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7		4.5	0.1	0.1	0.2
Delay (s)	15.1		23.6	4.9	17.8	18.2
Level of Service	B		C	A	B	B
Approach Delay (s)	15.1			10.0	18.2	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	48.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	50	100	125	100	25	25	390	240	10	275	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frpb, ped/bikes		0.99			1.00	0.96		1.00	0.96		0.99	
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.93			1.00	0.85		1.00	0.85		0.98	
Flt Protected		0.99			0.97	1.00		1.00	1.00		1.00	
Satd. Flow (prot)		1691			1805	1522		1856	1521		1811	
Flt Permitted		0.82			0.68	1.00		0.97	1.00		0.99	
Satd. Flow (perm)		1399			1258	1522		1805	1521		1792	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	52	103	129	103	26	26	402	247	10	284	52
RTOR Reduction (vph)	0	60	0	0	0	20	0	0	95	0	7	0
Lane Group Flow (vph)	0	147	0	0	232	6	0	428	152	0	339	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)		16.1			16.1	16.1		41.9	41.9		41.9	
Effective Green, g (s)		16.1			16.1	16.1		41.9	41.9		41.9	
Actuated g/C Ratio		0.24			0.24	0.24		0.62	0.62		0.62	
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)		2.0			2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)		331			297	360		1112	937		1104	
v/s Ratio Prot												
v/s Ratio Perm		0.10			c0.18	0.00		c0.24	0.10		0.19	
v/c Ratio		0.44			0.78	0.02		0.38	0.16		0.31	
Uniform Delay, d1		22.1			24.3	19.9		6.6	5.6		6.2	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.3			11.6	0.0		1.0	0.4		0.7	
Delay (s)		22.5			35.9	19.9		7.6	5.9		6.9	
Level of Service		C			D	B		A	A		A	
Approach Delay (s)		22.5			34.3			7.0			6.9	
Approach LOS		C			C			A			A	

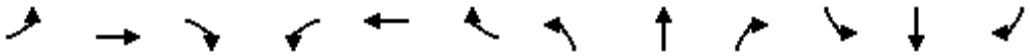
Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	420	70	450	25	70	30	490	205	25	20	150	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		0.91	0.91			0.95	0.95
Frpb, ped/bikes	1.00	1.00	0.96	1.00	0.99		1.00	1.00			0.99	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99			0.95	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (prot)	3433	1863	1518	1770	1763		1610	3273			1654	1465
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (perm)	3433	1863	1518	1770	1763		1610	3273			1654	1465
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	462	77	495	27	77	33	538	225	27	22	165	363
RTOR Reduction (vph)	0	0	372	0	17	0	0	3	0	0	19	207
Lane Group Flow (vph)	462	77	123	27	93	0	269	518	0	0	270	54
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4									6
Actuated Green, G (s)	15.9	24.8	24.8	2.8	12.2		30.1	30.1			20.8	20.8
Effective Green, g (s)	15.9	24.8	24.8	2.8	12.2		30.1	30.1			20.8	20.8
Actuated g/C Ratio	0.16	0.25	0.25	0.03	0.12		0.30	0.30			0.21	0.21
Clearance Time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	545	462	376	49	215		484	985			344	304
v/s Ratio Prot	c0.13	0.04		0.02	c0.05		c0.17	0.16			c0.16	
v/s Ratio Perm			0.08									0.04
v/c Ratio	0.85	0.17	0.33	0.55	0.43		0.56	0.53			0.78	0.18
Uniform Delay, d1	40.9	29.5	30.8	48.0	40.7		29.3	29.0			37.5	32.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	11.2	0.1	0.2	7.4	0.5		4.5	2.0			10.3	0.1
Delay (s)	52.1	29.6	31.0	55.4	41.2		33.9	31.0			47.8	32.7
Level of Service	D	C	C	E	D		C	C			D	C
Approach Delay (s)		40.3			44.0			32.0			40.6	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



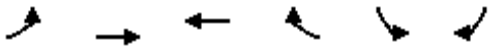
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	10	40	60	10	25	125	490	35	15	450	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		0.99	1.00	
Frt		0.95			0.96		1.00	0.99		1.00	0.97	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1685			1707		1770	1838		1744	1797	
Flt Permitted		0.81			0.76		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1409			1342		1770	1838		1744	1797	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	11	43	65	11	27	136	533	38	16	489	109
RTOR Reduction (vph)	0	32	0	0	20	0	0	2	0	0	10	0
Lane Group Flow (vph)	0	87	0	0	83	0	136	569	0	16	588	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		9.2			9.2		11.7	50.8		0.8	39.9	
Effective Green, g (s)		9.2			9.2		11.7	50.8		0.8	39.9	
Actuated g/C Ratio		0.12			0.12		0.16	0.68		0.01	0.53	
Clearance Time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		172			164		276	1244		18	956	
v/s Ratio Prot							c0.08	0.31		0.01	c0.33	
v/s Ratio Perm		c0.06			0.06							
v/c Ratio		0.51			0.51		0.49	0.46		0.89	0.62	
Uniform Delay, d1		30.8			30.8		28.9	5.7		37.1	12.2	
Progression Factor		1.14			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8			0.9		0.5	1.2		153.8	3.0	
Delay (s)		36.0			31.7		29.4	6.9		190.9	15.2	
Level of Service		D			C		C	A		F	B	
Approach Delay (s)		36.0			31.7			11.2			19.7	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

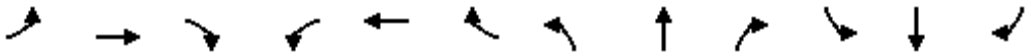
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	75	25	550	95	50	570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.97		0.98		1.00	1.00
Flt Protected	0.96		1.00		0.95	1.00
Satd. Flow (prot)	1735		1826		1770	1863
Flt Permitted	0.96		1.00		0.33	1.00
Satd. Flow (perm)	1735		1826		606	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	27	598	103	54	620
RTOR Reduction (vph)	19	0	7	0	0	0
Lane Group Flow (vph)	90	0	694	0	54	620
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	7.0		31.7		31.7	31.7
Effective Green, g (s)	7.0		31.7		31.7	31.7
Actuated g/C Ratio	0.14		0.65		0.65	0.65
Clearance Time (s)	5.0		5.0		5.0	5.0
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	249		1188		394	1212
v/s Ratio Prot	c0.05		c0.38			0.33
v/s Ratio Perm					0.09	
v/c Ratio	0.36		0.58		0.14	0.51
Uniform Delay, d1	18.8		4.8		3.3	4.4
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.3		0.5		0.1	0.2
Delay (s)	19.2		5.3		3.3	4.6
Level of Service	B		A		A	A
Approach Delay (s)	19.2		5.3			4.5
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	48.7	Sum of lost time (s)	10.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	495	840	670	150	320	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3442		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3442		1770	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	510	866	691	155	330	237
RTOR Reduction (vph)	0	0	21	0	0	186
Lane Group Flow (vph)	510	866	825	0	330	51
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	35.8	61.7	21.9		19.3	19.3
Effective Green, g (s)	35.8	61.7	21.9		19.3	19.3
Actuated g/C Ratio	0.40	0.69	0.24		0.21	0.21
Clearance Time (s)	4.0	4.5	4.5		4.5	4.5
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	704	2426	837		379	339
v/s Ratio Prot	c0.29	0.24	c0.24		c0.19	
v/s Ratio Perm						0.03
v/c Ratio	0.72	0.36	0.99		0.87	0.15
Uniform Delay, d1	22.9	5.9	33.9		34.1	28.7
Progression Factor	0.88	0.23	1.00		1.00	1.00
Incremental Delay, d2	2.7	0.2	27.8		18.6	0.1
Delay (s)	22.8	1.5	61.7		52.7	28.8
Level of Service	C	A	E		D	C
Approach Delay (s)		9.4	61.7		42.7	
Approach LOS		A	E		D	

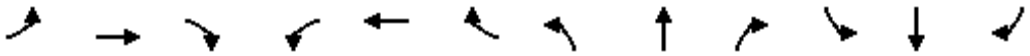
Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	5	25	40	15	15	70	380	30	15	495	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99		1.00	1.00		0.99	1.00	
Frt		0.94			0.97		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1682			1735		1770	3491		1755	1849	
Flt Permitted		0.80			0.79		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1382			1408		1770	3491		1755	1849	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	5	26	42	16	16	74	400	32	16	521	21
RTOR Reduction (vph)	0	23	0	0	14	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	40	0	0	60	0	74	428	0	16	541	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		5.6			5.6		3.5	32.8		0.4	29.7	
Effective Green, g (s)		5.6			5.6		3.5	32.8		0.4	29.7	
Actuated g/C Ratio		0.10			0.10		0.06	0.59		0.01	0.54	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		139			142		112	2070		12	993	
v/s Ratio Prot							c0.04	c0.12		0.01	c0.29	
v/s Ratio Perm		0.03			c0.04							
v/c Ratio		0.29			0.42		0.66	0.21		1.33	0.54	
Uniform Delay, d1		23.0			23.3		25.3	5.2		27.4	8.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.7		10.8	0.0		384.2	0.3	
Delay (s)		23.4			24.1		36.1	5.2		411.7	8.7	
Level of Service		C			C		D	A		F	A	
Approach Delay (s)		23.4			24.1			9.7			20.3	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

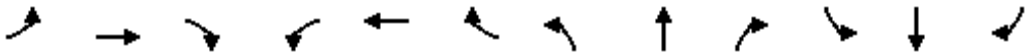
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	30	75	35	120	35	75	425	75	40	510	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9		4.4	5.8		4.4	5.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	
Frpb, ped/bikes		0.98			1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.97		1.00	0.98		1.00	1.00	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1664			1788		1770	3438		1770	1855	
Flt Permitted		0.94			0.93		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1569			1679		1770	3438		1770	1855	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	22	32	81	38	129	38	81	457	81	43	548	11
RTOR Reduction (vph)	0	64	0	0	15	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	71	0	0	190	0	81	525	0	43	559	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		15.4			15.4		6.0	41.0		3.5	38.8	
Effective Green, g (s)		15.4			15.4		6.0	41.0		3.5	38.8	
Actuated g/C Ratio		0.21			0.21		0.08	0.55		0.05	0.52	
Clearance Time (s)		4.9			4.9		4.4	5.8		4.4	5.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		322			344		141	1879		82	959	
v/s Ratio Prot							c0.05	0.15		0.02	c0.30	
v/s Ratio Perm		0.05			c0.11							
v/c Ratio		0.22			0.55		0.57	0.28		0.52	0.58	
Uniform Delay, d1		24.8			26.7		33.3	9.1		34.9	12.5	
Progression Factor		1.00			1.20		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			0.9		3.5	0.4		2.8	2.6	
Delay (s)		24.9			32.9		36.8	9.5		37.7	15.1	
Level of Service		C			C		D	A		D	B	
Approach Delay (s)		24.9			32.9			13.0			16.7	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

