

BALBOA AVENUE STATION AREA SPECIFIC PLAN

Transportation Impact Study



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EXECUTIVE SUMMARY

The Balboa Avenue station is being constructed as part of the Mid-Coast Trolley project. The Mid-Coast Trolley will extend Blue Line Trolley service from Santa Fe Depot in Downtown San Diego to the University City community, serving major activity centers such as Old Town, UC San Diego, and Westfield UTC. Construction began in fall 2016 and service is anticipated to begin in 2021. The project is being led by the San Diego Association of Governments (SANDAG).

The Balboa Avenue station is located south of Balboa Avenue, east of Interstate 5 and west of Morena Boulevard; near the border of the Pacific Beach and Clairemont communities in the City of San Diego, California. Access is provided off Morena Boulevard via two new signalized driveways; one at an existing intersection and one new bus-only driveway intersection. As part of the Mid-Coast Trolley project, the following changes to the roadway network will also occur:

- *Closure of the eastbound Balboa Avenue to Morena Boulevard Southbound ramp*
- *Widening of the northbound Interstate 5 to eastbound Balboa Avenue off-ramp from one to two lanes*
- *New traffic signal at the northbound Interstate 5 and eastbound Balboa Avenue intersection*
- *A pedestrian walkway crossing Balboa Avenue adjacent to the railroad, including access from Balboa Avenue to the pedestrian walkway on either side*
- *Reconfiguration of the ramps between Balboa Avenue and Morena Boulevard, south of Balboa Avenue*

The features included with the Mid Coast trolley project provide infrastructure and access to the site for all modes of travel, but does not provide connections beyond the immediate access points. To provide a plan for connecting the Balboa Avenue station with the surrounding communities, City of San Diego staff obtained a grant from Caltrans to develop the Balboa Avenue Station Area Specific Plan. The purpose of the grant is to encourage land uses and multimodal mobility connections that work in concert to enhance and provide access to and from the Balboa Avenue station. This document is the traffic study associated with the proposed Balboa Avenue Station Area Specific Plan.

The purpose of the study is to provide guidance on mobility decisions related to the Balboa Avenue Station Area Specific Plan and provide documentation of technical evaluations for inclusion in environmental documents. The evaluation includes walkshed coverage and qualitative evaluation for pedestrians, quantitative level of stress and qualitative evaluation for bicycle facilities and connections, and level of service and travel time calculations for vehicles including transit.

Three future year scenarios were evaluated:

- *Adopted Community Plan – this scenario uses the land uses assumed in the current Pacific Beach and Clairemont Mesa community plans with minimal changes to the existing roadway network*
- *Preferred Specific Plan – this scenario uses preferred land uses and preferred roadway network modifications within the Specific Plan area*
- *Reduced Specific Plan – this scenario uses a reduced intensity of land uses and the same roadway network modifications as the preferred scenario within the Specific Plan area*

The focus of the Specific Plan mobility network is to increase non-vehicle modes of travel while maintaining vehicular connections and operations. In some cases, prioritizing non-motorized mobility improvements within the area may hinder improvements for vehicular operations.

Active Transportation – Pedestrians

A half-mile walkshed from the Balboa Avenue station was used as the focus area for pedestrian improvements. This is considered to be a distance that most pedestrians are willing to comfortably walk to access high-frequency transit such as the Blue Line trolley. The following recommendations were made as part of the Balboa Avenue Station Area Specific Plan:

- *Remove gaps in the sidewalk network by constructing missing sidewalk areas*
- *Extend the sidewalk on the west side of Mission Bay Drive from its current northern terminus to Bluffs Avenue*
- *Provide a shared-use path along Garnet Avenue from Rose Creek to Balboa Avenue Station on the south side and from Rose Creek to Moraga Avenue on the north side*
- *Provide a shared-use path along both sides of Mission Bay Drive from Garnet Avenue to Grand Avenue; with extensions of the path north to Damon Avenue and south to Rosewood Street and connecting to Mission Bay Park*
- *Provide a shared-use path along Santa Fe Street between Garnet Avenue and Damon Avenue*
- *Provide a shared-use pedestrian and bicycle facility across the Interstate 5 freeway between the south side of the Balboa Avenue station and the corner of Bunker Hill Street and Del Rey Street*
- *Upgrade curb ramps, crosswalk striping, traffic signal operations, and implement pedestrian-focused features at intersections, such as advanced stop bars, no right turn on red signs, and pedestrian lead intervals.*
- *Implement a wayfinding signage program to guide pedestrians between the Balboa Avenue station platform and nearby attractions.*
- *Implement pedestrian-scale lighting along major pedestrian routes of travel such as Mission Bay Drive, Garnet Avenue/ Balboa Avenue and Grand Avenue as well as along the Rose Creek Path.*

With implementation of the proposed pedestrian network, the majority of the routes between the Balboa Avenue station and the adjacent communities would be considered medium or high facilities using the qualitative Pedestrian Environment Quality Evaluation.

Active Transportation – Bicycles

The Balboa Avenue Station Area Specific Plan provides a recommended bicycle network that includes a mix of separated paths (Class I), bicycle lanes (Class II) including buffers, bicycle routes (Class III), and separated bicycle facilities adjacent to roadways (Class IV). The proposed network provides more facilities with buffers or separation from vehicles than what was identified originally in the City of San Diego's Bicycle Master Plan. The following recommendations were made as part of the Balboa Avenue Station Area Specific Plan:

- *Realign intersections to remove free right turns along Garnet Avenue/Balboa Avenue*
- *Provide dedicated bicycle lanes along the south side of Garnet Avenue/Balboa Avenue. east of Mission Bay Drive*
- *Provide buffered bike lanes, where feasible, along Mission Bay Drive between Damon Avenue and Rosewood Street*
- *Provide a shared-use path along Garnet Avenue on the north side from Rose Creek to Moraga Avenue and on the south side from Rose Creek to Balboa Avenue Station*
- *Provide a shared-use path along both sides of Mission Bay Drive from Garnet Avenue to Grand Avenue; with extensions of the path north to Damon Avenue and south to Rosewood Street and connecting to Mission Bay Park*

- Provide a shared-use path along Santa Fe Street between Garnet Avenue and Damon Avenue
- Upgrade connections to Rose Creek Trail at Garnet Avenue, Magnolia Avenue, and Grand Avenue
- Upgrade Rose Creek Trail to allow for increased volume of users
- Designate Magnolia Avenue as a bicycle boulevard
- Provide a shared-use pedestrian and bicycle facility across the Interstate 5 freeway between the south side of the Balboa Avenue station and the corner of Bunker Hill Street and Del Rey Street
- Provide a Class IV cycle track on Morena Boulevard from the Balboa Avenue station to Clairemont Drive Station, where it will connect with other currently planned cycle track improvements.
- Provide buffered bike lanes along Bunker Hill Street from Mission Bay Drive to the shared-use facility across I-5

The completed network would reduce the bicycle level of traffic stress by providing facilities separated from vehicle travel lanes and along the roadways where investments are made in bicycle facilities.

Public Transit

Considering public transit as connections between the Balboa Avenue station and the adjacent areas, transit performance was evaluated primarily on auto (bus) travel time in the area. Travel time along Garnet Avenue/Balboa Avenue is similar between alternatives.

Table E-1 Garnet Avenue/ Balboa Avenue Future Travel Time Summary

Direction	Peak Period	Existing	Future Adopted	Future Preferred	Future Reduced
Eastbound	AM	321.0	373.3	324.6	322.5
	PM	337.3	417.5	378.9	375.9
Westbound	AM	292.9	307.0	288.8	291.0
	PM	305.6	344.7	341.2	338.2

Notes:

Travel Time reported in seconds.

Study corridor is between Olney Street and Clairemont Drive and approximately 1.92 miles.

Speed limit varies between 30 mph and 45 mph.

Study corridor is considered an Urban Street Class II.

To help improve travel time, the following recommendations were made for the Balboa Avenue Specific Plan:

- Provide a bus-only lane on Garnet Avenue in the eastbound direction between the I-5 overpass and Moraga Avenue

Street Network

A traffic model was prepared by SANDAG for existing and future community build-out conditions. Traffic counts obtained in 2016 and historical count data provided by City staff were used to calibrate the existing model results. Using the attributes included in the calibrated existing model and the future land uses associated with each alternative, the future volumes on the street network were estimated.

The following improvements are included as part of the Preferred Specific Plan Scenario:

Mission Bay Drive at Damon Avenue would be reconfigured to eliminate the northbound free right turn movement, and provide a larger refuge area and bicycle lane in the northeast corner.

Mission Bay Drive at Garnet Avenue would include pedestrian safety improvements, including lead pedestrian intervals, continental crosswalks, and stop bars.

Mission Bay Drive at Grand Avenue would be changed to realign the lanes in a way such that Grand Avenue becomes the through movement rather than Mission Bay Drive. Pedestrian crossings would be included in the reconfigured intersection design. This would also modify the intersection of Grand Avenue at Figueroa Drive to have two eastbound travel lanes instead of one.

Mission Bay Drive between Rosewood Street and Damon Avenue would be reconfigured to include shared-use paths, northbound and southbound, and bike lanes would also be provided between Grand Avenue and Garnet Avenue by removing the existing parking lane along both sides of Mission Bay Drive.

Balboa Avenue between Mission Bay Drive and Moraga Avenue would be reconfigured to provide improved bicycle facilities, dedicated bus areas in the eastbound direction, and removal of free right turns. This includes reconfiguration of the Morena Boulevard ramps to remove the westbound free right movements at Balboa Avenue/Garnet Avenue and remove the northbound Morena Boulevard to westbound Balboa Avenue loop ramp.

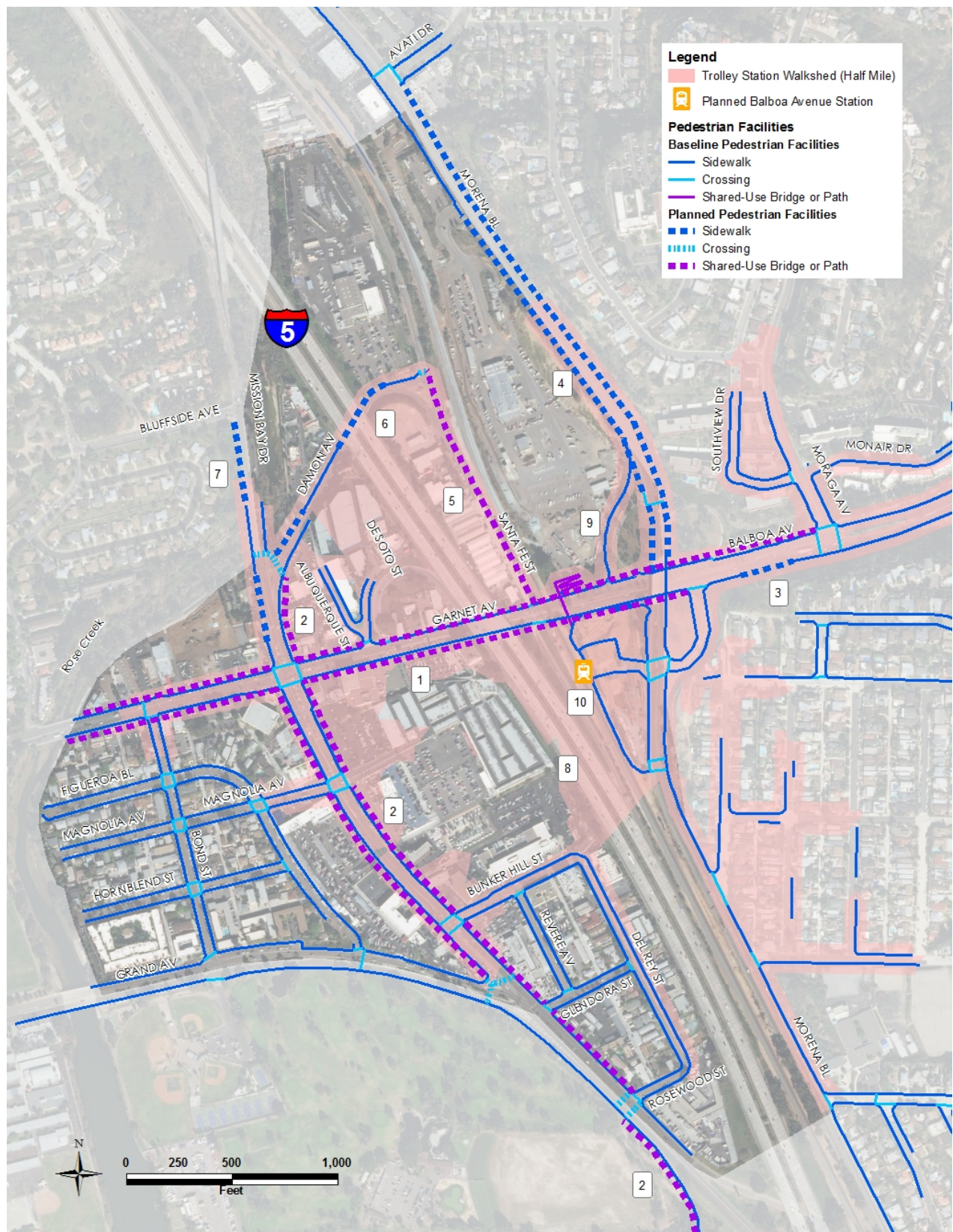


Figure E-1
Future Planned Pedestrian Network and Station Walkshed



Figure E-2
Future Planned Bicycle Facilities



Figure E-3
Mission Bay Drive at Damon Avenue

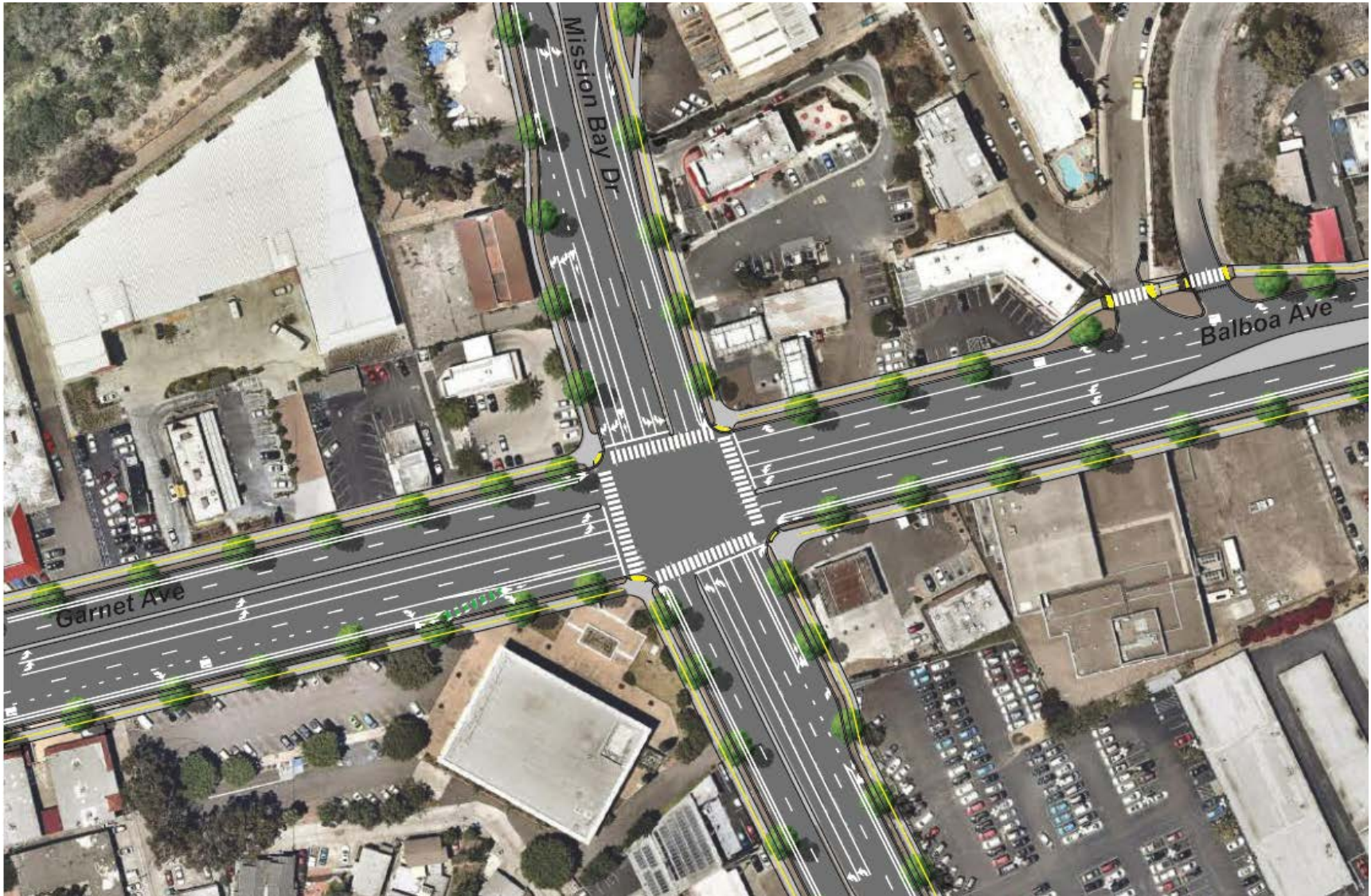


Figure E-4
Mission Bay Drive at Garnet Avenue



*Figure E-5
Balboa Avenue*



x

Figure E-6
Mission Bay Drive at Grand Avenue

Vehicle Operations

Intersections and roadway segments within the Specific Plan area were evaluated to determine if impacts are anticipated in the future year when compared against the existing setting. Impact criteria used in the evaluations are consistent with City of San Diego guidelines for determining significant impacts for a CEQA document.

Mitigations that would return operations to better than existing conditions were identified for each location that was found to have an impact. The mitigations were either recommended or not recommended, depending on the associated physical impacts to adjacent land uses, active transportation facilities, natural features, and other engineering and environmental considerations.

Table E-2 Impacted Intersection Locations

ID	Intersection	Future Adopted Conditions	Future Preferred Conditions	Future Reduced Conditions
1	Olney St at Garnet Ave	X	X	
5	Garnet Ave at Mission Bay Dr	X	X	X
7	Balboa Ave at Morena Blvd NB Ramps	X	X	X
9	Clairemont Dr at Balboa Ave	X	X	X
22	Morena Blvd at Jutland Dr	X	X	X

Table E-3 Recommended Mitigation Intersection Locations

ID	Intersection	Future Adopted Conditions	Future Preferred Conditions	Future Reduced Conditions
1	Olney St at Garnet Ave	X	X	X
5	Garnet Ave at Mission Bay Dr		X	X
7	Balboa Ave at Morena Blvd NB Ramps	X	X	X
9	Clairemont Dr at Balboa Ave			
22	Morena Blvd at Jutland Dr	X	X	X

Table E-4 Impacted Roadway Segment Locations

Roadway Segment	Future Adopted Conditions	Future Preferred Conditions	Future Reduced Conditions
Garnet Ave, Bond St to Mission Bay Dr	X		
Garnet Ave, Mission Bay Dr to I-5 SB On-Ramp	X	X	X
Garnet Ave, I-5 SB On-Ramp to I-5 NB Off-Ramp	X	X	X
Garnet Ave, I-5 NB Off-Ramp to Morena Blvd SB Ramps	X	X	X
Balboa Ave, Morena Blvd NB Ramps to Moraga Ave	X		
Balboa Ave, Moraga Ave to Clairemont Dr	X		
Balboa Ave, East of Clairemont Dr	X	X	X
Mission Bay Dr, Bluffside Ave to Damon Ave	X	X	X
Mission Bay Dr, Damon Ave to Garnet Ave	X	X	X
Mission Bay Dr, Garnet Ave to Magnolia Ave		X	X
Mission Bay Dr, Magnolia Ave to Bunker Hill St		X	X
Mission Bay Dr, Bunker Hill St to Grand Ave		X	X
Mission Bay Dr, Grand Avenue to I-5 Ramps		X	X
Clairemont Dr, Denver Street to Morena Boulevard	X	X	X

None of the changes to roadway segments required to mitigate impacts were recommended in this study.

No mitigation measures are identified for impacts to freeways because freeway improvements are not within the authority of the City. The improvements identified in SANDAG's RTP would improve operations along the freeway segments and ramps; however, to what extent is still undetermined, as these are future improvements that must be defined more over time. Furthermore, implementation of freeway improvements in a timely manner is beyond the full control of the City since Caltrans has approval authority over freeway improvements. The City will continue to coordinate with Caltrans and SANDAG on future improvements, as future project-level developments proceed, to develop potential "fair share" multi-modal mitigation strategies for freeway impacts, and address ramp capacity at impacted on-ramp locations. Improvements could include additional lanes, interchange reconfigurations, Transportation Demand Measures (TDM);

however, specific capacity improvements are still undetermined, as these are future improvements that must be defined more over time. Furthermore, implementation of freeway improvements in a timely manner is beyond the full control of the City since Caltrans has approval authority over freeway improvements.

Table E-5 Impacted Freeway Segment Locations

Freeway Segment		Future Adopted Conditions	Future Preferred Conditions	Future Reduced Conditions
I-5	SR-52 to Mission Bay Dr	X	X	X
	Mission Bay Dr to Garnet Ave/Balboa Ave	X	X	X
	Garnet Ave/Balboa Ave to Mission Bay Dr	X	X	X
	Mission Bay Dr to Clairemont Dr	X	X	X

Table E-6 Impacted Freeway Ramp Meter Locations

On Ramp	Future Adopted Conditions	Future Preferred Conditions	Future Reduced Conditions
I-5 SB & Mission Bay Dr	X	X	X
I-5 NB & Mission Bay Dr		X	X

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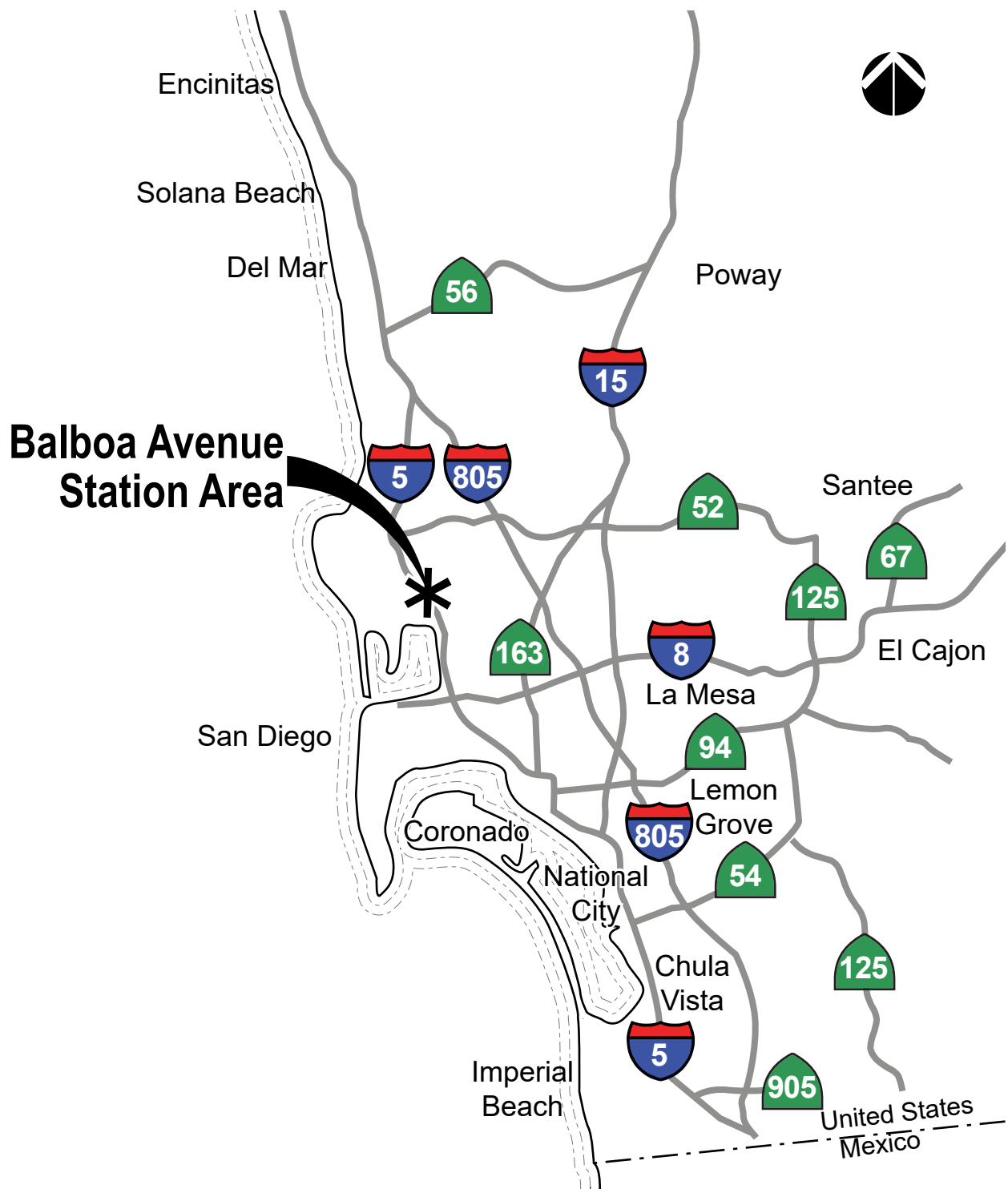
1 INTRODUCTION

The Balboa Avenue station is being constructed as part of the Mid-Coast LRT project, led by the San Diego Association of Governments (SANDAG). The City of San Diego obtained active transportation grant funding to develop a Balboa Avenue Station Area Specific Plan to identify ways to connect people to the Balboa Avenue station via all modes of travel, with a focus on active modes of transportation. This mobility assessment is part of the Balboa Avenue Area Specific Plan grant effort.