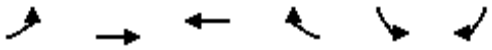
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	100	150	50	100	50	100	545	150	50	400	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		5.5	5.5		4.0	5.5	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.97		1.00	0.97		1.00	0.95	
Flt Protected		0.98	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826	1583		1778		1770	1802		1770	3316	
Flt Permitted		0.76	1.00		0.85		0.40	1.00		0.95	1.00	
Satd. Flow (perm)		1403	1583		1523		753	1802		1770	3316	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	109	163	54	109	54	109	592	163	54	435	217
RTOR Reduction (vph)	0	0	133	0	20	0	0	13	0	0	56	0
Lane Group Flow (vph)	0	163	30	0	197	0	109	742	0	54	596	0
Confl. Peds. (#/hr)	10											10
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2					
Actuated Green, G (s)		14.0	14.0		14.0		30.5	30.5		17.0	51.5	
Effective Green, g (s)		14.0	14.0		14.0		30.5	30.5		17.0	51.5	
Actuated g/C Ratio		0.19	0.19		0.19		0.41	0.41		0.23	0.69	
Clearance Time (s)		4.0	4.0		4.0		5.5	5.5		4.0	5.5	
Vehicle Extension (s)		2.0	2.0		2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		261	295		284		306	732		401	2276	
v/s Ratio Prot								c0.41		0.03	c0.18	
v/s Ratio Perm		0.12	0.02		c0.13		0.14					
v/c Ratio		0.62	0.10		0.70		0.36	1.01		0.13	0.26	
Uniform Delay, d1		28.1	25.3		28.5		15.4	22.2		23.1	4.5	
Progression Factor		1.00	1.00		0.91		1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.3	0.1		5.7		3.2	36.7		0.7	0.3	
Delay (s)		31.4	25.3		31.7		18.7	58.9		23.8	4.8	
Level of Service		C	C		C		B	E		C	A	
Approach Delay (s)		28.4			31.7			53.9			6.2	
Approach LOS		C			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



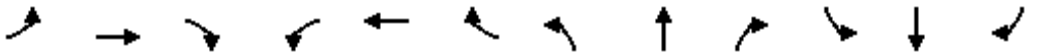
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	495	1145	710	300	210	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Total Lost time (s)	4.0	4.5	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	0.88
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1593	3539	3213		1711	2694
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1593	3539	3213		1711	2694
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	538	1245	772	326	228	424
RTOR Reduction (vph)	0	0	52	0	0	22
Lane Group Flow (vph)	538	1245	1046	0	228	402
Parking (#/hr)	0		0			
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases						6
Actuated Green, G (s)	35.1	65.1	26.5		16.4	51.5
Effective Green, g (s)	35.1	65.1	26.5		16.4	51.5
Actuated g/C Ratio	0.39	0.72	0.29		0.18	0.57
Clearance Time (s)	4.0	4.5	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	621	2559	946		311	1661
v/s Ratio Prot	c0.34	0.35	c0.33		c0.13	0.09
v/s Ratio Perm						0.05
v/c Ratio	0.87	0.49	1.11		0.73	0.24
Uniform Delay, d1	25.3	5.3	31.8		34.7	9.6
Progression Factor	1.00	1.00	0.62		1.00	1.00
Incremental Delay, d2	11.8	0.1	60.0		7.5	0.0
Delay (s)	37.0	5.4	79.5		42.2	9.6
Level of Service	D	A	E		D	A
Approach Delay (s)		14.9	79.5		21.0	
Approach LOS		B	E		C	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	40	995	320	150	710	40	40	40	30	310	40	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	11	12	12	10	10	10	11	12	11
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	1.00
Frt	1.00	0.96		1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1540	3048		1540	3118		1486	1463		1523	1509	1378
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00		0.71	1.00	1.00
Satd. Flow (perm)	1540	3048		1540	3118		1141	1463		1135	1509	1378
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	1082	348	163	772	43	43	43	33	337	43	326
RTOR Reduction (vph)	0	34	0	0	4	0	0	23	0	0	0	299
Lane Group Flow (vph)	43	1396	0	163	811	0	43	53	0	337	43	27
Confl. Peds. (#/hr)			10	10						10		10
Confl. Bikes (#/hr)			10			10						
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)											0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Over
Protected Phases	7	4		3	8			6			2	3
Permitted Phases							6			2		
Actuated Green, G (s)	3.9	42.5		7.5	46.1		26.5	26.5		26.5	26.5	7.5
Effective Green, g (s)	3.9	42.5		7.5	46.1		26.5	26.5		26.5	26.5	7.5
Actuated g/C Ratio	0.04	0.47		0.08	0.51		0.29	0.29		0.29	0.29	0.08
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	66	1439		128	1597		335	430		334	444	114
v/s Ratio Prot	0.03	c0.46		c0.11	c0.26			0.04			0.03	0.02
v/s Ratio Perm							0.04			c0.30		
v/c Ratio	0.65	0.97		1.27	0.51		0.13	0.12		1.01	0.10	0.24
Uniform Delay, d1	42.4	23.1		41.2	14.5		23.3	23.2		31.8	23.1	38.6
Progression Factor	0.86	1.16		0.70	2.23		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.4	16.2		153.2	0.7		0.1	0.0		51.5	0.0	4.9
Delay (s)	50.8	43.0		182.1	32.9		23.3	23.3		83.3	23.1	43.4
Level of Service	D	D		F	C		C	C		F	C	D
Approach Delay (s)		43.3			57.7			23.3			61.2	
Approach LOS		D			E			C			E	

Intersection Summary			
HCM 2000 Control Delay	50.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

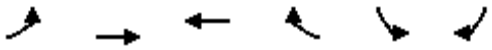
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	440	670	30	4	680	45	95	16	5	10	0	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			4.9			5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			0.99	1.00
Frt	1.00	0.99		1.00	0.99			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96			0.95	1.00
Satd. Flow (prot)	1593	3510		1770	3501			1764			1756	1549
Flt Permitted	0.95	1.00		0.95	1.00			0.76			0.74	1.00
Satd. Flow (perm)	1593	3510		1770	3501			1389			1364	1549
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	478	728	33	4	739	49	103	17	5	11	0	49
RTOR Reduction (vph)	0	3	0	0	7	0	0	3	0	0	0	42
Lane Group Flow (vph)	478	758	0	4	781	0	0	122	0	0	11	7
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Parking (#/hr)	0									0		
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	28.9	47.9		1.0	20.0			11.2			11.1	11.1
Effective Green, g (s)	28.9	47.9		1.0	20.0			11.2			11.1	11.1
Actuated g/C Ratio	0.39	0.64		0.01	0.27			0.15			0.15	0.15
Clearance Time (s)	5.0	5.0		5.0	5.0			4.9			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Lane Grp Cap (vph)	613	2241		23	933			207			201	229
v/s Ratio Prot	c0.30	0.22		0.00	c0.22							
v/s Ratio Perm								c0.09			0.01	0.00
v/c Ratio	0.78	0.34		0.17	0.84			0.59			0.05	0.03
Uniform Delay, d1	20.3	6.2		36.6	26.0			29.8			27.4	27.3
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	5.7	0.4		1.3	6.3			3.0			0.0	0.0
Delay (s)	26.0	6.7		37.9	32.3			32.8			27.5	27.4
Level of Service	C	A		D	C			C			C	C
Approach Delay (s)		14.1			32.3			32.8			27.4	
Approach LOS		B			C			C			C	

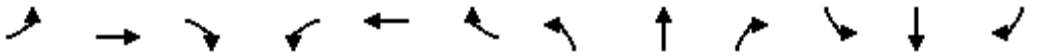
Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	305	395	425	375	320	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1433	3185	3185	1377	3036	1271
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1433	3185	3185	1377	3036	1271
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	321	416	447	395	337	168
RTOR Reduction (vph)	0	0	0	301	5	120
Lane Group Flow (vph)	321	416	447	94	349	31
Confl. Peds. (#/hr)	10			10	10	10
Parking (#/hr)	0					
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	6	6
Actuated Green, G (s)	20.8	41.1	15.3	15.3	13.3	13.3
Effective Green, g (s)	20.8	41.1	15.3	15.3	13.3	13.3
Actuated g/C Ratio	0.32	0.64	0.24	0.24	0.21	0.21
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	462	2032	756	327	627	262
v/s Ratio Prot	c0.22	0.13	c0.14			
v/s Ratio Perm				0.07	c0.12	0.02
v/c Ratio	0.69	0.20	0.59	0.29	0.56	0.12
Uniform Delay, d1	19.0	4.8	21.8	20.1	22.9	20.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	0.0	0.8	0.2	0.6	0.1
Delay (s)	22.7	4.9	22.6	20.3	23.5	20.9
Level of Service	C	A	C	C	C	C
Approach Delay (s)		12.6	21.5		22.7	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	64.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	615	40	40	725	50	25	5	25	105	10	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		0.99	1.00
Frt	1.00	0.99		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1770	3499		1770	3497			1779	1554		1772	1554
Flt Permitted	0.95	1.00		0.95	1.00			0.73	1.00		0.72	1.00
Satd. Flow (perm)	1770	3499		1770	3497			1359	1554		1337	1554
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	64	654	43	43	771	53	27	5	27	112	11	53
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	21	0	0	41
Lane Group Flow (vph)	64	694	0	43	820	0	0	32	6	0	123	12
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	3.8	21.6		2.2	20.0			11.0	11.0		11.0	11.0
Effective Green, g (s)	3.8	21.6		2.2	20.0			11.0	11.0		11.0	11.0
Actuated g/C Ratio	0.08	0.43		0.04	0.40			0.22	0.22		0.22	0.22
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	135	1517		78	1404			300	343		295	343
v/s Ratio Prot	c0.04	0.20		0.02	c0.23							
v/s Ratio Perm								0.02	0.00		c0.09	0.01
v/c Ratio	0.47	0.46		0.55	0.58			0.11	0.02		0.42	0.03
Uniform Delay, d1	22.0	10.0		23.3	11.6			15.5	15.2		16.6	15.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.0	0.1		4.7	0.4			0.1	0.0		0.3	0.0
Delay (s)	23.0	10.0		28.0	12.0			15.5	15.2		17.0	15.2
Level of Service	C	B		C	B			B	B		B	B
Approach Delay (s)		11.1			12.8			15.4			16.5	
Approach LOS		B			B			B			B	

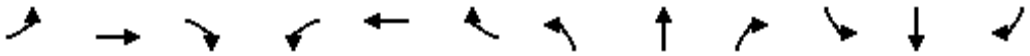
Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	49.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	20	26	577	31	44	620
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.92	0.92	0.88	0.88
Hourly flow rate (vph)	25	59	652	35	55	775
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1175			441
pX, platoon unblocked	0.82					
vC, conflicting volume	1555	344			687	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1567	344			687	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	91			94	
cM capacity (veh/h)	79	652			903	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	84	435	252	55	775
Volume Left	25	0	0	55	0
Volume Right	59	0	35	0	0
cSH	206	1700	1700	903	1700
Volume to Capacity	0.41	0.26	0.15	0.06	0.46
Queue Length 95th (ft)	46	0	0	5	0
Control Delay (s)	34.1	0.0	0.0	9.2	0.0
Lane LOS	D			A	
Approach Delay (s)	34.1	0.0		0.6	
Approach LOS	D				

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	218	22	5	1	15	39	4	107	3	32	151	241
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	304	31	7	1	21	54	6	149	3	45	211	336

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	342	77	158	592
Volume Left (vph)	304	1	6	45
Volume Right (vph)	7	54	3	336
Hadj (s)	0.20	-0.39	0.03	-0.29
Departure Headway (s)	6.4	6.5	6.4	5.3
Degree Utilization, x	0.61	0.14	0.28	0.88
Capacity (veh/h)	539	494	524	664
Control Delay (s)	18.8	10.6	11.9	34.1
Approach Delay (s)	18.8	10.6	11.9	34.1
Approach LOS	C	B	B	D

Intersection Summary			
Delay	25.1		
Level of Service	D		
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (veh/h)	5	595	705	30	32	24
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	711	690	33	35	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		748	431			
pX, platoon unblocked	0.83				0.90	0.83
vC, conflicting volume	722				1439	706
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	563				1096	543
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				83	94
cM capacity (veh/h)	837				209	448

Direction, Lane #	NB 1	NB 2	SB 1	SE 1
Volume Total	11	711	722	61
Volume Left	11	0	0	35
Volume Right	0	0	33	26
cSH	837	1700	1700	271
Volume to Capacity	0.01	0.42	0.42	0.22
Queue Length 95th (ft)	1	0	0	21
Control Delay (s)	9.4	0.0	0.0	22.1
Lane LOS	A			C
Approach Delay (s)	0.1		0.0	22.1
Approach LOS				C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	35	58	500	130	125	575
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	0.99		0.99		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.92		0.96		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1489		3382		1770	3539
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1489		3382		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	120%	100%	100%
Adj. Flow (vph)	38	63	543	170	136	625
RTOR Reduction (vph)	55	0	27	0	0	0
Lane Group Flow (vph)	46	0	686	0	136	625
Confl. Peds. (#/hr)	10	10		10	10	
Parking (#/hr)	0					
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	7.9		31.4		7.7	44.6
Effective Green, g (s)	7.9		31.4		7.7	44.6
Actuated g/C Ratio	0.13		0.50		0.12	0.71
Clearance Time (s)	5.0		5.0		5.5	5.0
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	188		1699		218	2525
v/s Ratio Prot	c0.03		c0.20		c0.08	0.18
v/s Ratio Perm						
v/c Ratio	0.24		0.40		0.62	0.25
Uniform Delay, d1	24.6		9.7		26.0	3.1
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.2		0.7		4.0	0.2
Delay (s)	24.9		10.4		30.0	3.3
Level of Service	C		B		C	A
Approach Delay (s)	24.9		10.4			8.1
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	62.5	Sum of lost time (s)	15.5
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

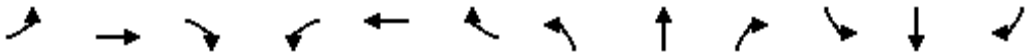
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	721	0	0	663	352	117	0	787	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5		5.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frpb, ped/bikes	1.00	1.00			1.00	0.95	1.00		0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1593	3185			3185	1356	1593		1397			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1593	3185			3185	1356	1593		1397			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor (vph)	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	121	901	0	0	829	440	146	0	984	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	276	0	0	0	0	0	0
Lane Group Flow (vph)	121	901	0	0	829	164	146	0	984	0	0	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA			NA	Perm	Prot		custom			
Protected Phases	7	4			8		2		2			
Permitted Phases						8			4			
Actuated Green, G (s)	8.1	39.4			25.8	25.8	19.0		58.4			
Effective Green, g (s)	8.1	39.4			25.8	25.8	19.0		58.4			
Actuated g/C Ratio	0.12	0.57			0.37	0.37	0.27		0.84			
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5		5.5			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0			
Lane Grp Cap (vph)	185	1808			1184	504	436		1397			
v/s Ratio Prot	0.08	0.28			0.26		0.09		c0.19			
v/s Ratio Perm						0.12			0.51			
v/c Ratio	0.65	0.50			0.70	0.32	0.33		0.70			
Uniform Delay, d1	29.3	9.0			18.5	15.6	20.1		2.1			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	6.2	0.1			1.5	0.1	0.2		1.3			
Delay (s)	35.5	9.1			20.1	15.7	20.3		3.5			
Level of Service	D	A			C	B	C		A			
Approach Delay (s)		12.2			18.6			5.7			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	69.4	Sum of lost time (s)	16.5
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	212	100	530	240	60	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	1395	3185	1369	1593	1676
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	1395	3185	1369	1593	1676
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	219	103	546	247	62	567
RTOR Reduction (vph)	0	78	0	133	0	0
Lane Group Flow (vph)	219	25	546	114	62	567
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	16.2	16.2	30.4	30.4	4.2	39.6
Effective Green, g (s)	16.2	16.2	30.4	30.4	4.2	39.6
Actuated g/C Ratio	0.25	0.25	0.46	0.46	0.06	0.60
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	392	343	1471	632	101	1008
v/s Ratio Prot	c0.14		0.17		0.04	c0.34
v/s Ratio Perm		0.02		0.08		
v/c Ratio	0.56	0.07	0.37	0.18	0.61	0.56
Uniform Delay, d1	21.7	19.0	11.5	10.4	30.0	7.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.0	0.7	0.6	7.5	2.3
Delay (s)	22.7	19.1	12.2	11.0	37.6	10.2
Level of Service	C	B	B	B	D	B
Approach Delay (s)	21.5		11.8			12.9
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	65.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	186	984	282	117	643	47	209	14	152	83	14	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1593	3185	1360	1593	3143		1583	1420		1583	1421	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.57	1.00		0.55	1.00	
Satd. Flow (perm)	1593	3185	1360	1593	3143		942	1420		916	1421	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	235	1243	356	148	812	59	264	18	192	105	18	182
RTOR Reduction (vph)	0	0	163	0	5	0	0	135	0	0	128	0
Lane Group Flow (vph)	235	1243	193	148	866	0	264	75	0	105	72	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)	15.2	35.4	35.4	11.9	32.1		26.4	26.4		26.4	26.4	
Effective Green, g (s)	15.2	35.4	35.4	11.9	32.1		26.4	26.4		26.4	26.4	
Actuated g/C Ratio	0.17	0.40	0.40	0.13	0.36		0.30	0.30		0.30	0.30	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	272	1271	542	213	1137		280	422		272	422	
v/s Ratio Prot	c0.15	c0.39		0.09	0.28			0.05			0.05	
v/s Ratio Perm			0.14				c0.28			0.11		
v/c Ratio	0.86	0.98	0.36	0.69	0.76		0.94	0.18		0.39	0.17	
Uniform Delay, d1	35.7	26.3	18.7	36.7	24.9		30.4	23.1		24.7	23.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.9	19.8	0.1	7.7	2.8		38.1	0.1		0.3	0.1	
Delay (s)	58.6	46.1	18.8	44.4	27.7		68.5	23.2		25.1	23.1	
Level of Service	E	D	B	D	C		E	C		C	C	
Approach Delay (s)		42.4			30.1			48.4			23.8	
Approach LOS		D			C			D			C	

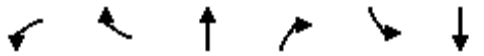
Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	88.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	90	70	700	100	40	670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	5.5	5.5	5.5
Lane Util. Factor	1.00		0.95	1.00	1.00	1.00
Frpb, ped/bikes	0.99		1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.94		1.00	0.85	1.00	1.00
Flt Protected	0.97		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1690		3539	1529	1770	1863
Flt Permitted	0.97		1.00	1.00	0.95	1.00
Satd. Flow (perm)	1690		3539	1529	1770	1863
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	72	722	103	41	691
RTOR Reduction (vph)	47	0	0	38	0	0
Lane Group Flow (vph)	118	0	722	65	41	691
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	7.1		24.0	24.0	1.3	30.8
Effective Green, g (s)	7.1		24.0	24.0	1.3	30.8
Actuated g/C Ratio	0.15		0.49	0.49	0.03	0.63
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	245		1736	750	47	1173
v/s Ratio Prot	c0.07		0.20		0.02	c0.37
v/s Ratio Perm				0.04		
v/c Ratio	0.48		0.42	0.09	0.87	0.59
Uniform Delay, d1	19.2		8.0	6.6	23.7	5.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		0.1	0.0	82.4	0.5
Delay (s)	19.8		8.0	6.6	106.1	5.8
Level of Service	B		A	A	F	A
Approach Delay (s)	19.8		7.9			11.4
Approach LOS	B		A			B