This document was prepared to determine and evaluate the traffic impacts associated with potential changes in the mobility network within the Balboa Avenue station area as part of the Specific Plan. The purpose of this report is to identify potential deficiencies and conflicts within the Specific Plan area for the Balboa Avenue station. The evaluation includes walkshed coverage and qualitative evaluation for pedestrians, quantitative level of stress and qualitative evaluation for bicycle facilities and connections, and level of service and travel time calculations for vehicles.

BACKGROUND

The Balboa Avenue Station Area Specific Plan boundary includes areas where land use and urban design opportunities may be available near the new Balboa Avenue station. The area is roughly bounded by Grand Avenue to the southwest, Rose Creek to the west, and Morena Boulevard to the east. **Figure 1-1** depicts the location of the Specific Plan area in a regional context and **Figure 1-2** shows the Specific Plan area boundary in a localized context. This evaluation includes this defined boundary area, but also extends beyond the boundary where relevant to show pedestrian and bicycle connections or additional key intersections and roadway segments.



*Figure 1-1
Regional Project Vicinity*



Figure 1-2
Specific Plan Area Boundary

2 SPECIFIC PLAN AREA FACILITIES AND ANALYSIS SCENARIOS

The following section describes the Specific Plan area and the alternatives being evaluated.

SPECIFIC PLAN AREA

INTERSECTIONS

A total of 29 intersections were selected for inclusion in the analysis of the Specific Plan area. **Table 2-1** provides a list of the intersections and assigns an identification number to each intersection for use in this study. **Figure 2-1** graphically displays the location of each of the study intersections.

Table 2-1 Study Intersections

ID	Intersection	ID	Intersection
1	Garnet Ave at Olney St	16	Mission Bay Dr at Bluffside Ave
2	Garnet Ave at Balboa Ave	17	Mission Bay Dr at Damon Ave
3	Garnet Ave at Soledad Mountain Rd	18	Mission Bay Dr at Magnolia Ave
4	Garnet Ave at Bond St	19	Mission Bay Dr at Bunker Hill St
5	Garnet Ave at Mission Bay Dr	20	Mission Bay Dr at Rosewood St
6	Garnet Ave at Santa Fe St	21	Santa Fe St at Damon Ave
7	Balboa Ave at Morena Blvd NB Ramps	22	Morena Blvd at Jutland Dr
8	Balboa Ave at Moraga Ave	23	Morena Blvd at Costco Dwy
9	Balboa Ave at Clairemont Dr	24	Morena Blvd at Avati Dr
10	Balboa Ave at Olney St	25	Morena Blvd at WB Balboa Ave Ramps
11	Grand Ave at Olney St	26	Morena Blvd at EB Balboa Ave Ramps
12	Grand Ave at Culver St	27	Morena Blvd at Baker St
13	Grand Ave at Lee St	28	Morena Blvd at Gesner St
14	Grand Ave at Figueroa Blvd	29	Balboa Ave at Morena Blvd SB Ramps
15	Grand Ave at Mission Bay Dr		

ROADWAY SEGMENTS AND CORRIDORS

A total of 29 roadway segments were selected for analyses. **Figure 2-2** graphically displays the location of each of the roadway segments and corridors in the community selected for analyses.

Two corridors were selected to have travel time analysis performed to understand the flow of traffic through the Specific Plan area: Mission Bay Drive and Garnet Avenue/ Balboa Avenue.

FREEWAY FACILITIES

Four freeway segments along I-5, bisecting the study area, were selected for analyses. Freeway on-ramps that are controlled by ramp meters within the study area were also selected for analyses.



Figure 2-1
Specific Plan Area: Intersections

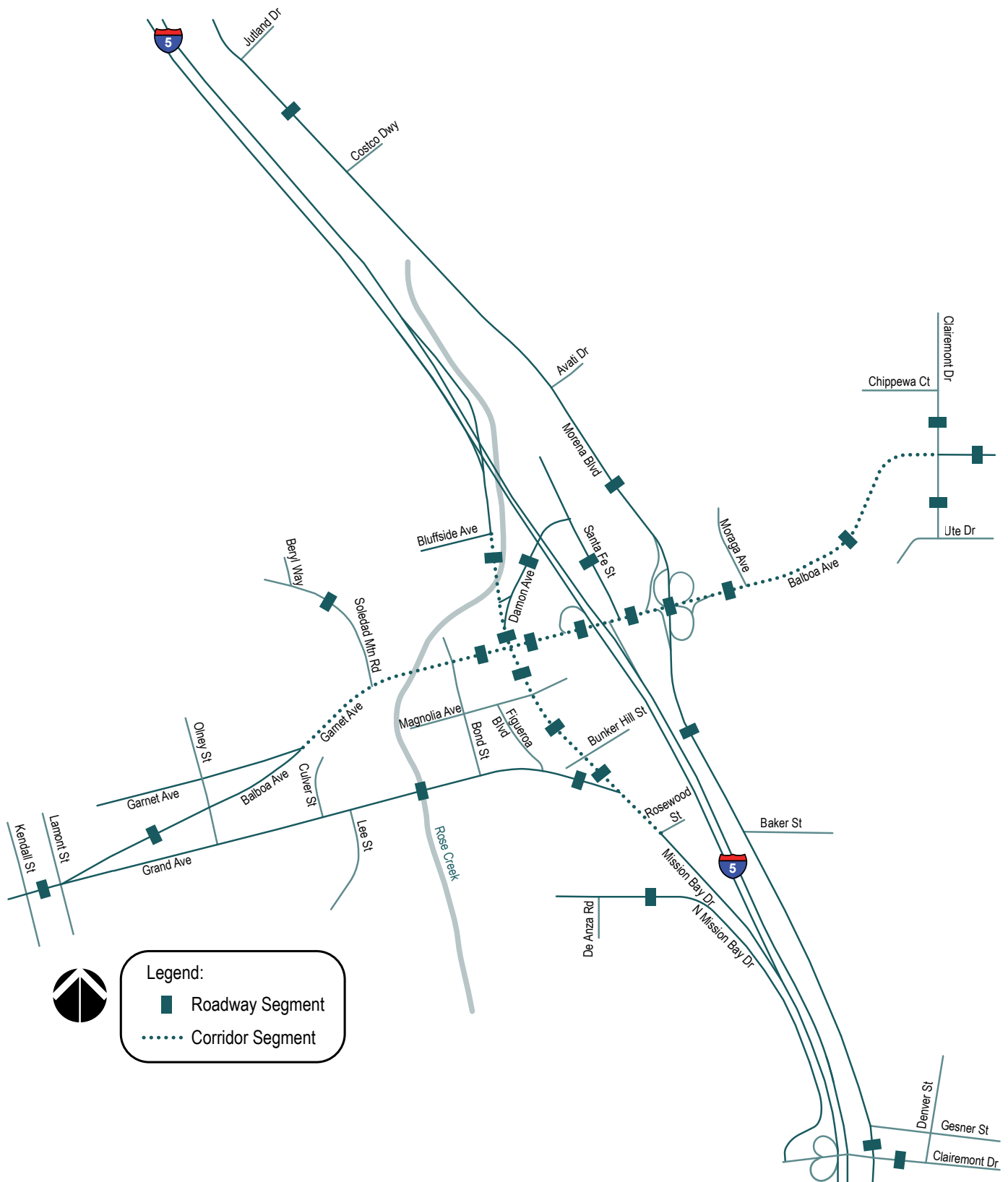


Figure 2-2
Specific Plan Area: Roadway Segments and Corridors

ANALYSIS SCENARIOS

A total of four scenarios were analyzed as part of the project.

- Existing Conditions (2016)
- Future Year – Adopted Community Plan Land Use
- Future Year – Preferred Land Use Scenario
- Future Year – Reduced Land Use Scenario

Existing Conditions

- 1) Existing Conditions: Represents the traffic conditions of the street network as it exists today.

Future Year Conditions

- 2) Future Year Adopted Community Plan Conditions: The future adopted community build-out conditions were developed based on land use and network assumptions within the Pacific Beach and Clairemont Community Plans with volumes estimated using the SANDAG 2035 regional model.
- 3) Future Year Preferred Conditions: The future preferred build-out conditions were developed based on land use and network assumptions consistent with the Preferred Specific Plan recommendations with volumes estimated using the SANDAG 2035 regional model.
- 4) Future Year Reduced Conditions: The future reduced build-out conditions were developed based on land use and network assumptions consistent with the Reduced Specific Plan recommendations with volumes estimated using the SANDAG 2035 regional model.

ANALYSES INCLUDED

The evaluation process includes the following analyses:

- Pedestrian walkshed
- Bicycle level of traffic stress
- Transit travel times using corridor speed
- Levels of service at all study intersections for the AM and PM peak periods during a typical weekday
- Levels of service for all study roadway segments for the average daily traffic and theoretical capacity based on the roadway classification
- Levels of service along study corridors based on average speed
- Levels of service of freeway facilities for the AM and PM peak hours

3 METHODOLOGY

The following section describes the methodology used to perform capacity analyses and determine significant impacts.

PEDESTRIAN WALKSHED

To assess the areas that the Balboa Avenue station provides pedestrian access to, a half-mile walkshed was created from the station platform. The walksheds were generated using the ArcGIS Network Analyst tool and the pedestrian network (with the additional assumption that residential area streets are walkable regardless if sidewalks are provided). A half-mile is considered to be a distance that most pedestrians are willing to comfortably walk to access high-frequency transit. For low-frequency transit routes, a quarter-mile walkshed from each local transit stop is considered to be the distance most pedestrians are willing to comfortably walk.

PEDESTRIAN ENVIRONMENT QUALITY EVALUATION (PEQE)

The San Francisco Department of Public Health developed a Pedestrian Environmental Quality Index approach to evaluate pedestrian facilities. It is an “observational field study” to assess the suitability of the built environment for pedestrians. The City of San Diego Mobility staff provided guidance on a modified version of that criteria, called the Pedestrian Environment Quality Evaluation (PEQE). The PEQE system considers three facility types, Segments, Intersections and Mid-Block Crossings, for scoring. Each facility type has four sub-categories, such as speed of adjacent roadway, lighting, pedestrian features, and traffic control, which are scored from 0-2 points, with improved pedestrian facilities corresponding to a higher score. The sum of the sub-categories scores (a max score of 8) is used to assign the final rank. PEQE ranks pedestrian facilities using a score of greater than 6 as “High”, from 4-6 as “Medium” and less than 4 as “Low”. The scoring criteria used in the PEQE analysis can be found in **Table 3-1**.