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	48.9	Sum of lost time (s)	16.5
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	30	790	100	40	720
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5		5.5	5.5
Lane Util. Factor	1.00		0.95		1.00	1.00
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.95		0.98		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1710		3466		1770	1863
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1710		3466		1770	1863
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	62	31	814	103	41	742
RTOR Reduction (vph)	27	0	10	0	0	0
Lane Group Flow (vph)	66	0	907	0	41	742
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	6.2		27.5		1.4	34.4
Effective Green, g (s)	6.2		27.5		1.4	34.4
Actuated g/C Ratio	0.12		0.53		0.03	0.67
Clearance Time (s)	5.5		5.5		5.5	5.5
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	205		1847		48	1242
v/s Ratio Prot	c0.04		0.26		0.02	c0.40
v/s Ratio Perm						
v/c Ratio	0.32		0.49		0.85	0.60
Uniform Delay, d1	20.8		7.6		25.0	4.8
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.3		0.1		74.9	0.5
Delay (s)	21.1		7.7		99.9	5.3
Level of Service	C		A		F	A
Approach Delay (s)	21.1		7.7			10.2
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	565	25	210	570	30	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	5.5	5.5	5.5
Lane Util. Factor	0.95		1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3512		1770	1863	1770	1551
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3512		1770	1863	1770	1551
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	571	25	212	576	30	328
RTOR Reduction (vph)	4	0	0	0	0	278
Lane Group Flow (vph)	592	0	212	576	30	50
Confl. Peds. (#/hr)		10	10		10	10
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	13.2		10.2	28.9	7.2	7.2
Effective Green, g (s)	13.2		10.2	28.9	7.2	7.2
Actuated g/C Ratio	0.28		0.22	0.61	0.15	0.15
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	984		383	1143	270	237
v/s Ratio Prot	c0.17		0.12	c0.31	0.02	
v/s Ratio Perm						c0.03
v/c Ratio	0.60		0.55	0.50	0.11	0.21
Uniform Delay, d1	14.7		16.4	5.1	17.2	17.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7		1.0	0.1	0.1	0.2
Delay (s)	15.4		17.4	5.2	17.3	17.6
Level of Service	B		B	A	B	B
Approach Delay (s)	15.4			8.5	17.6	
Approach LOS	B			A	B	

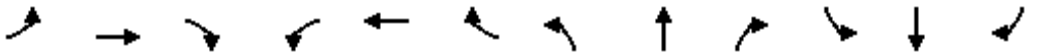
Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	47.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	50	70	200	100	50	50	400	300	15	250	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frpb, ped/bikes		0.99			1.00	0.96		1.00	0.96		0.99	
Flpb, ped/bikes		1.00			0.99	1.00		1.00	1.00		1.00	
Frt		0.93			1.00	0.85		1.00	0.85		0.98	
Flt Protected		1.00			0.97	1.00		0.99	1.00		1.00	
Satd. Flow (prot)		1699			1792	1522		1850	1521		1806	
Flt Permitted		0.97			0.75	1.00		0.93	1.00		0.98	
Satd. Flow (perm)		1648			1382	1522		1737	1521		1767	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	52	72	206	103	52	52	412	309	15	258	52
RTOR Reduction (vph)	0	52	0	0	0	23	0	0	130	0	9	0
Lane Group Flow (vph)	0	82	0	0	309	29	0	464	179	0	316	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)		18.6			18.6	18.6		39.4	39.4		39.4	
Effective Green, g (s)		18.6			18.6	18.6		39.4	39.4		39.4	
Actuated g/C Ratio		0.27			0.27	0.27		0.58	0.58		0.58	
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)		2.0			2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)		450			378	416		1006	881		1023	
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.22	0.02		c0.27	0.12		0.18	
v/c Ratio		0.18			0.82	0.07		0.46	0.20		0.31	
Uniform Delay, d1		18.9			23.1	18.3		8.2	6.8		7.3	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.1			12.2	0.0		1.5	0.5		0.8	
Delay (s)		19.0			35.3	18.3		9.7	7.3		8.1	
Level of Service		B			D	B		A	A		A	
Approach Delay (s)		19.0			32.9			8.8			8.1	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	490	75	720	90	90	30	550	225	25	20	150	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		0.91	0.91			0.95	0.95
Frpb, ped/bikes	1.00	1.00	0.96	1.00	0.99		1.00	1.00			0.99	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99			0.93	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (prot)	3433	1863	1518	1770	1780		1610	3275			1631	1467
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (perm)	3433	1863	1518	1770	1780		1610	3275			1631	1467
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	538	82	791	99	99	33	604	247	27	22	165	451
RTOR Reduction (vph)	0	0	559	0	12	0	0	4	0	0	25	236
Lane Group Flow (vph)	538	82	232	99	120	0	302	572	0	0	306	71
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4									6
Actuated Green, G (s)	16.0	23.2	23.2	4.0	11.7		28.1	28.1			23.2	23.2
Effective Green, g (s)	16.0	23.2	23.2	4.0	11.7		28.1	28.1			23.2	23.2
Actuated g/C Ratio	0.16	0.23	0.23	0.04	0.12		0.28	0.28			0.23	0.23
Clearance Time (s)	5.0	5.5	5.5	5.0	5.0		5.5	5.5			5.5	5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	549	432	352	70	208		452	920			378	340
v/s Ratio Prot	c0.16	0.04		0.06	0.07		c0.19	0.17			c0.19	
v/s Ratio Perm			c0.15									0.05
v/c Ratio	0.98	0.19	0.66	1.41	0.58		0.67	0.62			0.81	0.21
Uniform Delay, d1	41.8	30.8	34.8	48.0	41.8		31.8	31.3			36.3	31.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	32.7	0.1	3.4	251.5	2.4		7.6	3.2			11.4	0.1
Delay (s)	74.6	30.9	38.2	299.5	44.2		39.5	34.5			47.7	31.1
Level of Service	E	C	D	F	D		D	C			D	C
Approach Delay (s)		51.6			153.6			36.2			39.7	
Approach LOS		D			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	52.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

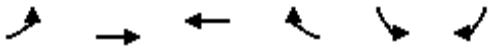
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	25	100	60	10	50	130	530	40	30	620	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.98		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.95			0.94		1.00	0.99		1.00	0.97	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1679			1678		1770	1837		1770	1784	
Flt Permitted		0.79			0.71		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1360			1223		1770	1837		1770	1784	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	27	109	65	11	54	141	576	43	33	674	190
RTOR Reduction (vph)	0	34	0	0	36	0	0	3	0	0	14	0
Lane Group Flow (vph)	0	238	0	0	94	0	141	616	0	33	850	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		16.0			16.0		8.1	43.2		1.6	36.7	
Effective Green, g (s)		16.0			16.0		8.1	43.2		1.6	36.7	
Actuated g/C Ratio		0.21			0.21		0.11	0.58		0.02	0.49	
Clearance Time (s)		4.9			4.9		4.4	4.9		4.4	4.9	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		290			260		191	1058		37	872	
v/s Ratio Prot							c0.08	0.34		0.02	c0.48	
v/s Ratio Perm		c0.18			0.08							
v/c Ratio		0.82			0.36		0.74	0.58		0.89	0.98	
Uniform Delay, d1		28.1			25.1		32.4	10.1		36.6	18.7	
Progression Factor		1.11			1.00		0.85	1.72		1.00	1.00	
Incremental Delay, d2		13.4			0.3		8.6	1.6		103.2	25.0	
Delay (s)		44.7			25.5		36.2	19.0		139.8	43.7	
Level of Service		D			C		D	B		F	D	
Approach Delay (s)		44.7			25.5			22.2			47.2	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

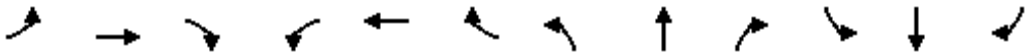
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	150	250	500	150	150	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.92		0.97		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1674		1805		1770	1863
Flt Permitted	0.98		1.00		0.24	1.00
Satd. Flow (perm)	1674		1805		455	1863
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	155	258	515	155	155	639
RTOR Reduction (vph)	76	0	18	0	0	0
Lane Group Flow (vph)	337	0	652	0	155	639
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	14.0		22.8		22.8	22.8
Effective Green, g (s)	14.0		22.8		22.8	22.8
Actuated g/C Ratio	0.30		0.49		0.49	0.49
Clearance Time (s)	5.0		5.0		5.0	5.0
Vehicle Extension (s)	2.0		2.0		2.0	2.0
Lane Grp Cap (vph)	500		879		221	907
v/s Ratio Prot	c0.20		c0.36			0.34
v/s Ratio Perm					0.34	
v/c Ratio	0.67		0.74		0.70	0.70
Uniform Delay, d1	14.4		9.6		9.3	9.4
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	2.8		3.0		7.9	2.1
Delay (s)	17.2		12.6		17.3	11.4
Level of Service	B		B		B	B
Approach Delay (s)	17.2		12.6			12.6
Approach LOS	B		B			B

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	46.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	255	700	860	425	430	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3364		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3364		1770	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	263	722	887	438	443	278
RTOR Reduction (vph)	0	0	78	0	0	199
Lane Group Flow (vph)	263	722	1247	0	443	79
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	12.9	44.6	27.7		21.4	21.4
Effective Green, g (s)	12.9	44.6	27.7		21.4	21.4
Actuated g/C Ratio	0.17	0.59	0.37		0.29	0.29
Clearance Time (s)	4.0	4.5	4.5		4.5	4.5
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	304	2104	1242		505	451
v/s Ratio Prot	c0.15	0.20	c0.37		c0.25	
v/s Ratio Perm						0.05
v/c Ratio	0.87	0.34	1.00		0.88	0.18
Uniform Delay, d1	30.2	7.7	23.7		25.5	20.2
Progression Factor	1.13	0.34	0.72		0.82	0.81
Incremental Delay, d2	11.7	0.2	23.2		11.4	0.0
Delay (s)	45.8	2.8	40.4		32.4	16.4
Level of Service	D	A	D		C	B
Approach Delay (s)		14.3	40.4		26.2	
Approach LOS		B	D		C	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



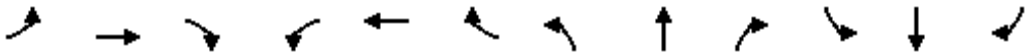
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	10	30	40	15	10	60	650	40	10	650	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99		1.00	1.00		0.99	1.00	
Frt		0.94			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1687			1748		1770	1843		1760	1843	
Flt Permitted		0.83			0.77		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1429			1387		1770	1843		1760	1843	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	11	32	42	16	11	63	684	42	11	684	42
RTOR Reduction (vph)	0	29	0	0	10	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	46	0	0	59	0	63	724	0	11	724	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		5.4			5.4		2.8	31.5		0.4	29.1	
Effective Green, g (s)		5.4			5.4		2.8	31.5		0.4	29.1	
Actuated g/C Ratio		0.10			0.10		0.05	0.59		0.01	0.54	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		143			139		92	1079		13	996	
v/s Ratio Prot							c0.04	c0.39		0.01	0.39	
v/s Ratio Perm		0.03			c0.04							
v/c Ratio		0.32			0.43		0.68	0.67		0.85	0.73	
Uniform Delay, d1		22.5			22.7		25.1	7.6		26.7	9.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.8		15.5	1.3		162.2	2.3	
Delay (s)		23.0			23.5		40.5	8.9		188.9	11.6	
Level of Service		C			C		D	A		F	B	
Approach Delay (s)		23.0			23.5			11.4			14.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	53.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	100	120	100	125	50	75	550	125	70	550	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9		4.4	5.8		4.4	5.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	1.00	
Frpb, ped/bikes		0.99			0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.98		1.00	0.97		1.00	0.98	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1723			1769		1770	3415		1770	1624	
Flt Permitted		0.71			0.72		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1255			1290		1770	3415		1770	1624	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	161	108	129	108	134	54	81	591	134	75	591	108
RTOR Reduction (vph)	0	26	0	0	12	0	0	24	0	0	8	0
Lane Group Flow (vph)	0	372	0	0	284	0	81	701	0	75	691	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Parking (#/hr)											0	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		25.3			25.3		5.2	29.7		4.9	29.7	
Effective Green, g (s)		25.3			25.3		5.2	29.7		4.9	29.7	
Actuated g/C Ratio		0.34			0.34		0.07	0.40		0.07	0.40	
Clearance Time (s)		4.9			4.9		4.4	5.8		4.4	5.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		423			435		122	1352		115	643	
v/s Ratio Prot							c0.05	0.21		0.04	c0.43	
v/s Ratio Perm		c0.30			0.22							
v/c Ratio		0.88			0.65		0.66	0.52		0.65	1.07	
Uniform Delay, d1		23.4			21.1		34.0	17.2		34.2	22.6	
Progression Factor		1.00			0.96		1.00	1.00		1.00	1.00	
Incremental Delay, d2		17.9			1.3		10.1	1.4		9.7	57.3	
Delay (s)		41.3			21.7		44.1	18.6		43.9	80.0	
Level of Service		D			C		D	B		D	E	
Approach Delay (s)		41.3			21.7			21.2			76.5	
Approach LOS		D			C			C			E	

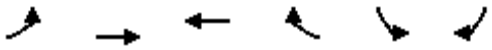
Intersection Summary			
HCM 2000 Control Delay	43.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	225	225	75	200	150	100	400	75	100	520	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		5.5	5.5		4.0	5.5	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.95		1.00	0.98		1.00	0.97	
Flt Protected		0.98	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1831	1583		1758		1770	1819		1770	3390	
Flt Permitted		0.66	1.00		0.74		0.39	1.00		0.95	1.00	
Satd. Flow (perm)		1235	1583		1309		726	1819		1770	3390	
Peak-hour factor, PHF	0.98	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.98
Adj. Flow (vph)	102	232	232	77	206	155	103	412	77	103	536	153
RTOR Reduction (vph)	0	0	157	0	26	0	0	9	0	0	34	0
Lane Group Flow (vph)	0	334	75	0	412	0	103	480	0	103	655	0
Confl. Peds. (#/hr)	10											10
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2					
Actuated Green, G (s)		24.2	24.2		24.2		30.5	30.5		6.8	41.3	
Effective Green, g (s)		24.2	24.2		24.2		30.5	30.5		6.8	41.3	
Actuated g/C Ratio		0.32	0.32		0.32		0.41	0.41		0.09	0.55	
Clearance Time (s)		4.0	4.0		4.0		5.5	5.5		4.0	5.5	
Vehicle Extension (s)		2.0	2.0		2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		398	510		422		295	739		160	1866	
v/s Ratio Prot								c0.26		c0.06	0.19	
v/s Ratio Perm		0.27	0.05		c0.31		0.14					
v/c Ratio		0.84	0.15		0.98		0.35	0.65		0.64	0.35	
Uniform Delay, d1		23.6	18.1		25.1		15.4	17.9		32.9	9.4	
Progression Factor		1.00	1.00		0.80		0.68	0.79		1.00	1.00	
Incremental Delay, d2		13.8	0.0		28.3		1.9	2.5		18.3	0.5	
Delay (s)		37.4	18.1		48.5		12.3	16.6		51.2	9.9	
Level of Service		D	B		D		B	B		D	A	
Approach Delay (s)		29.5			48.5			15.9			15.3	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



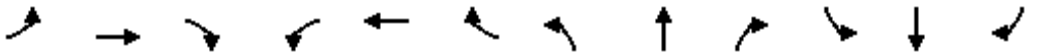
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	390	960	940	185	100	720
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Total Lost time (s)	4.0	4.5	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	0.88
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1593	3539	3452		1711	2694
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1593	3539	3452		1711	2694
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	402	990	969	191	103	742
RTOR Reduction (vph)	0	0	17	0	0	4
Lane Group Flow (vph)	402	990	1143	0	103	738
Parking (#/hr)	0					
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases						6
Actuated Green, G (s)	22.8	56.6	30.3		9.9	32.7
Effective Green, g (s)	22.8	56.6	30.3		9.9	32.7
Actuated g/C Ratio	0.30	0.75	0.40		0.13	0.44
Clearance Time (s)	4.0	4.5	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	484	2670	1394		225	1318
v/s Ratio Prot	c0.25	0.28	c0.33		0.06	c0.17
v/s Ratio Perm						0.10
v/c Ratio	0.83	0.37	0.82		0.46	0.56
Uniform Delay, d1	24.3	3.1	19.9		30.1	15.8
Progression Factor	1.00	1.00	0.95		1.10	1.15
Incremental Delay, d2	11.1	0.0	4.2		0.5	0.3
Delay (s)	35.4	3.2	23.2		33.7	18.5
Level of Service	D	A	C		C	B
Approach Delay (s)		12.5	23.2		20.3	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	40	700	320	295	795	40	40	66	40	290	50	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	11	12	12	10	10	10	11	12	11
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	1.00
Frt	1.00	0.95		1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1540	3009		1540	3121		1486	1476		1527	1509	1378
Flt Permitted	0.95	1.00		0.95	1.00		0.72	1.00		0.69	1.00	1.00
Satd. Flow (perm)	1540	3009		1540	3121		1131	1476		1104	1509	1378
Peak-hour factor, PHF	0.97	0.94	0.94	0.94	0.94	0.97	0.97	0.97	0.97	0.94	0.97	0.94
Adj. Flow (vph)	41	745	340	314	846	41	41	68	41	309	52	229
RTOR Reduction (vph)	0	71	0	0	4	0	0	28	0	0	0	190
Lane Group Flow (vph)	41	1014	0	314	883	0	41	81	0	309	52	39
Confl. Peds. (#/hr)			10	10						10		10
Confl. Bikes (#/hr)			10			10						
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)											0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Over
Protected Phases	7	4		3	8			6			2	3
Permitted Phases							6			2		
Actuated Green, G (s)	4.6	25.5		12.8	33.7		23.2	23.2		23.2	23.2	12.8
Effective Green, g (s)	4.6	25.5		12.8	33.7		23.2	23.2		23.2	23.2	12.8
Actuated g/C Ratio	0.06	0.34		0.17	0.45		0.31	0.31		0.31	0.31	0.17
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	94	1023		262	1402		349	456		341	466	235
v/s Ratio Prot	0.03	c0.34		c0.20	0.28			0.05			0.03	0.03
v/s Ratio Perm							0.04			c0.28		
v/c Ratio	0.44	0.99		1.20	0.63		0.12	0.18		0.91	0.11	0.17
Uniform Delay, d1	33.9	24.6		31.1	15.9		18.6	18.9		24.9	18.5	26.5
Progression Factor	1.28	0.87		0.70	1.57		1.00	1.00		0.88	0.76	2.23
Incremental Delay, d2	1.1	25.6		107.3	1.1		0.1	0.1		25.5	0.0	1.5
Delay (s)	44.7	47.0		129.1	26.0		18.6	19.0		47.3	14.1	60.7
Level of Service	D	D		F	C		B	B		D	B	E
Approach Delay (s)		46.9			52.9			18.9			49.6	
Approach LOS		D			D			B			D	

Intersection Summary			
HCM 2000 Control Delay	48.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



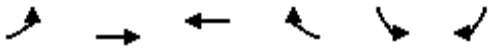
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	260	770	100	10	765	45	70	7	10	122	21	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			4.9			5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00		0.99	1.00			0.99			0.99	1.00
Frt	1.00	0.98		1.00	0.99			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96			0.96	1.00
Satd. Flow (prot)	1593	3461		1760	3505			1748			1774	1549
Flt Permitted	0.95	1.00		0.95	1.00			0.63			0.73	1.00
Satd. Flow (perm)	1593	3461		1760	3505			1153			1356	1549
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	286	846	110	11	841	49	77	8	11	134	23	495
RTOR Reduction (vph)	0	9	0	0	5	0	0	7	0	0	0	290
Lane Group Flow (vph)	286	947	0	11	885	0	0	89	0	0	157	205
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Parking (#/hr)	0											
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	17.0	44.2		0.8	28.0			15.1			15.0	15.0
Effective Green, g (s)	17.0	44.2		0.8	28.0			15.1			15.0	15.0
Actuated g/C Ratio	0.23	0.59		0.01	0.37			0.20			0.20	0.20
Clearance Time (s)	5.0	5.0		5.0	5.0			4.9			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Lane Grp Cap (vph)	361	2039		18	1308			232			271	309
v/s Ratio Prot	c0.18	0.27		0.01	c0.25							
v/s Ratio Perm								0.08			0.12	c0.13
v/c Ratio	0.79	0.46		0.61	0.68			0.38			0.58	0.66
Uniform Delay, d1	27.3	8.7		36.9	19.7			25.9			27.1	27.7
Progression Factor	1.10	0.52		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	9.5	0.7		36.2	1.1			0.4			1.9	4.1
Delay (s)	39.5	5.2		73.1	20.8			26.3			29.0	31.8
Level of Service	D	A		E	C			C			C	C
Approach Delay (s)		13.1			21.4			26.3			31.1	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	94	12	64	55	15	55	50	530	120	50	405	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.94		1.00	0.97		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1699			1693		1770	3414		1770	3485	
Flt Permitted		0.77			0.78		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1344			1346		1770	3414		1770	3485	
Peak-hour factor, PHF	0.97	0.97	0.97	0.98	0.97	0.98	0.98	0.98	0.97	0.97	0.98	0.98
Adj. Flow (vph)	97	12	66	56	15	56	51	541	124	52	413	36
RTOR Reduction (vph)	0	37	0	0	47	0	0	18	0	0	6	0
Lane Group Flow (vph)	0	138	0	0	80	0	51	647	0	52	443	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1			5	2	
Permitted Phases	4			8				6				
Actuated Green, G (s)		12.7			12.7		6.4	42.6		4.7	40.9	
Effective Green, g (s)		12.7			12.7		6.4	42.6		4.7	40.9	
Actuated g/C Ratio		0.17			0.17		0.09	0.57		0.06	0.55	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		227			227		151	1939		110	1900	
v/s Ratio Prot							0.03			c0.03	0.13	
v/s Ratio Perm		c0.10			0.06			c0.19				
v/c Ratio		0.61			0.35		0.34	0.33		0.47	0.23	
Uniform Delay, d1		28.9			27.5		32.3	8.6		34.0	8.9	
Progression Factor		1.00			1.00		0.88	1.31		1.00	1.00	
Incremental Delay, d2		3.2			0.3		0.0	0.0		1.2	0.3	
Delay (s)		32.0			27.9		28.6	11.4		35.1	9.2	
Level of Service		C			C		C	B		D	A	
Approach Delay (s)		32.0			27.9			12.6			11.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