Table 3-1 Pedestrian Environment Quality Evaluation Scoring Criteria

Facility Type	Measure	Description/Feature	Scoring
Segment <i>between two intersections</i>	1. Horizontal Buffer	between the edge of auto travel way and the edge of clear pedestrian zone	0 point: < 6 feet 1 point: 6 - 14 feet 2 points: > 14 feet
	2. Lighting		0 point: below standard/requirement 1 point: meet standard/requirement 2 points: exceed standard/requirement
	3. Clear Pedestrian Zone	5' minimum	0 point: has obstructions 2 points: no obstruction
	4. Posted Speed Limit		0 point: > 40 mph 1 point: 30 - 40 mph 2 points: < 30 mph
Maximum			8 points
Intersection	1. Physical Feature	<ul style="list-style-type: none"> Enhanced/High Visibility Crosswalk (x4) Raised Crosswalk/Speed Table (x4) Advanced Stop Bar (x4) Bulb out/Curb Extension (x4) 	0 point: < 4 features 1 point: 5-8 features 2 points: > 8 features
	2. Operational Feature	<ul style="list-style-type: none"> Pedestrian Countdown Signal (x4) Pedestrian Lead Interval (x4) No-Turn On Red Sign/Signal (x4) Additional Pedestrian Signage (x4) 	0 point: < 4 features 1 point: 5-8 features 2 points: > 8 features
	3. ADA Curb Ramp	City of San Diego	0 point: below standard/requirement 2 points: meet standard/requirement
	4. Traffic Control		0 point: No control 1 point: Stop sign controlled 2 points: Signal/Roundabout/Traffic Circle
Maximum			8 points
Mid-block Crossing	1. Visibility		0 point: w/o high visibility crosswalk 2 points: with high visibility crosswalk
	2. Crossing Distance		0 point: no treatment 2 points: with bulb out or median pedestrian refuge
	3. ADA		0 point: below standard/requirement 2 points: meet standard/requirement
	4. Traffic Control		0 point: No control 1 point: Flashing Beacon (In-pavement, RRFB, etc) 2 points: Signal/Pedestrian Hybrid Beacon (HAWK)
Maximum			8 points

Source: Chen Ryan Associates, September 2015

Final Pedestrian Ranking System: **Low < 4 pt;** **Medium = 4 - 6 pt;** **High > 6 pt**

BICYCLE LEVEL OF TRAFFIC STRESS

The Mineta Transportation Institute published *Low-Stress Bicycling and Network Connectivity (2012)* which establishes a methodology for evaluating the level of stress for bicyclists riding on a designated bicycle facility associated with specific factors. The Mineta Transportation Institute document, developed by Mekuria et. al., used the City of San Jose as a test case to apply the methodology. This methodology applies a level of traffic stress (LTS) on a scale of LTS 1 (lowest stress) to LTS 4 (highest stress) for the following criteria:

- Roadway Classifications
- Roadway Speeds
- Bicycle Facility Type
- Bike Lane and Buffer Widths
- Intersection Control
- Bike Lane configuration at Intersections
- Parking Lane width
- Existing Transit Routes

LTS 1 facilities present little traffic stress and demand little attention from cyclists. They are suitable for almost all cyclists and attractive enough for a relaxing bike ride. LTS 2 facilities are suitable for most adult cyclists but demand more attention than might be expected from children. LTS 3 starts to introduce a stress level that not all adult cyclists feel comfortable with. LTS 4 is the highest level of stress and may be used by experienced bicyclists or not used at all.

Per the methodology guidance, both directions of a roadway segment are independently assigned a score between LTS 1 and LTS 4 based on several criteria shown in **Tables 3-2** through **3-8**. The resulting directional roadway level of traffic stress is the worst level of stress assigned to a segment from the several individual criteria scores. Where a table cell shows a result of “(no effect)”, the resulting LTS for that situation is equal to the lower adjacent LTS.

Data on roadway classifications, speeds, bicycle facility type, and intersection control were compiled using field observations of roadway segments and intersections for classified roadways in the Specific Plan area. This information was supplemented with measurement estimates and documentation of bike lane configurations at intersections taken from aerial imagery.

Table 3-2 Criteria for Bike Lanes Alongside a Parking Lane

	LTS ≥ 1	LTS ≥ 2	LTS ≥ 3	LTS ≥ 4
Street Width** (through lanes per direction)	1	(no effect)	2 or more	(no effect)
Sum of bike lane and parking lane width	15 ft. or more	14 or 14.5 ft.*	13.5 ft or less	(no effect)
Speed Limit or prevailing speed	25 mph or less	30 mph	35 mph	40 mph
Bike Lane Blockage	Rare	(no effect)	Frequent	(no effect)

Source: Mineta Transportation Institute, 2012

Note: (no effect)=factor does not trigger an increase to this level of traffic stress.

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

Table 3-3 Criteria for Bike Lanes Not Alongside a Parking Lane

	LTS ≥ 1	LTS ≥ 2	LTS ≥ 3	LTS ≥ 4
Street Width (through lanes per direction)	1	2, if directions are separated by a raised median	More than 2 or 2 without a separating median	(no effect)
Bike Lane width (includes marked buffer and paved gutter)	6 ft. or more	5.5 ft or less	(no effect)	(no effect)
Speed Limit or prevailing speed	30 mph or less	(no effect)	35 mph	40 mph or more
Bike Lane Blockage	Rare	(no effect)	Frequent	(no effect)

Source: Mineta Transportation Institute, 2012

Note: (no effect)=factor does not trigger an increase to this level of traffic stress.

Table 3-4 Criteria for Level of Traffic Stress in Mixed Traffic

Speed Limits	Street Width		
	2-3 Lanes	4-5 Lanes	6+ Lanes
Up to 25 mph	LTS 1* or 2*	LTS 3	LTS 4
30 mph	LTS 2* or 3*	LTS 4	LTS 4
35+ mph	LTS 4	LTS 4	LTS 4

Source: Mineta Transportation Institute, 2012

Note: * Use lower value for streets without marked centerlines or classified as residential and with fewer than 3 lanes; use higher values otherwise.

Table 3-5 Level of Traffic Stress Criteria for Pocket Bike Lanes

Configuration	Level of Traffic Stress
Single right-turn lane up to 150 ft. long, starting abruptly while the bike lane continues straight, and having intersection angle and curb radius such that turning speed ≤ 15 mph.	LTS ≥ 2
Single right-turn lane up to 150 ft. long, starting abruptly while the bike lane continues straight, and having intersection angle and curb radius such that turning speed ≤ 20 mph.	LTS ≥ 3
Single right-turn lane in which the bike lane shifts to the left but the intersection angle and curb radius are such that turning speed is ≤ 15 mph.	LTS ≥ 3
Single right-turn lane with any other configuration; dual right-turn lanes; or right-turn lane along with an option (through-right) lane.	LTS ≥ 4

Source: Mineta Transportation Institute, 2012

Table 3-6 Level of Traffic Stress Criteria for Mixed Traffic in the Presence of a Right-turn Lane

Configuration	Level of Traffic Stress
Single right-turn lane with length \leq 75 ft. and intersection angle and curb radius limit turning speed to 15 mph.	(No effect on LTS)
Single right-turn lane with length between 75 ft. and 150 ft., and intersection angle and curb radius limit turning speed to 15 mph.	LTS \geq 3
Otherwise	LTS = 4

Source: Mineta Transportation Institute, 2012

Table 3-7 Level of Traffic Stress Criteria for Unsignalized Crossings Without a Median Refuge

Speed Limit of Street Being Crossed	Width of Street Being Crossed		
	Up to 3 lanes	4-5 lanes	6+ lanes
Up to 25 mph	LTS 1	LTS 2	LTS 4
30 mph	LTS 1	LTS 2	LTS 4
35 mph	LTS 2	LTS 3	LTS 4
40 mph	LTS 3	LTS 4	LTS 4

Source: Mineta Transportation Institute, 2012

Table 3-8 Level of Traffic Stress Criteria for Unsignalized Crossings with a Median Refuge at Least Six Feet Wide

Speed Limit of Street Being Crossed	Width of Street Being Crossed		
	Up to 3 lanes	4-5 lanes	6+ lanes
Up to 25 mph	LTS 1	LTS 1	LTS 2
30 mph	LTS 1	LTS 2	LTS 3
35 mph	LTS 2	LTS 3	LTS 4
40 mph	LTS 3	LTS 4	LTS 4

Source: Mineta Transportation Institute, 2012

SIGNALIZED AND UNSIGNALIZED INTERSECTION LEVEL OF SERVICE

The Highway Capacity Manual (*HCM*) published by the Transportation Research Board establishes procedures to evaluate highway facilities and rate their ability to process traffic volumes. The terminology "level of service" is used to provide a qualitative evaluation based on certain quantitative calculations, which are related to empirical values. The criteria for the various levels of service designations for intersections are shown in **Table 3-9**.

Level of service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and loss of travel time. Specifically, LOS criteria is stated in terms of the average control delay per vehicle for the peak 15-minute period within the hour analyzed. The average control delay includes initial deceleration delay, queue move-up time, and final acceleration time, in addition to the stop delay.

LOS for unsignalized intersections is determined by the computed or measured control delay and is defined for each movement. At an all-way stop control intersection, the delay reported is the average control delay of all movements at the intersection. At a one-way or two-way stop control intersection, the delay reported represents the worst movement, which is typically the left-turn from the minor street approach.

Synchro 9 (Trafficware) software was used to analyze the operations of both signalized and unsignalized intersections. Synchro provides the option to report methodologies for both 2010 and 2000 editions of the HCM. The 2010 version of the HCM is similar to the 2000 HCM methodologies but focused more on specific controller set ups. Due to the changes in the 2010 HCM, there are several limitations within Synchro that do not allow results to be produced for an intersection. Some of these limitations include:

- Exclusive pedestrian phases
- Exclusive U-turn phases
- Right turn overlaps with through movements
- Permissive left turns yielding to pedestrians at a T-intersection
- Split phasing

Since 12 of the 29 intersections within the area would not be able to produce results using the 2010 HCM methodology, the 2000 HCM methodology was used for the intersection analysis.

The following list contains the assumptions used for the existing conditions intersection analyses:

- HCM 2000 methodology
- Peak-hour factor (PHF) = Measured in field PHFs were used for the analysis
- Percent of heavy vehicle (PHV) = 2 percent
- Pedestrians & Bicycles = Volumes measured in field
- Signal Timing = Existing signal timing was used for all existing signalized intersections

The acceptable Level of Service (LOS) standard for intersections in the City of San Diego is LOS D.

Table 3-9 LOS Criteria for Intersections

LOS	Control Delay (sec/veh)		Description
	Signalized Intersections (a)	Unsignalized Intersections (b)	
A	≤ 10.0	≤ 10.0	Operations with very low delay and most vehicles do not stop.
B	> 10.0 and ≤ 20.0	> 10.0 and ≤ 15.0	Operations with good progression but with some restricted movement.
C	> 20.0 and ≤ 35.0	> 15.0 and ≤ 25.0	Operations where a significant number of vehicles are stopping with some backup and light congestion.
D	> 35.0 and ≤ 55.0	> 25.0 and ≤ 35.0	Operations where congestion is noticeable, longer delays occur, and many vehicles stop. The proportion of vehicles not stopping declines
E	> 55.0 and ≤ 80.0	> 35.0 and ≤ 50.0	Operations where there is significant delay, extensive queuing, and poor progression.
F	> 80.0	> 50.0	Operations that is unacceptable to most drivers, when the arrival rates exceed the capacity of the intersection.

Notes:

(a) 2000 Highway Capacity Manual, Chapter 18, Page 6, Exhibit 18-4

(b) 2000 Highway Capacity Manual, Chapter 19, Page 2, Exhibit 19-1 and Chapter 20, Page 3, Exhibit 20-2

ROADWAY SEGMENT CAPACITY LEVEL OF SERVICE ANALYSIS

In order to determine the operations along the Specific Plan area roadway segments, capacity thresholds and associated LOS have been developed by the City of San Diego and is used as a reference. **Table 3-10** presents this information. The segment traffic volumes under LOS E as shown in this table are considered to be the capacity of the roadway. It should be noted that the values listed in the table are planning-level estimates only. The actual operations of a roadway segment would be affected by the type and frequency of traffic control, driveway density, on street parking, grade, lane width, percent of heavy vehicles, and other factors.

Table 3-10 City of San Diego Roadway Segment Capacity and LOS Summary

Road Class	Lanes	Cross Section ¹	A	B	C	D	E
Freeway	8		60,000	84,000	120,000	140,000	150,000
Freeway	6		45,000	63,000	90,000	110,000	120,000
Freeway	4		30,000	42,000	60,000	70,000	80,000
Expressway	6	102/122	30,000	42,000	60,000	70,000	80,000
Prime Arterial	8		35,000	50,000	70,000	75,000	80,000
Prime Arterial	7		30,000	42,500	60,000	65,000	70,000
Prime Arterial	6	102/122	25,000	35,000	50,000	55,000	60,000
Prime Arterial	5		22,500	31,500	45,000	50,000	55,000
Prime Arterial	4		20,000	28,000	40,000	45,000	50,000
Major Arterial	8		25,000	35,000	50,000	55,000	60,000
Major Arterial	7		22,500	31,500	45,000	50,000	55,000
Major Arterial	6	102/122	20,000	28,000	40,000	45,000	50,000
Major Arterial	5		17,500	24,500	35,000	40,000	45,000
Major Arterial	4	78/98	15,000	21,000	30,000	35,000	40,000
Major Arterial	3		11,000	15,500	22,500	26,000	30,000
Collector (w/ two-way left turn lane)	4	72/92	10,000	14,000	20,000	25,000	30,000
Collector (w/o two-way left turn lane)	4	64/84	5,000	7,000	10,000	13,000	15,000
Collector (w/ two-way left turn lane)	3		7,500	10,500	15,000	18,750	22,500
Collector (w/ two-way left turn lane)	2	50/70	5,000	7,000	10,000	13,000	15,000
Collector (No fronting property)	2	40/60	4,000	5,500	7,500	9,000	10,000
Collector (w/o two-way left turn lane)	2	40/60	2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2	36/56	---	---	2,200	---	---

Notes:

The volumes and the average daily level of service listed above are only intended as a general planning guideline. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

¹Cross Section: Curb to Curb width (feet)/Right-of-way width (feet)

Sources:

City of San Diego Traffic Impact Study Manual, Table 2, Page 8, July 1998.

City of San Diego Planning Department Mobility Staff Input

CORRIDOR SPEED ANALYSIS

Two corridors within the Specific Plan area were selected for analysis of travel time during the peak periods in addition to the estimated daily capacity; these corridors include Mission Bay Drive and Garnet Avenue/Balboa Avenue. The corridor travel time analysis is simulated using the Synchro software. The analysis was performed using the 2000 HCM methodology which provides a computation of LOS using average vehicle travel speed. This average speed is computed by adding the running time between signalized intersections assuming free flow speed along the corridor and the control delay associated with each signalized intersection. **Table 3- 11** presents the arterial LOS criteria based on the urban street class and average travel speed.

Table 3-11 HCM 2000 Urban Street LOS Criteria

Urban Street Class	I	II	III	IV
Range of free-flow speeds (FFS)	55 to 45 mi/h	45 to 35 mi/h	35 to 30 mi/h	35 to 25 mi/h
Typical FFS	50 mi/h	40 mi/h	35 mi/h	30 mi/h
LOS	Average Travel Speed (mi/h)			
A	> 42	> 35	> 30	> 25
B	>34 – 42	> 28 – 35	> 24 – 30	> 19 – 25
C	> 27 – 34	> 22 – 28	> 18 – 24	> 13 – 19
D	> 21 – 27	> 17 – 22	> 14 – 18	> 9 – 13
E	> 16 – 21	> 13 – 17	> 10 – 14	> 7 -9
F	≤ 16	≤ 13	≤ 10	≤ 7

Source: HCM 2010, Exhibit 15-2

FREEWAY SEGMENT ANALYSIS

Freeway segments were analyzed during the AM and PM peak hours based on the methodologies outlined in the 2010 HCM. The free-flow speed of each freeway segment was calculated from a base free-flow speed of 75.4 mph (HCM 2010 11-11), and factors affecting the free-flow speed of each segment including the lane width, lateral clearance, interchange density, and geometric design. Based on each segment's free-flow speed, the density was calculated, which is the primary factor for determining the segment's LOS. **Table 3-12** presents the freeway segment criteria based on density.

Table 3-12 HCM 2010 Freeway Segment LOS Criteria

LOS	Density Range (pc/mi/ln)*
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	>45

Source: HCM 2010, Exhibit 15-2

*passenger car per mile per lane

FREEWAY RAMP METER ANALYSIS

Ramp metering is a means of controlling the volume of traffic entering the freeway with the goal of improving the safety, traffic operations, and flow on the freeway main lanes. Freeway ramp meter analysis estimates the peak hour queues and delays at freeway ramps by comparing existing volumes to the meter rate at the given location. The fixed rate and uniform 15-minute maximum delay approaches are two approaches that are currently accepted by the City. The fixed rate approach is based solely on the specific time intervals that ramp meters are programmed to release traffic. The uniform 15-minute approach is based on the assumption that any demand exceeding 15-minutes will seek an alternate route or will choose to use the ramp during other time periods when the traffic demand is lower. The fixed rate approach was utilized in this study to analyze freeway ramp meters.

The excess demand at a freeway ramp forms the basis for calculating the maximum queues and maximum delays anticipated at each location. Substantial queues and delays can form where demand significantly exceeds the meter rate. This approach assumes a static rate throughout the course of the peak hour; however, Caltrans has indicated that the meter rates operate in a traffic responsive mode and based on the level of traffic using the on-ramp. To the extent possible, the meter rate in the field is set such that the queue length does not exceed the available storage, smooth flows on the freeway mainline are maintained, and there is no interference to arterial traffic.

Meter rates were provided by Caltrans and include a range between the least and most restrictive rates. Since many of the freeways currently operate at or above its capacity during the peak hours, the most restrictive rate was used for the analysis.

The following list contains the assumptions used for the existing conditions ramp meter analyses based on field observations:

- Storage length measured from recent aerials of the area
- 20% High Occupancy Vehicle (HOV)
- 80% Single Occupancy Vehicle (SOV) and evenly distributed between the SOV lanes
- 25-foot vehicle length

SIGNIFICANCE THRESHOLDS

The City of San Diego and Caltrans have developed acceptable threshold standards to determine the significance of project impacts to intersections and roadway segments. At intersections, the measurement of effectiveness (MOE) is based on allowable increases in delay. Along roadway segments and freeway segments, the MOE is based on allowable increases in the volume-to-capacity (v/c) ratio. Along corridors, the MOE is based on allowable increases in speed.

LOS F is not acceptable for any approach leg except for side streets on an interconnected arterial system. If vehicle trips from a project cause an intersection approach leg to operate at LOS F, except in the cases of side streets on an interconnected arterial system, this would be considered a significant project traffic impact that requires mitigation. At intersections that are expected to operate at LOS E or F without the project, the allowable increase in delay is two seconds at LOS E and one second at LOS F with the addition of the project. If vehicle trips from a project cause the delay at an intersection to increase by more than the allowable threshold, this would be considered a significant project impact that requires mitigation. Also, if the project causes an intersection that was operating at an acceptable LOS to operate at LOS E or F, this would be considered a significant project impact that requires mitigation.

For roadway segments that are forecasted to operate at LOS E or F with the project, the allowable increase in v/c ratio is 0.02 at LOS E and 0.01 at LOS F. If vehicle trips from a project cause the v/c ratio to increase by more than the allowable threshold, this would be considered a significant project traffic impact that requires mitigation. Also, if the project causes a street segment that was operating at an acceptable LOS to operate at LOS E or F, this would be considered a significant impact that requires mitigation.

Where the roadway segment operates at LOS E or F, if the intersections at the ends of the segment are calculated to operate at an acceptable LOS with the project; and a peak period HCM arterial analysis for the same segment shows that the segment operates at an acceptable LOS with the project; then the project impacts are determined to be less than significant and no mitigation is required. If analysis shows either the intersections or segment under the peak period HCM analysis do not operate acceptably, the project impacts are considered significant and unmitigated, requiring the adoption of findings of infeasibility and a statement of over-riding considerations before the project may be approved.

In certain instances, mitigation may not be required even if a roadway segment operates at LOS E or LOS F. In such cases the following three conditions must all be met:

1. The roadway is built to its ultimate classification per the community plan;
2. The intersections on both ends of the failing segment operate at an acceptable LOS; and
3. An HCM arterial analysis indicates an acceptable LOS on the segment.

For corridor travel times, the allowable decrease in speed is 0.5 miles per hour (mph) at LOS E and 1 mph at LOS F. If vehicle trips from a project cause the speed to decrease by more than the allowable threshold, this would be considered a significant project traffic impact that requires mitigation.

For freeway segments that are forecasted to operate at LOS E or F with the project, the allowable decrease in speeds is 1.0 mph at LOS E and 0.5 mph at LOS F. If vehicle trips from a project cause the speed to decrease by more than the allowable threshold, this would be considered a significant project traffic impact that requires mitigation. Also, if the project causes a freeway segment that was operating at an acceptable LOS to operate at LOS E or F, this would be considered a significant impact that requires mitigation.

If vehicle trips from a project cause a metered ramp with a delay of 15 minutes per vehicle or higher to increase its delay by more than 2 minutes per vehicle, this would be considered a significant project traffic impact that requires mitigation if the freeway segment operates at LOS E or F.

Table 3-13 shows the criteria for determining levels of significance for the different facilities in the Specific Plan area.

Table 3-13 Significance Criteria For Facilities in Specific Plan Area

Facility	Measures of Effectiveness (MOE)	Significance Threshold ^(a)
Intersection	Seconds of Delay	>2.0 seconds at LOS E or >1.0 second at LOS F
Roadway Segment	ADT, v/c Ratio	>0.02 at LOS E, or >0.01 at LOS F
Corridor	Speed	>1.0 mph at LOS E, or >0.5 mph at LOS F
Freeway Segment	Speed	>1.0 mph at LOS E, or >0.5 mph at LOS F
Freeway Ramp Meter	Minutes of delay per vehicle	>2.0 minutes for freeway segments operating at LOS E, or >1.0 minutes for freeway segments operating at LOS F. The criteria only apply for ramp meters where the delay without project is 15 minutes or higher.

Source: City of San Diego Significance Determination Thresholds, page 72, January 2011.

Notes:

(a) Significance threshold applies only when the type of facility operates at LOS E or F.

If a project adds any increment of delay to cause the operations of an intersection to go from LOS D to either LOS E or LOS F, then the project is considered to cause a significant impact.

4 EXISTING CONDITIONS

This section describes the existing mobility network within the Balboa Avenue Station Area Specific Plan area.

ROAD NETWORK

Table 4-1 provides a description of the existing study roadways within the Specific Plan area. Ultimate roadway classifications are taken from the Clairemont Mesa Community Plan (adopted in 1989) and Pacific Beach Community Plans (adopted in 1995). The portions of the roadways described are intended to reflect the areas within the given Specific Plan area, and may not reflect the entirety of the roadway. Functional classifications are based on field observations performed during preparation of this report. The City of San Diego Bicycle Master Plan (City BMP) proposes several bicycle facilities in the Specific Plan Area as noted in Table 4-1 as well.

Figure 4-1 shows the existing geometrics of the study intersections within the Specific Plan area.

TRAFFIC VOLUMES

Peak period intersection turning movements and roadway segment traffic data was collected by National Data and Surveying Services (NDS) and obtained in May and June of 2016 as part of the data collection process for this project. The existing traffic volume data is shown in **Figure 4-2**. Existing Counts are included in **Appendix A**.

INTERSECTION ANALYSIS

Peak period LOS analyses were performed for the morning (AM) and afternoon (PM) peak periods at each of the intersections within the Specific Plan area. The analyses represent the one-hour timeframe that experiences the highest total intersection volume at each individual location. Existing Synchro worksheets are included in **Appendix B**.

Table 4-2 presents the LOS analysis results for the study intersections.

As shown in the results, all study intersections operate at acceptable conditions (LOS A through LOS D), except for the following:

- Garnet Avenue at Mission Bay Drive (Int 5) – LOS E in the AM and PM peak periods
- Garnet Avenue at Santa Fe Street (Int 6) – LOS F in the PM peak period
- Balboa Avenue at Morena Boulevard Northbound Ramps (Int 7) – LOS F in the PM peak period
- Balboa Avenue at Clairemont Drive (Int 9) – LOS E in the PM peak period
- Mission Bay Drive at Rosewood Street (Int 20) – LOS E in the AM peak period and LOS F in the PM peak period
- Morena Boulevard at Jutland Drive (Int 22) – LOS F in the PM peak period
- Morena Boulevard at Eastbound Balboa Avenue Ramps (Int 26) – LOS F in the AM and PM peak periods
- Morena Boulevard at Baker Street (Int 27) – LOS E in the AM peak period

Table 4-1 Existing Roadway Network

Roadway Segment	Current Cross Section	Speed Limit (mph)	Community Plan Classification	Built to Ultimate?
Garnet Avenue				
Olney St to Balboa Ave	<ul style="list-style-type: none"> • 2 WB lanes/ 1 EB lanes • Continuous two-way left-turn lane • On-street parking on both sides • Sidewalk, curb and gutter on both sides 	30	4-Lane Major	No
Balboa Avenue to Soledad Mountain Rd	<ul style="list-style-type: none"> • 2 WB lanes/ 2 EB lanes • Raised center median • On-street parking on both sides • Sidewalk, curb and gutter on both sides 	35	4-Lane Major	Yes
Soledad Mountain Rd to Mission Bay Dr	<ul style="list-style-type: none"> • 2 WB lanes/ 2 EB lanes • Raised center median • No on-street parking • Sidewalk, curb and gutter on both sides 	35	6-Lane Major	No
Mission Bay Dr to I-5 NB Off Ramp	<ul style="list-style-type: none"> • 3 WB lanes/ 2 EB lanes • Raised center median • No on-street parking • Sidewalk, curb and gutter on both sides 	35	6-Lane Major	No
I-5 NB Off Ramp to Morena Blvd SB On Ramp	<ul style="list-style-type: none"> • 3 WB lanes/ 2 EB lanes(1 Aux lane in EB direction) • Raised center median • No on-street parking • Sidewalk, curb and gutter on both sides 	35	6-Lane Major	No
Balboa Avenue (CA-274)				
Morena Blvd SB Ramps to Morena Blvd NB Ramps	<ul style="list-style-type: none"> • 2 WB lanes(1 Aux lane in WB direction)/ 2 EB lanes • Raised center median • No on-street parking • Sidewalk on north side • Curb and gutter on both sides 	45	6-Lane Major	No
Morena Blvd NB Ramps to Clairemont Dr	<ul style="list-style-type: none"> • 2 WB lanes/ 2 EB lanes • Raised center median • No on-street parking • Class II (Bike Lane) facility 	45	6-Lane Major	No

Table 4-1 Existing Roadway Network (Cont.)