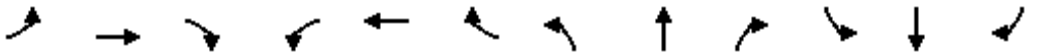
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	149	663	342	291	460	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3185	3185	1381	3046	1273
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3185	3185	1381	3046	1273
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	157	698	360	306	484	233
RTOR Reduction (vph)	0	0	0	227	4	150
Lane Group Flow (vph)	157	698	360	79	503	60
Confl. Peds. (#/hr)	10			10	10	10
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	6	6
Actuated Green, G (s)	8.3	26.4	13.1	13.1	14.6	14.6
Effective Green, g (s)	8.3	26.4	13.1	13.1	14.6	14.6
Actuated g/C Ratio	0.16	0.52	0.26	0.26	0.29	0.29
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	259	1648	818	354	871	364
v/s Ratio Prot	c0.10	c0.22	0.11			
v/s Ratio Perm				0.06	c0.17	0.05
v/c Ratio	0.61	0.42	0.44	0.22	0.58	0.17
Uniform Delay, d1	19.8	7.6	15.9	14.9	15.6	13.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	0.1	0.1	0.1	0.6	0.1
Delay (s)	22.6	7.7	16.0	15.1	16.1	13.7
Level of Service	C	A	B	B	B	B
Approach Delay (s)		10.4	15.6		15.4	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	931	35	38	523	49	24	4	24	102	7	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.99	1.00
Frt	1.00	0.99		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1770	3516		1770	3483			1776	1553		1768	1553
Flt Permitted	0.95	1.00		0.95	1.00			0.72	1.00		0.72	1.00
Satd. Flow (perm)	1770	3516		1770	3483			1336	1553		1327	1553
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	60	990	37	40	556	52	26	4	26	109	7	53
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	21	0	0	43
Lane Group Flow (vph)	60	1025	0	40	603	0	0	30	5	0	116	10
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	4.1	26.2		2.3	24.4			10.4	10.4		10.4	10.4
Effective Green, g (s)	4.1	26.2		2.3	24.4			10.4	10.4		10.4	10.4
Actuated g/C Ratio	0.08	0.49		0.04	0.45			0.19	0.19		0.19	0.19
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	134	1709		75	1576			257	299		256	299
v/s Ratio Prot	c0.03	c0.29		0.02	0.17							
v/s Ratio Perm								0.02	0.00		c0.09	0.01
v/c Ratio	0.45	0.60		0.53	0.38			0.12	0.02		0.45	0.03
Uniform Delay, d1	23.8	10.0		25.3	9.8			18.0	17.6		19.2	17.7
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.4		3.6	0.1			0.1	0.0		0.5	0.0
Delay (s)	24.7	10.4		28.9	9.8			18.0	17.6		19.7	17.7
Level of Service	C	B		C	A			B	B		B	B
Approach Delay (s)		11.2			11.0			17.8			19.1	
Approach LOS		B			B			B			B	

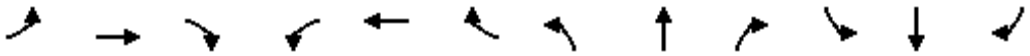
Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	53.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	30	75	695	75	80	680
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	34	85	790	85	91	773
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1175			441
pX, platoon unblocked	0.81	1.00			1.00	
vC, conflicting volume	1744	395			875	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1789	388			870	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	34	86			88	
cM capacity (veh/h)	52	609			769	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	119	395	395	85	91	773
Volume Left	34	0	0	0	91	0
Volume Right	85	0	0	85	0	0
cSH	150	1700	1700	1700	769	1700
Volume to Capacity	0.80	0.23	0.23	0.05	0.12	0.45
Queue Length 95th (ft)	126	0	0	0	10	0
Control Delay (s)	86.6	0.0	0.0	0.0	10.3	0.0
Lane LOS	F				B	
Approach Delay (s)	86.6	0.0			1.1	
Approach LOS	F					

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	218	22	5	1	15	39	4	107	3	32	151	241
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	304	31	7	1	21	54	6	149	3	45	211	336

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	342	77	158	592
Volume Left (vph)	304	1	6	45
Volume Right (vph)	7	54	3	336
Hadj (s)	0.20	-0.39	0.03	-0.29
Departure Headway (s)	6.4	6.5	6.4	5.3
Degree Utilization, x	0.61	0.14	0.28	0.88
Capacity (veh/h)	539	494	524	664
Control Delay (s)	18.8	10.6	11.9	34.1
Approach Delay (s)	18.8	10.6	11.9	34.1
Approach LOS	C	B	B	D

Intersection Summary			
Delay	25.1		
Level of Service	D		
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (veh/h)	5	735	800	50	35	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	799	870	54	38	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		748	431			
pX, platoon unblocked	0.64				0.75	0.64
vC, conflicting volume	924				1707	897
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	607				1159	564
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				76	92
cM capacity (veh/h)	626				160	338

Direction, Lane #	NB 1	NB 2	SB 1	SE 1
Volume Total	5	799	924	65
Volume Left	5	0	0	38
Volume Right	0	0	54	27
cSH	626	1700	1700	205
Volume to Capacity	0.01	0.47	0.54	0.32
Queue Length 95th (ft)	1	0	0	32
Control Delay (s)	10.8	0.0	0.0	30.5
Lane LOS	B			D
Approach Delay (s)	0.1		0.0	30.5
Approach LOS				D

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

Morena Blvd Station Area Planning Study

Appendix E:

Trip Generation Supporting Materials

Vehicle Trip Generation Comparison

Existing		Adopted Community Plan		Preferred Land Use Alternative	
Land Use Type	**Daily Vehicle Trips**	**Land Use Type**	**Daily Vehicle Trips**	**Land Use Type**	**Daily Vehicle Trips**
Commercial	68,000	Commercial	73,000	Commercial	44,000
Industrial	19,000	Industrial	20,000	Industrial	1,000
Institutional	2,000	Institutional	3,000	Institutional	-
Office	7,000	Office	7,000	Office	1,000
Residential	6,000	Residential	9,000	Residential	35,000
Total	**102,000**	**Total Trips**	**112,000**	**Total Trips**	**81,000**

Notes:

- Excludes traffic associated with University of San Diego
- Totals may not reflect exact numbers used in traffic model due to generalized land use assumptions
- See Appendix E for full trip generation inputs

Source: City of San Diego Planning, Neighborhoods & Economic Development Dept.

Morena Smart Growth Study Area : Land Use Inventory as of 4/16/2014

Existing Land Use

Existing LU Code	Existing LU Desc	Major Category	Existing DU's	Existing Floor Area/Metric	Rate	Trips Generated
1110	Single Family Detached	Residential	9	0	9.0	81
1120	Single Family Multiple-Units	Residential	21	0	9.0	189
1210	MF Residential less or equal 20 DU/acre	Residential	16	0	8.0	128
1220	MF Residential over 20 DU/acre	Residential	686	0	6.0	4,116
1300	Mobile Home Park	Residential	202	0	5.0	1,010
1409	Other Group Quarters Facility	Institutional	0	30	2.4	72
1501	Hotel (Low-Rise)	Commercial	0	101	10.0	1,010
1504	Motel	Commercial	0	13	9.0	117
2101	Industrial Park	Industrial	0	788981	16.0	12,624
2103	Light Industry - General	Industrial	0	315172	15.0	4,728
2104	Warehousing	Industrial	0	402202	5.0	2,011
2105	Public Storage	Commercial	0	100996	2.0	202
5005	Specialty Commercial (Seaport Village - Tourist)	Commercial	0	3716	40.0	149
5006	Automobile Dealership	Commercial	0	73458	50.0	3,673
5007	Arterial Commercial	Commercial	0	590787	40.0	23,631
5007	MF Residential over 20 DU/acre (mixed use development)	Residential	48	0	6.0	288
5008	Service Station	Commercial	0	8	130.0	1,040
5009	Other Retail Trade and Strip Commercial	Commercial	0	16000	40.0	640
5010	Restaurant (Fast Food with or without drive-through)	Commercial	0	9371	700.0	6,560
5011	Restaurant (High Turnover sit-down)	Commercial	0	37593	130.0	4,887
5011	MF Residential over 20 DU/acre (mixed use development)	Residential	8	0	6.0	48
5012	Restaurant (Quality)	Commercial	0	19234	100.0	1,923
5012	MF Residential over 20 DU/acre (mixed use development)	Residential	6	0	6.0	36
5014	Convenience Market Chain (Open Up to 16 Hours Per Day)	Commercial	0	10720	500.0	5,360
5015	Convenience Market Chain (Open 24 Hours)	Commercial	0	8678	375.0	3,254
5019	Furniture Store	Commercial	0	202037	6.0	1,212
5020	Nursery	Commercial	0	22651	40.0	906
5022	Financial Insitiution (with a drive-through)	Commercial	0	17134	200.0	3,427
5023	Carwash (Full service)	Commercial	0	1	900.0	900
5025	Service Station (with food mart)	Commercial	0	22	150.0	3,300
5027	Service Station (with food mart and automated carwash)	Commercial	0	8	155.0	1,240
5028	Automobile Parts Sale	Commercial	0	32825	62.0	2,035
5029	Automobile Repair Shop	Commercial	0	61172	20.0	1,223
5030	Automobile Tire Store	Commercial	0	1344	25.0	34
6002	Office (Low-Rise - less or equal to 100,000 SF)	Office	0	333572	18.9	6,305
6007	Medical Office (less or equal to 100,000 SF)	Office	0	16465	50.0	823
6102	Religious Facility (without day care)	Institutional	0	6299	5.0	31
6105	Fire/Police Station	Institutional	0	33863	30.0	1,016
6109	Other Public Services	Institutional	0	106455	10.0	1,065
6509	Other Health Care	Commercial	0	21383	50.0	1,069
7601	Park - Active	Institutional	0	0.303604224	2.5	1