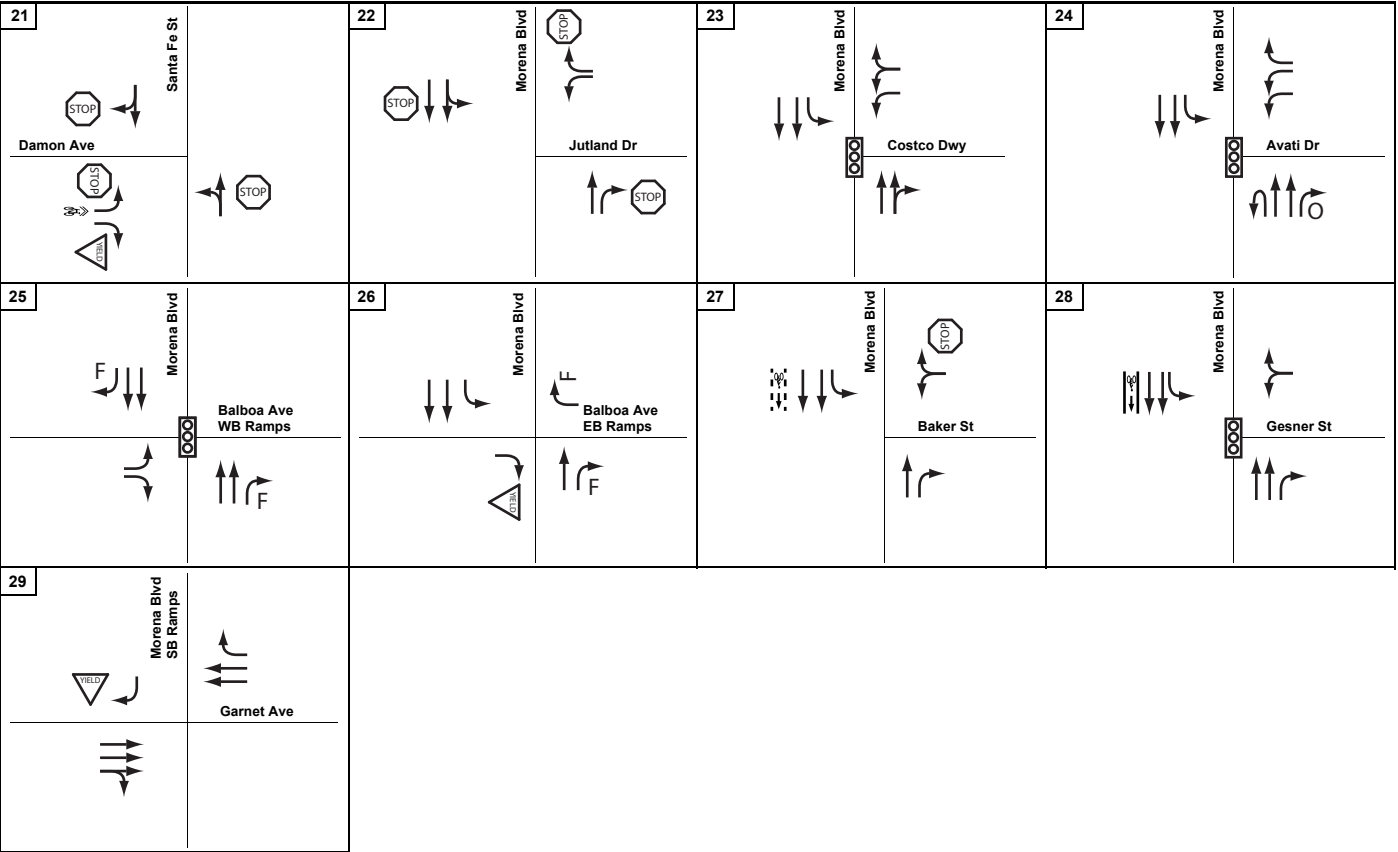
Roadway Segment	Current Cross Section	Speed Limit (mph)	Community Plan Classification	Built to Ultimate?
Mission Bay Drive				
Bluffside Ave to Rosewood St	<ul style="list-style-type: none"> • 2 NB lanes/ 2 SB lanes • Raised center median • On-street parking on both sides • Sidewalk, curb and gutter on both sides between the bridge over Rose Creek and Rosewood St 	35	4-Lane Major	Yes
Morena Boulevard				
Jutland Ave to Avati Dr	<ul style="list-style-type: none"> • 2 NB lanes/ 2 SB lanes • Continuous two-way left-turn lane • On-street parking on the west side 	45	4-Lane Collector	Yes
Avati Dr to Balboa Ave	<ul style="list-style-type: none"> • 2 NB lanes/ 2 SB lanes • Continuous two-way left-turn lane • No on-street parking 	45	4-Lane Major	Yes
Balboa Ave to Baker St	<ul style="list-style-type: none"> • 1 NB lanes/ 2 SB lanes • Raised center median • On-street parking on the east side • Sidewalk on the east side • Curb and gutter on both sides 	45	4-Lane Major	Yes
Baker St to Clairemont Dr	<ul style="list-style-type: none"> • 2 NB lanes/ 2 SB lanes • Raised center median • On-street parking on the east side • Sidewalk on the east side • Curb and gutter on both sides 	45	4-Lane Major	Yes
Clairemont Drive				
Chippewa Ct to Balboa Ave	<ul style="list-style-type: none"> • 2 NB lanes/ 2 SB lanes • Raised center median • On-street parking on the west side • Class II (Bike Lane) facility on east side • Class III (Bike Route) facility on west side • Sidewalk, curb and gutter on both sides 	35	4-Lane Major	Yes
Balboa Ave to Morena Blvd	<ul style="list-style-type: none"> • 2 NB lanes/ 2 SB lanes • Continuous two-way left-turn lane • On-street parking on both sides • Sidewalk, curb and gutter on both sides 	35	4-Lane Major	Yes
Damon Avenue				
Mission Bay Dr to Santa Fe St	<ul style="list-style-type: none"> • 1 NB lane/ 1 SB lane • On-street parking on both sides • Class III (Bike Route) facility on both sides • Sidewalk, curb and gutter on west side 	35	N/A*	Yes

Table 4-1 Existing Roadway Network (Cont.)

Roadway Segment	Current Cross Section	Speed Limit (mph)	Community Plan Classification	Built to Ultimate?
Grand Avenue				
Olney St to Mission Bay Dr	<ul style="list-style-type: none"> • 2 WB lanes/ 2 EB lanes • Raised center median • No on-street parking • Class II (Bike Lane) facility • Sidewalk, curb and gutter on both sides 	35	4-Lane Major	Yes
Santa Fe Street				
Damon Ave to Balboa Ave	<ul style="list-style-type: none"> • 1 NB lane/ 1 SB lane 	25	2 Lane Collector (w/o two-way left turn lane)	Yes
Soledad Mountain Road				
Beryl St to Garnet Ave	<ul style="list-style-type: none"> • 2 WB lanes/ 2 EB lanes • Raised center median • No on-street parking • Class II (Bike Lane) facility • Sidewalk, curb and gutter on both sides 	40	4-Lane Major	Yes

Notes:

*This roadway segment is not classified in the Pacific Beach Community Plan



LEGEND

Intersection Control

Signalized Intersection
 Stop Controlled Approach
 Yield Controlled Movement

Bicycle Facilities

Through Bicycle Lane ('Bicycle Pocket')
 Striped Bicycle Lane Merge

F

 Free Right-Turn

O

 Right-Turn Overlap

HOV

 HOV Only Movement

Figure 4-1
Existing Intersection Geometrics (Cont.)

4-6

Balboa Avenue Station Area Specific Plan | Traffic Impact Study
December 2017

<div>1</div> <div><div><div>↻</div><div>↻</div><div>↻</div></div><div>7 / 22</div><div>82 / 44</div><div>96 / 71</div></div> <div>Olney Street</div> <div><div>↻</div><div>↻</div><div>↻</div></div> <div>16 / 34</div> <div>503 / 989</div> <div>4 / 18</div>
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Garnet Ave

↻

↻

↻

28 / 105

55 / 83

17 / 21

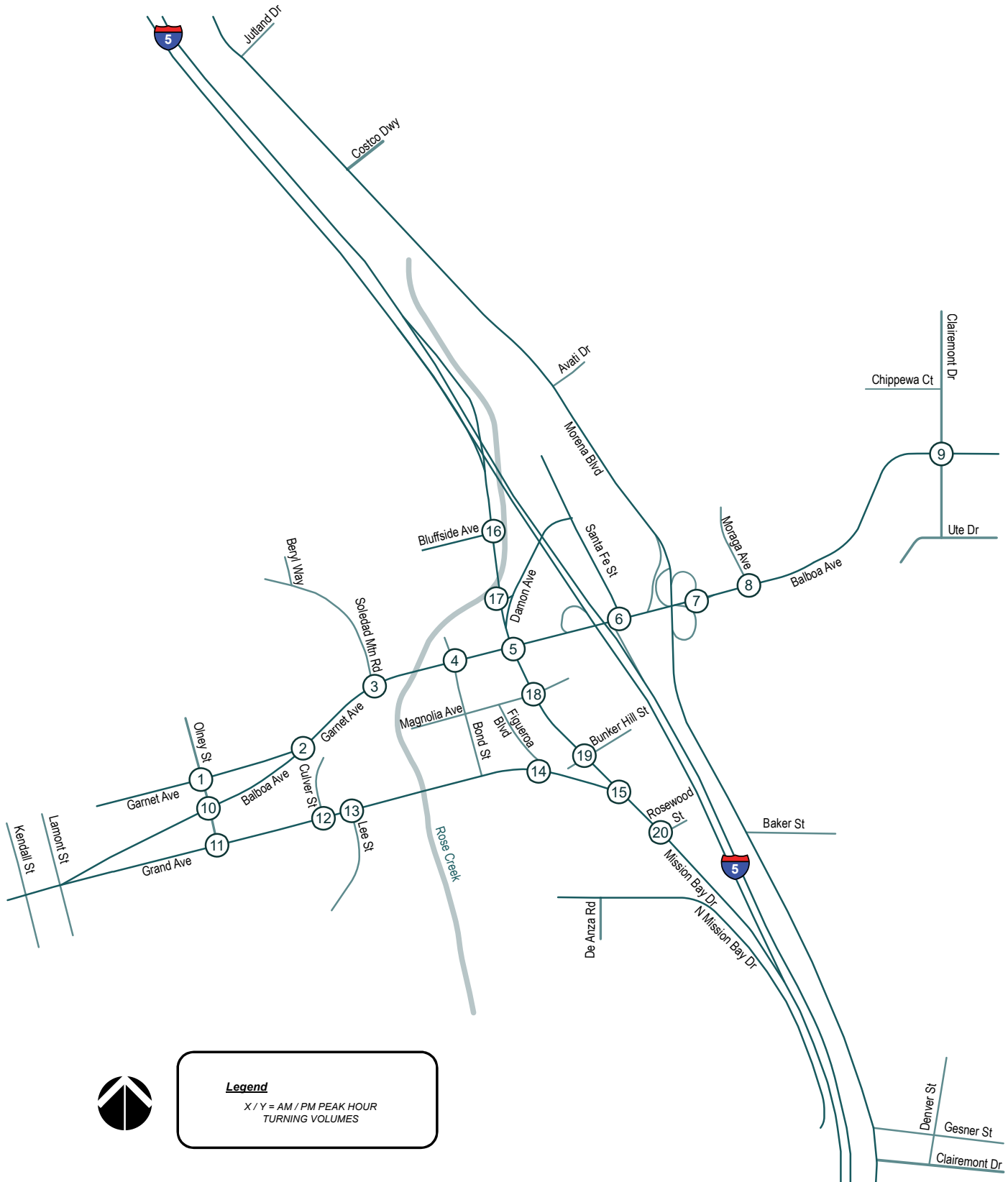


Figure 4-2
Existing Peak Period Volumes

21	68 / 120 ↕ ↕ Damon Ave	Santa Fe St	22	129 / 233 ↕ ↕ Morena Blvd	28 / 24 ↕ ↕ Jutland Dr	23	241 / 745 ↕ ↕ Morena Blvd	46 / 70 ↕ ↕ Costco Dwy	24	312 / 1122 ↕ ↕ Morena Blvd	33 / 44 ↕ ↕ Avati Dr
	99 / 84 ↕	↕ ↕ 19 / 66 90 / 39		↕ ↕ 162 / 539	↕ ↕ 553 / 259 128 / 361		↕ ↕ 714 / 580 119 / 194				
	31 / 55 ↕			↕ ↕ 195 / 135 378 / 242							
25	377 / 629 ↕ ↕ Balboa WB Ramps	Morena Blvd	26	240 / 800 ↕ ↕ Balboa EB Ramps	262 / 514 ↕	27	354 / 1012 ↕ ↕ Morena Blvd	29 / 23 ↕ ↕ Baker St	28	351 / 928 ↕ ↕ Morena Blvd	47 / 84 ↕ ↕ Gesner St
	73 / 111 ↕	↕ ↕ 784 / 731 290 / 197		↕ ↕ 141 / 323 ↕	↕ ↕ 946 / 465 19 / 14		↕ ↕ 895 / 416 40 / 43				
	94 / 205 ↕			↕ ↕ 799 / 404 219 / 119							
29	377 / 629 ↕ ↕ Garnet Ave	Morena SB Ramps									
	↕ ↕ 167 / 316 1531 / 1459	Balboa Ave									
	1358 / 1951 141 / 323 ↕ ↕										