Adopted Land Use

Adopted LU Code	Adopted LU Desc	Major Category	Adopted DU's	Adopted Floor Area	Rate	Trips Generated
1120	Single Family Multiple-Units	Residential	34	0	9.0	306.0
1210	MF Residential less or equal 20 DU/acre	Residential	3	0	8.0	24.0
1220	MF Residential over 20 DU/acre	Residential	700	3156	6.0	4,200.0
1300	Mobile Home Park	Residential	202	0	5.0	1,010.0
1400	Group Quarters	Institutional	0	30	2.4	72.0
1501	Hotel (Low-Rise)	Commercial	0	101	10.0	1,010.0
1504	Motel	Commercial	0	13	9.0	117.0
2101	Industrial Park	Industrial	0	806178	16.0	12,898.8
2103	Light Industry - General	Industrial	0	315172	15.0	4,727.6
2104	Warehousing	Industrial	0	402202	5.0	2,011.0
2105	Public Storage	Commercial	0	100996	2.0	202.0
5005	Specialty Commercial (Seaport Village - Tourist)	Commercial	0	2716	40.0	108.6
5006	Automobile Dealership	Commercial	0	73458	40.0	2,938.3
5007	Arterial Commercial	Commercial	0	772453	50.0	38,622.7
5007	MF Residential over 20 DU/acre (mixed use development)	Residential	519	0	6.0	3,114.0
5008	Service Station	Commercial	0	8	130.0	1,040.0
5009	Other Retail Trade and Strip Commercial	Commercial	0	16000	40.0	640.0
5010	Restaurant (Fast Food with or without drive-through)	Commercial	0	3595	700.0	2,516.5
5011	Restaurant (High Turnover sit-down)	Commercial	0	37593	130.0	4,887.1
5011	MF Residential over 20 DU/acre (mixed use development)	Residential	8		6.0	48.0
5012	Restaurant (Quality)	Commercial	0	19234	100.0	1,923.4
5012	MF Residential over 20 DU/acre (mixed use development)	Residential	6		6.0	36.0
5014	Convenience Market Chain (Open Up to 16 Hours Per Day)	Commercial	0	10720	500.0	5,360.0
5015	Convenience Market Chain (Open 24 Hours)	Commercial	0	7915	375.0	2,968.1
5019	Furniture Store	Commercial	0	202037	6.0	1,212.2
5020	Nursery	Commercial	0	22651	40.0	906.0
5022	Financial Insitiution (with a drive-through)	Commercial	0	17134	200.0	3,426.8
5023	Carwash (Full service)	Commercial	0	1	900.0	0.9
5025	Service Station (with food mart)	Commercial	0	10	150.0	1,500.0
5028	Automobile Parts Sale	Commercial	0	32825	62.0	2,035.2
5029	Automobile Repair Shop	Commercial	0	60143	20.0	1,202.9
5030	Automobile Tire Store	Commercial	0	1344	25.0	33.6
6002	Office (Low-Rise - less or equal to 100,000 SF)	Office	0	325452	18.9	6,151.0
6007	Medical Office (less or equal to 100,000 SF)	Office	0	16465	50.0	823.3
6102	Religious Facility (without day care)	Institutional	0	6299	5.0	31.5
6105	Fire/Police Station	Institutional	0	33863	30.0	1,015.9
6109	Other Public Services	Institutional	0	106455	10.0	1,064.6
6509	Other Health Care	Institutional	0	21383	50.0	1,069.2
7211	Park - Active	Institutional	0	0.303604224	2.5	0.8

Proposed Land Use

Proposed LU Code	Proposed LU Desc	Major Category	Proposed DU's	Proposed Floor Area	Rate	Trips Generated
1120	Single Family Multiple-Units	Residential	18	0	9.0	162.0
1210	MF Residential less or equal 20 DU/acre	Residential	3	0	8.0	24.0
1220	MF Residential over 20 DU/acre	Commercial	0	24581	40.0	983.2
1220	MF Residential over 20 DU/acre - Units	Residential	1637	0	6.0	9,822.0
1400	Group Quarters	Institutional	0	30	2.4	72.0
1501	Hotel (Low-Rise)	Commercial	0	101	2.4	242.4
1504	Motel	Commercial	0	13	2.4	31.2
2101	Industrial Park	Industrial	0	707923	16.0	1,132.3
2103	Light Industry - General	Industrial	0	33748	15.0	50.6
2104	Warehousing	Industrial	0	390298	5.0	195.1
2105	Public Storage	Commercial	0	100996	2.0	20.2
5004	Neighborhood Shopping Center (30,000 SF or more)	Commercial	0	40184	40.0	1,607.4
5004	Neighborhood Shopping Center (30,000 SF or more) - Units	Residential	455	0	6.0	2,730.0
5005	Specialty Commercial (Seaport Village - Tourist)	Commercial	0	2716	40.0	10.9
5006	Automobile Dealership	Commercial	0	73458	50.0	367.2
5007	Arterial Commercial	Commercial	0	738159	40.0	29,526.4
5007	Arterial Commercial - Units	Residential	3162	0	6.0	18,972.0
5008	Service Station	Commercial	0	10	130.0	1,300.0
5010	Restaurant (Fast Food with or without drive-through)	Commercial	0	3595	700.0	2,516.5
5011	Restaurant (High Turnover sit-down)	Commercial	0	28485	130.0	3,703.1
5011	Restaurant (High Turnover sit-down) - Units	Residential	8	0	6.0	48.0
5012	Restaurant (Quality)	Commercial	0	19234	100.0	1,923.4
5012	Restaurant (Quality) - Units	Residential	6	0	6.0	36.0
5014	Convenience Market Chain (Open Up to 16 Hours Per Day)	Commercial	0	4240	500.0	211.9
5015	Convenience Market Chain (Open 24 Hours)	Commercial	0	5515	375.0	206.8
5020	Nursery	Commercial	0	12557	40.0	50.2
5023	Carwash (Full service)	Commercial	0	1	900.0	900.0
5025	Service Station (with food mart)	Commercial	0	10	6.0	60.0
5028	Automobile Parts Sale	Commercial	0	4284	62.0	26.6
5029	Automobile Repair Shop	Commercial	0	14918	20.0	29.8
6002	Office (Low-Rise - less or equal to 100,000 SF)	Office	0	299543	18.9	566.0
6002	Office (Low-Rise - less or equal to 100,000 SF) - Units	Residential	535		6.0	3,210.0
6007	Medical Office (less or equal to 100,000 SF)	Office	0	16465	50.0	82.3
6102	Religious Facility (without day care)	Institutional	0	6299	5.0	3.1
6105	Fire/Police Station	Institutional	0	33863	30.0	101.6
6109	Other Public Services	Institutional	0	106455	20.0	212.8
6509	Other Health Care	Institutional	0	21383	50.0	106.9
7601	Park - Active	Institutional	0	0.303604224	2.5	0.8

City LU Code	Model Code	LU Description	Unit	Veh Trip rate
1110	112	Single Family Detached	DU	9.0
1120	113	Single Family Multiple-Units (less or equal 20 DU/acre)	DU	9.0
1120	114	Single Family Multiple-Units (over 20 DU/acre)	DU	8.0
1190	9101	Single Family Residential Without Units	acre	0.0
1210	121	MF Residential less or equal 20 DU/acre	DU	8.0
1220	122	MF Residential over 20 DU/acre	DU	6.0
1290	9101	Multi-Family Residential Without Units	acre	0.0
1300	131	Mobile Home Park	DU	5.0
1402	1412	Dormitory (USD)	bed	2.4
1409	1419	Other Group Quarters Facility (USD)	bed	2.4
1501	1511	Hotel (Low-Rise)	room	10.0
1504	1514	Motel	room	9.0
2101	2111	Industrial Park	ksf	16.0
2103	2113	Light Industry - General	ksf	15.0
2104	2114	Warehousing	ksf	5.0
2105	2115	Public Storage	ksf	2.0
4112	4112	Freeway	acre	0.0
4113	4113	Communications and Utilities	acre	2.5
4114	4114	Parking Lot - Surface	acre	0.0
4117	4112	Railroad Right of Way	acre	0.0
4118	4112	Road Right of Way	acre	0.0
5005	5055	Specialty Commercial	ksf	40.0
5006	5056	Automobile Dealership	ksf	50.0
5007	5057	Arterial Commercial	ksf	40.0
5008	5058	Service Station (pumps omly)	fueling space	130.0
5009	5059	Other Retail Trade and Strip Commercial	ksf	40.0
5010	5060	Restaurant (Fast Food with or without drive-through)	ksf	700.0
5011	5011	Restaurant (High Turnover sit-down)	ksf	130.0
5012	5012	Restaurant (Quality)	ksf	100.0
5014	5014	Convenience Market (16 hours)	ksf	500.0
5015	5015	Liquor store (open 12 hrs)	ksf	375.0
5019	5019	Furniture Store	ksf	6.0
5020	5020	Nursery	ksf	40.0
5022	5022	Financial Insitiution (with a drive-through)	ksf	200.0
5023	5023	Carwash (Full service)	site	900.0
5025	5025	Service Station (with food mart)	fueling space	150.0
5027	5027	Service Station (with food mart and automated carwash)	fueling space	155.0
5028	5028	Automobile Parts Sale	ksf	62.0
5029	5029	Automobile Repair Shop	ksf	20.0
5030	5030	Automobile Tire Store	ksf	25.0
6002	6014	Office (10.1ksf - 20ksf)	ksf	26.7
6002	6015	Office (20.1ksf - 35ksf))	ksf	23.1
6002	6016	Office (35.1ksf - 50ksf))	ksf	20.8
6002	6013	Office (5.1ksf to 10ksf)	ksf	31.6
6002	6017	Office (50.1ksf - 75ksf)	ksf	18.9
6002	6018	Office (75.1ksf - 140 ksf)	ksf	16.5
6002	6012	Office (under 5ksf))	ksf	39.0
6007	6019	Medical Office (less or equal to 100,000 SF)	ksf	50.0
6102	6122	Religious Facility (without day care)	ksf	5.0
6105	6125	Fire/Police Station	ksf	30.0
6109	6126	Other Public Services	ksf	10.0
6509	6519	Other Health Care	ksf	50.0
6802	6812	Other University or College (USD - 4 yrs college)	student	2.5
6806	6816	Elementary School	student	2.9
7201	7201	Tourist Attraction	acre	0.0
7204	7214	Golf Course	acre	8.0
7207	7207	Marina	acre	20.0
7210	7210	Other Recreation - High	acre	0.0
7211	7211	Other Recreation - Low	acre	0.0
7601	7601	Park - Active	acre	50.0
7603	7603	Open Space Park or Preserve	acre	5.0
7606	7606	Landscape Open Space	acre	0.0
7607	7607	Residential Recreation	acre	0.0
9101	9101	Vacant and Undeveloped Land	acre	0.0
9201	9200	Bay or Lagoon	acre	0.0
9500	9500	Under Construction	acre	0.0
9501	9500	Residential Under Construction	acre	0.0

EXISTING

Extg LU Code	Extg LU Desc	Extg DUs	Extg Floor Area	Prpsd Num of Pumps	Prpsd Num of Rooms	Prpsd Num of Students	Prpsd Num of Beds	Acres
1110	Single Family Detached	9	0					1.72
1120	Single Family Multiple-Units	21	0					1.04
1210	DU/acre	16	0					1.61
1220	MF Residential over 20 DU/acre	686	0					17.66
1290	Multi-Family Residential Without Units	0	0					0.09
1300	Mobile Home Park	202	0					11.39
1409	Other Group Quarters Facility	0	13225				30	0.79
1501	Hotel (Low-Rise)	0	33657		101			1.39
1504	Motel	0	4532		13			0.15
2101	Industrial Park	0	788981					37.16
2103	Light Industry - General	0	315172					17.47
2104	Warehousing	0	402202					12.81
2105	Public Storage	0	100996					2.52
4111	Rail Station/Transit Center	0						1.27
4113	Communications and Utilities	0						4.56
4114	Parking Lot - Surface	0	5055					8.43
4117	Railroad Right of Way	0						7.98
4118	Road Right of Way	0	0					0.93
5005	Tourist)	0	3716					0.21
5006	Automobile Dealership	0	73458					7.27
5007	Arterial Commercial	48	590787					26.51
5008	Service Station	0	1287	8				0.2
5009	Commercial	0	16000					0.34
5010	drive-through)	0	9371					1.43
5011	Restaurant (High Turnover sit-down)	8	37593					2.54
5012	Restaurant (Quality)	6	19234					0.62
5014	to 16 Hours Per Day)	0	10720					0.71
5015	Hours)	0	8678					0.43
5019	Furniture Store	0	202037					6.68
5020	Nursery	0	22651					1.24
5022	through)	0	17134					0.77
5023	Carwash (Full service)	0	2800					0.32
5025	Service Station (with food mart)	0	5100	22				0.76
5027	automated carwash)	0	2245	8				0.56
5028	Automobile Parts Sale	0	32825					1.05
5029	Automobile Repair Shop	0	61172					3.97
5030	Automobile Tire Store	0	1344					0.07
6002	100,000 SF)	0	333572					9.12
6007	100,000 SF)	0	16465					0.83
6102	Religious Facility (without day care)	0	6299					0.42
6105	Fire/Police Station	0	33863					4.03
6109	Other Public Services	0	106455					5.63
6509	Other Health Care	0	21383					0.77
6802	Other University or College	0	58876					2.39
7211	Other Recreation - Low	0	11345					0.34
7601	Park - Active	0	13225					0.73
7603	Open Space Park or Preserve	0	0					1.94
9101	Vacant and Undeveloped Land	0	0					8.77
9500	Under Construction	0						0.58

ADOPTED

Adptd LU Code	Adptd LU Desc	Adptd DUs	Adptd Floor Area	Adptd Num of Pumps	Adptd Num of Rooms	Adptd Num of Students	Adptd Num of Beds	Acres
1120	Multiple-Units	34	0					1.29
1210	or equal 20	3	0					0.15
1220	over 20 DU/acre	700	3156					17.69
1290	Residential	0	0					0.08
1300	Mobile Home Park	202	0					11.39
1400	Group Quarters	0	13225				30	0.79
1501	Hotel (Low-Rise)	0	33657		101			1.39
1504	Motel	0	4532		13			0.15
2101	Industrial Park	0	806178					37.16
2103	General	0	315172					17.47
2104	Warehousing	0	402202					12.81
2105	Public Storage	0	100996					2.52
4111	Center	0	0					1.27
4113	and Utilities	0	0					4.56
4114	Surface	0	0					2.06
4117	Way	0	0					7.98
4118	Road Right of Way	0	0					0.93
5005	Commercial	0	2716					0.14
5006	Dealership	0	73458					7.01
5007	Commercial	519	772453	20				43.18
5008	Service Station	0	1287	8				0.2
5009	and Strip	0	16000					0.34
5010	Food with or	0	3595					0.22
5011	Turnover sit-down)	8	37593					2.54
5012	(Quality)	6	19234					0.62
5014	Market Chain	0	10720					0.71
5015	Market Chain	0	7915					0.37
5019	Furniture Store	0	202037					6.68
5020	Nursery	0	22651					1.24
5022	Insitiution (with a	0	17134					0.77
5023	service)	0	2800					0.32
5025	(with food mart)	0	4250	10				0.47
5028	Sale	0	32825					1.05
5029	Shop	0	60143					3.6
5030	Store	0	1344					0.07
6002	less or equal to	0	325452					8.98
6007	(less or equal to	0	16465					0.83
6102	(without day care)	0	6299					0.42
6105	Fire/Police Station	0	33863					4.03
6109	Services	0	106455					5.63
6509	Other Health Care	0	21383					0.77
6802	College	0	58876					2.39
7211	Other Recreation - Low	0	11345					0.34
7601	Park - Active	0	13225					0.73
7603	Open Space Park or Preserve	0	0					1.94
9101	Vacant and Undeveloped Land	0	9414					4.94

PROPOSED

Prpsd LU Code	Prpsd LU Desc	Prpsd DUs	Prpsd Floor Area	Prpsd Num of Pumps	Prpsd Num of Rooms	Prpsd Num of Students	Prpsd Num of Beds	Acres
1120	Family	18	0					0.73
1210	Residenti	3	0					0.15
1220	Residenti	1637	24581					35.54
1290	Family	0	0					0.08
1400	Quarters	0	13225				30	0.79
1501	(Low-	0	33657		101			1.39
1504	Motel	0	4532		13			0.15
2101	Park	0	707923					33.15
2103	Industry -	0	33748					3.53
2104	ing	0	390298					12.18
2105	Storage	0	100996					2.52
4111	Station/Tr	0	0					1.27
4113	cations	0	0					4.56
4114	Lot -	0	0					1.81
4117	Right of	0	0					7.98
4118	Right of	0	0					0.14
5004	hood	455	40184					6.15
5005	Commerci	0	2716					0.14
5006	le	0	73458					7.01
5007	Commerci	3162	738159	20				59.01
5008	Station	0	1287	8				0.2
5010	t (Fast	0	3595					0.22
5011	t (High	8	28485					1.45
5012	t (Quality)	6	19234					0.62
5014	nce	0	4240					0.33
5015	nce	0	5515					0.14
5020	Nursery	0	12557					1.03
5023	(Full	0	2800					0.32
5025	Station	0	4250	10				0.47
5028	le Parts	0	4284					0.18
5029	le Repair	0	14918					0.74
6002	(Low-Rise	535	299543					14.49
6007	Office	0	16465					0.83
6102	Facility	0	6299					0.42
6105	e Station	0	33863					4.03
6109	Public	0	106455					5.63
6509	Health	0	21383					0.77
6802	University	0	58876					2.39
7211	Recreatio	0	3064					0.08
7601	Active	0	13225					0.73
7603	Space	0	0					1.94
9101	and	0	0					4.94

Morena Blvd Station Area Planning Study

Appendix E:

Intersection Volume Comparison

INTERSECTION VOLUME COMPARISON (PM PEAK HOUR)								
		Existing Conditions	Adopted Community Plan		Preferred Alternative (Mid-term)		Preferred Alternative (Long-term)	
#	**Intersecting Streets**	Volume	Volume	**Pct Change**	Volume	**Pct Change**	Volume	**Pct Change**
1	Morena & Gesner	1,174	1,227	**5%**	1,259	***7%***	1,421	***21%***
2	I-5 Northbound Ramps & Clairmont	2,791	3,720	**33%**	3,331	**19%**	3,283	**18%**
3	Morena & Ingulf	1,329	1,651	**24%**	1,540	**16%**	1,692	**27%**
4	Denver & Clairemont	2,875	4,027	**40%**	3,652	**27%**	3,448	**20%**
7	Morena & Milton	1,436	1,632	**14%**	1,686	**17%**	1,670	**16%**
8	Morena & Ashton	1,443	1,687	**17%**	1,776	**23%**	1,740	**21%**
9	Morena & West Morena *(north split)*	1,425	1,732	**22%**	1,748	**23%**	1,725	**21%**
10	Knoxville & East Morena	1,286	1,358	**6%**	1,622	**26%**	1,545	**20%**
11	Morena & Tecolote	1,958	2,257	**15%**	2,829	**44%**	2,975	**52%**
13	Morena & Buenos	1,404	1,350	**-4%**	1,607	**14%**	1,995	**42%**
14	West Morena & Morena *(south split)*	2,384	3,421	**43%**	2,555	**7%**	1,820	**-24%**
16	West Morena & Vega / Driveway	1,026	1,376	**34%**	1,670	**63%**	1,575	**54%**
17	West Morena & Buenos	1,207	1,565	**30%**	1,960	**62%**	2,115	**75%**
18	Morena & Napa & Sherman	2,660	2,987	**12%**	3,257	**22%**	2,320	**-13%**
19	Morena & Linda Vista	3,046	3,300	**8%**	3,954	**30%**	3,295	**8%**
20	Napa & Linda Vista	3,405	3,629	**7%**	3,794	**11%**	2,891	**-15%**
21	Marian Wy & Linda Vista	2,668	2,561	**-4%**	3,165	**19%**	2,630	**-1%**
22	Napa & Riley	1,459	1,614	**11%**	1,605	**10%**	1,485	**2%**
23	Napa & Friars	2,126	2,790	**31%**	2,825	**33%**	2,712	**28%**
24	Colusa & Friars	1,843	2,836	**54%**	2,767	**50%**	2,659	**44%**