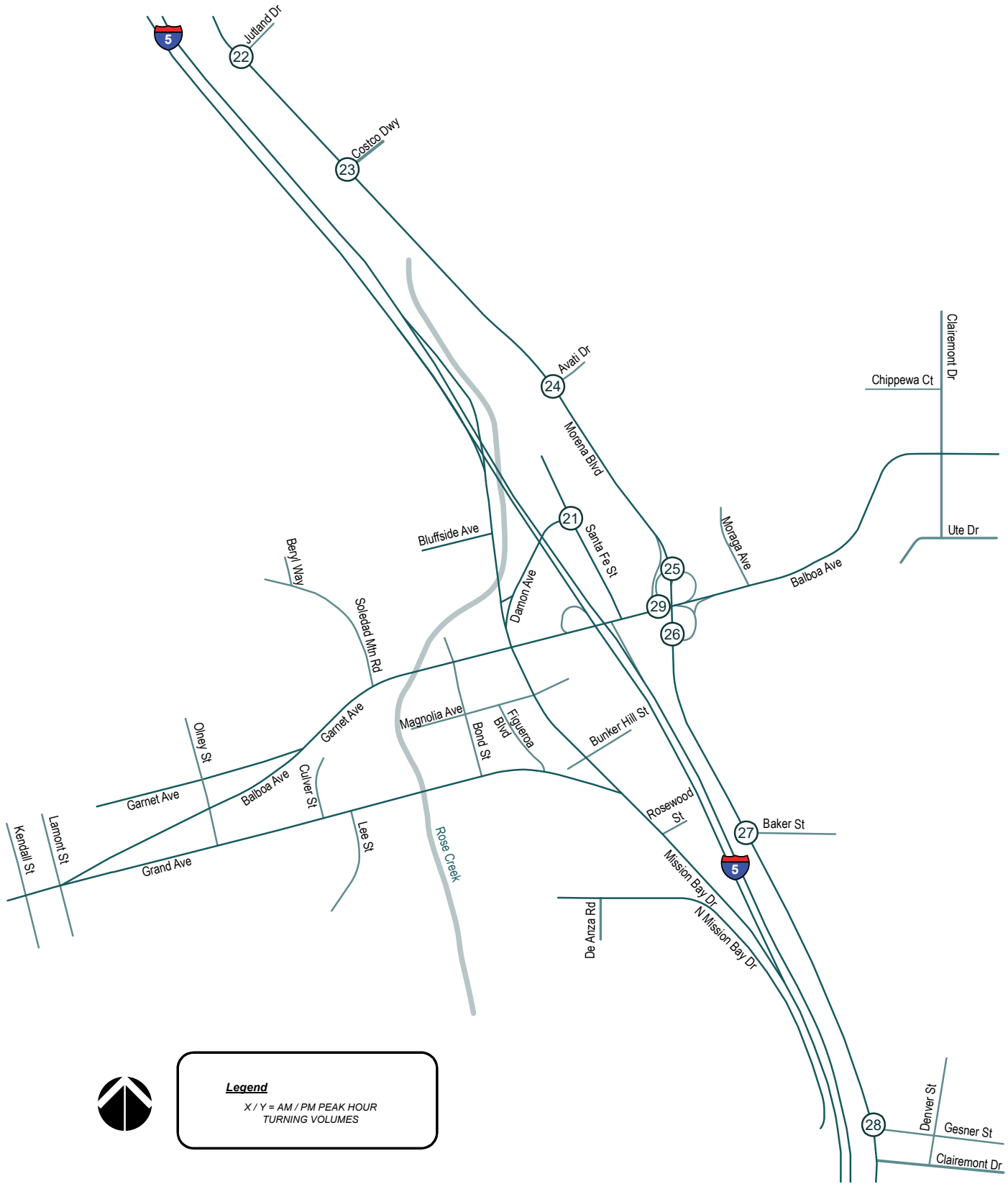


Figure 4-2
Existing Peak Period Volumes (Cont.)

Table 4-2 Existing Intersection Analysis Results

	Intersection	Traffic Control	Peak Period	Existing	
				Delay (a)	LOS (b)
1	Garnet Ave at Olney St	Signal	AM	15.4	B
			PM	12.1	B
2	Garnet Ave at Balboa Ave	Signal	AM	11.1	B
			PM	15.0	B
3	Garnet Ave at Soledad Mountain Rd	Signal	AM	18.6	B
			PM	29.2	C
4	Garnet Ave at Bond St	Signal	AM	0.5	A
			PM	0.6	A
5	Garnet Ave at Mission Bay Dr	Signal	AM	55.7	E
			PM	58.0	E
6	Garnet Ave at Santa Fe St	One-Way Stop	AM	16.8	C
			PM	151.9	F
7	Balboa Ave at Morena Blvd NB Ramps	One-Way Yield	AM	27.0	D
			PM	50.7	F
8	Balboa Ave at Moraga Ave	Signal	AM	16.2	B
			PM	16.3	B
9	Balboa Ave at Clairemont Dr	Signal	AM	47.6	D
			PM	59.2	E
10	Balboa Ave at Olney St	Signal	AM	12.4	B
			PM	12.9	B
11	Grand Ave at Olney St	Signal	AM	32.9	C
			PM	27.2	C
12	Grand Ave at Culver St	Signal	AM	10.2	B
			PM	5.8	A
13	Grand Ave at Lee St	Signal	AM	9.5	A
			PM	5.2	A
14	Grand Ave at Figueroa Blvd	Signal	AM	14.9	B
			PM	3.0	A
15	Grand Ave at Mission Bay Dr	Signal	AM	34.5	C
			PM	32.3	C
16	Mission Bay Dr at Bluffside Ave	Signal	AM	21.6	C
			PM	20.4	C
17	Mission Bay Dr at Damon Ave	Signal	AM	8.2	A
			PM	14.3	B
18	Mission Bay Dr at Magnolia Ave	Signal	AM	14.7	B
			PM	16.1	B

Notes: **Bold** values indicate intersections operations at LOS E or F.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

Table 4-2 Existing Intersection Analysis Results (Cont.)

Intersection		Traffic Control	Peak Period	Existing	
				Delay (a)	LOS (b)
19	Mission Bay Dr at Bunker Hill St	Signal	AM	6.5	A
			PM	8.2	A
20	Mission Bay Dr at Rosewood St	One-Way Stop	AM	41.7	E
			PM	176.0	F
21	Santa Fe St at Damon Ave	All-Way Stop	AM	7.8	A
			PM	8.1	A
22	Morena Blvd at Jutland Dr	All-Way Stop	AM	12.7	B
			PM	55.2	F
23	Morena Blvd at Costco Dwy	Signal	AM	9.6	A
			PM	11.0	B
24	Morena Blvd at Avati Dr	Signal	AM	9.1	A
			PM	8.9	A
25	Morena Blvd at WB Balboa Ave Ramps	Signal	AM	3.3	A
			PM	4.7	A
26	Morena Blvd at EB Balboa Ave Ramps	Two-Way Stop	AM	96.7	F
			PM	50.2	F
27	Morena Blvd at Baker St	One-Way Stop	AM	35.1	E
			PM	17.6	C
28	Morena Blvd at Gesner St	Signal	AM	8.6	A
			PM	7.5	A
29	Balboa Ave at Morena Blvd SB Ramps	Free	AM	N/A	N/A
			PM	N/A	N/A

Notes: **Bold** values indicate intersections operations at LOS E or F.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

ROADWAY SEGMENT VOLUME-BASED ANALYSIS

Each roadway segment in the Specific Plan area was evaluated by comparing the daily traffic volume with the roadway's theoretical capacity based on its classification. The capacity represents the maximum daily volume before the roadway is expected to begin to operate at a LOS E. This volume-to-capacity comparison (v/c ratio) is a planning tool used to determine the general traffic demand on a segment and its sensitivity to delays.

Table 4-3 presents the results of the roadway segment analysis for a typical weekday.

Table 4-3 Existing Volume-Based Roadway Segment Analysis Results

Roadway Segment	Functional Classification (a)	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS
Balboa Ave					
Garnet Ave to Grand Ave	4 Lane Major Arterial	40,000	14,263	0.357	A
Garnet Ave					
Bond St to Mission Bay Dr	4 Lane Major Arterial	40,000	58,694	1.467	F
Mission Bay Dr to I-5 SB On-Ramp	5 Lane Major Arterial	45,000	37,406	0.831	D
I-5 SB On-Ramp to I-5 NB Off-Ramp	5 Lane Major Arterial	45,000	48,857	1.086	F
I-5 NB Off-Ramp to Morena Boulevard SB Ramps	5 Lane Major Arterial	45,000	52,073	1.157	F
Balboa Ave (CA-274)					
Morena Boulevard SB Ramps to Morena Boulevard NB Ramps	4 Lane Major Arterial	40,000	49,079	1.227	F
Morena Boulevard NB Ramps to Moraga Avenue	4 Lane Major Arterial	40,000	43,115	1.078	F
Moraga Avenue to Clairemont Drive	4 Lane Major Arterial	40,000	34,903	0.873	D
East of Clairemont Drive	4 Lane Major Arterial	40,000	37,383	0.935	E
Grand Ave					
Kendall St to Lamont St	4 Lane Major Arterial	40,000	51,778	1.294	F
Lee St to Bond St (On Rose Creek Bridge)	4 Lane Major Arterial	40,000	37,915	0.948	E
Figueroa Blvd to Mission Bay Dr	4 Lane Major Arterial	40,000	38,202	0.955	E
Mission Bay Dr					
Bluffside Ave to Damon Ave	4 Lane Major Arterial	40,000	35,580	0.890	E
Damon Ave to Garnet Ave	4 Lane Major Arterial	40,000	40,680	1.017	F
Garnet Ave to Magnolia Ave	4 Lane Major Arterial	40,000	29,702	0.743	C
Magnolia Ave to Bunker Hill St	4 Lane Major Arterial	40,000	29,821	0.746	C
Bunker Hill St to Grand Ave	4 Lane Major Arterial	40,000	29,002	0.725	C
Grand Avenue to I-5 Ramps	5 Lane Major Arterial	45,000	55,051	1.223	F
Morena Blvd					
Jutland Dr to Avati Dr	4 Lane Major Arterial	40,000	11,554	0.289	A
Avati Dr to Balboa Ave Ramps	4 Lane Major Arterial	40,000	20,136	0.503	B
Balboa Ave Ramps to Ticonderoga St	3 Lane Major Arterial	30,000	15,823	0.527	C
Gesner St to Clairemont Dr	4 Lane Major Arterial	40,000	15,584	0.390	B

Notes: **Bold** values indicate roadway segments operating at LOS E or F.

(a) Existing road classifications are based on field work conducted in May 2016.

(b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by National Data and Surveying Services (NDS) and measured in May and June of 2016.

(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

Table 4-3 Existing Volume-Based Roadway Segment Analysis Results (Cont.)

Roadway Segment	Functional Classification (a)	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS
Clairemont Dr					
Chippewa Ct to Balboa Ave	4 Lane Major Arterial	40,000	21,259	0.531	C
Balboa Ave to Ute Dr	4 Lane Major Arterial	40,000	19,325	0.483	B
Denver St to Morena Blvd	4 Lane Major Arterial	40,000	31,162	0.779	D
Damon Ave (d)					
Mission Bay Dr to Santa Fe St	2 Lane Collector (w/o two-way left turn lane)	8,000	4,415	0.552	C
Santa Fe St					
Damon Ave to Balboa Ave	2 Lane Collector (w/o two-way left turn lane)	8,000	2,431	0.304	A
Soledad Mountain Rd					
Beryl St to Garnet Ave	4 Lane Major Arterial	40,000	27,235	0.681	C
N Mission Bay Dr					
De Anza Rd to Mission Bay Dr	2 Lane Collector (w/o two-way left turn lane)	8,000	2,456	0.307	A

Notes: **Bold** values indicate roadway segments operating at LOS E or F.

(a) Existing road classifications are based on field work conducted in May 2016.

(b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by National Data and Surveying Services (NDS) and measured in May and June of 2016.

(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

(d) Damon Avenue is classified as a local street but functions as a collector with in the community.

As shown in the table, it is estimated that all roadway segments function at an acceptable LOS D or better in the Specific Plan area, except for the following segments.

- Garnet Avenue between Bond Street and Mission Bay Drive – LOS F
- Garnet Avenue between I-5 SB On-Ramp and I-5 NB Off Ramp – LOS F
- Garnet Avenue between I-5 NB Off-Ramp and Morena Boulevard SB Ramps – LOS F
- Balboa Avenue between Morena Boulevard SB ramps and Morena Boulevard NB ramps – LOS F
- Balboa Avenue between Morena Boulevard NB ramps and Moraga Avenue – LOS F
- Balboa Avenue east of Clairemont Drive – LOS E
- Grand Avenue between Kendall Street and Lamont Street – LOS F
- Grand Avenue between Lee Street and Bond Street (On Rose Creek Bridge) – LOS E
- Grand Avenue between Figueroa Boulevard and Mission Bay Drive – LOS E
- Mission Bay Drive between Bluffside Avenue and Damon Avenue – LOS E
- Mission Bay Drive between Damon Avenue and Garnet Avenue – LOS F
- Mission Bay Drive between Grand Avenue and I-5 Ramps – LOS F

CORRIDOR SPEED-BASED ANALYSIS

A speed-based travel time analysis of key corridors within the Specific Plan area was conducted during peak periods of the day. This analysis evaluates the roadway segment LOS perceived by auto users based on the average speed a vehicle maintains along the corridor. The following corridors were evaluated:

- Mission Bay Drive
- Garnet Avenue/ Balboa Ave

The travel time information along each corridor was calculated using Synchro. The simulation uses the highest 1-hour volume at each intersection. The Mission Bay Drive corridor is approximately 0.93 miles and includes 6 traffic signals. The Garnet Avenue/ Balboa Avenue corridor is approximately 1.92 miles and includes 6 traffic signals. A summary of speed-based LOS along the study corridors are presented in **Table 4-4**. Existing Synchro worksheets are included in **Appendix B**.

As shown in the table, it is estimated that all corridor segments function at an acceptable LOS D or better in the Specific Plan area, except for the following segments.

- Northbound Mission Bay Drive between Grand Avenue and Bluffside Avenue – LOS E in the PM peak period
- Southbound Mission Bay Drive between Bluffside Avenue and Grand Avenue – LOS E in the AM and PM peak periods

Table 4-4 Existing Speed-Based Corridor Analysis Results

Corridor	Direction	Urban Street Class	Peak Period	Travel Time (sec)	Speed (mph)	LOS (a)
Mission Bay Drive						
Grand Avenue to Bluffside Avenue	Northbound	III	AM	140.5	15.9	D
			PM	167.5	13.3	E
Bluffside Avenue to Grand Avenue	Soutbound	III	AM	157.9	13.9	E
			PM	218.6	10.0	E
Garnet Avenue/ Balboa Avenue						
Olney Street to Clairemont Drive	Eastbound	II	AM	321.0	20.5	D
			PM	337.3	19.5	D
Clairemont Drive to Olney Street	Westbound	II	AM	292.9	22.6	C
			PM	305.6	21.7	D

Notes: **Bold** values indicate intersections operations at LOS E or F.

(a) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

FREEWAY SEGMENTS

Freeway volumes were obtained from Caltrans and reflect the latest year 2016 volumes that had been published at the time of this report. The freeways were evaluated using procedures for a freeway mainline as outlined in the HCM 2010.

Table 4-5 displays the LOS analysis results for the freeway segments within the community during the morning and afternoon peak hours. As shown in the table, all freeway segments within the Specific Plan area operate with an LOS D or better.

Appendix A includes the “k” and “d” factors published by Caltrans that are included in the analysis.

Table 4-5 Existing Freeway Segment Analysis Results

Freeway Segment		Dir	Number of Lanes	Peak-Hour Volume (a)		Speed (mph)		Density (pc/mi/ln)		LOS (b)	
				AM	PM	AM	PM	AM	PM	AM	PM
I-5	SR-52 to Mission Bay Dr	NB	5	9,662	6,153	61.1	68.0	34.0	23.7	D	C
		SB	5	5,614	9,365	68.0	62.4	23.7	32.2	C	D
	Mission Bay Dr to Garnet Ave/ Balboa Ave	NB	4	7,066	4,500	64.3	68.0	29.6	23.7	D	C
		SB	4	4,106	6,849	68.0	65.2	23.7	28.3	C	D
	Garnet Ave/ Balboa Ave to Mission Bay Dr	NB	4	6,492	5,788	66.5	68.0	26.3	23.7	D	C
		SB	4	5,000	6,910	68.0	65.0	23.7	28.6	C	D
	Mission Bay Dr to Clairemont Dr	NB	5	8,164	7,279	66.4	68.0	26.5	23.7	D	C
		SB	5	6,288	8,691	68.0	64.8	23.7	28.9	C	D

Notes:

(a) Peak-hour volumes were estimated by applying the K and D factors to the published 2016 Caltrans AADT volumes.

(b) The LOS for the respective freeway segments were based on the methodologies contained in Chapter 11 of the 2010 Highway Capacity Manual

FREEWAY RAMP METERS

Freeway entrance ramps that currently have ramp meters installed and in operation were evaluated to determine the delay and queue associated with the ramp meters. Calculations were made using the peak hour demand at the entrance ramp and the current meter rate to quantify the number and frequency of vehicles that are processed through the meter. The excess demand not being processed is then quantified along with its respective queue length. Ramp volumes were obtained from the intersection turning movements collected in May 2016. **Appendix A** contains the ramp meter rates provided by Caltrans.

Table 4-6 displays the results of the freeway ramp meters in the study area. As shown in the table, the meter rate adequately controls the expected demand with delays resulting in less than 15 minutes, except at the following location:

- I-5 SB and Mission Bay Drive – PM peak period (53 minute delay)

Table 4-6 Existing Freeway Ramp Meter Analysis Results

On Ramp	Peak Hour	Number of Lanes		Storage Length (feet)		Total Ramp Volume ^a (veh/hr)	Demand (veh/hr/lane)		Meter Rate (veh/hr) ^c	Excess Demand (veh/hr)		Delay (min)		Queue (feet) ^d	
		GP	HOV	GP	HOV		GP	HOV ^b		GP	HOV	GP	HOV	GP	HOV
I-5 SB & Mission Bay Drive	AM	2	1	375	375	1,460	584	292	n/a						
	PM					2,235	894	447	475	419	0	53	0	10,475	0
I-5 SB & WB Balboa Ave	AM	2	0	315	n/a	480	240	n/a	n/a						
	PM					735	368	n/a	542	0	n/a	0	n/a	0	n/a
I-5 NB & Mission Bay Drive	AM	2	0	1,655	n/a	1820	910	n/a	811	99	n/a	7	n/a	2,475	n/a
	PM					1229	615	n/a	n/a						

Notes: **Bold** values indicate a ramp meter delay greater than 15 minutes (SANTEC/ ITE Significant Threshold).

(a) Demand is the peak hour demand expected to use the on-ramp

(b) Assume 20 percent of demand utilizes the HOV lanes

(c) Meter Rate is the peak hour capacity expected to be processed through the ramp meter. Values were obtained from Caltrans. Most Conservative rate (Rate 15) was used.

(d) Assumes an average vehicle length of 25 feet

PEDESTRIAN FACILITIES

Existing pedestrian-facilities located within the Specific Plan area were identified through data provided by the City and supplemented with a review of aerial imagery. **Figure 4-3** displays the pedestrian network within and adjacent to the Specific Plan area, including existing pedestrian facilities and proposed improvements resulting from the Balboa Avenue station.

ACCESS TO TRANSIT

To assess the areas that the Balboa Avenue station provides pedestrian access to, a half-mile walkshed was created from the station platform. The half-mile walkshed is shown in **Figure 4-4**, this is considered to be a distance that most pedestrians are willing to comfortably walk to access high-frequency transit.

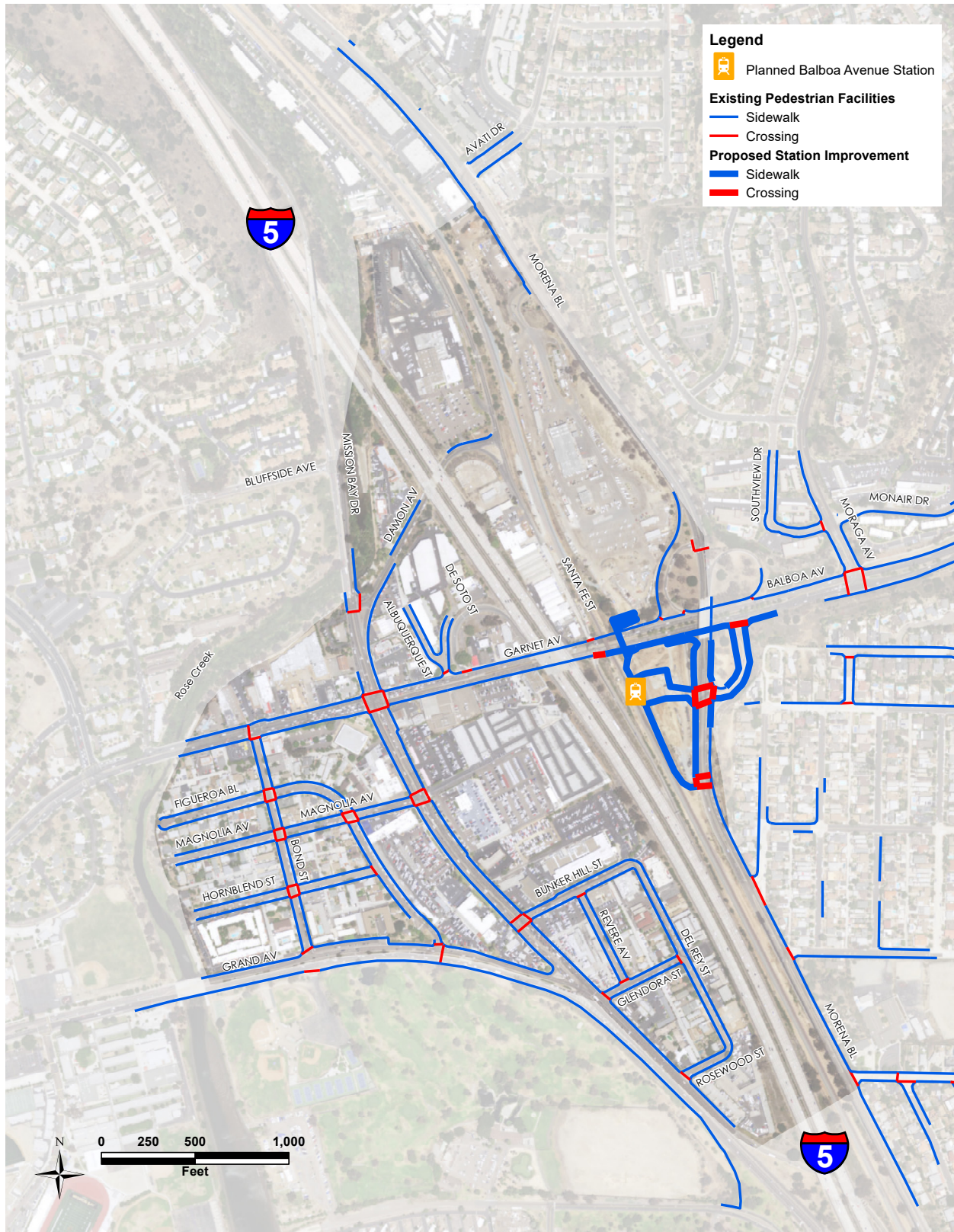


Figure 4-3
Existing Pedestrian Network

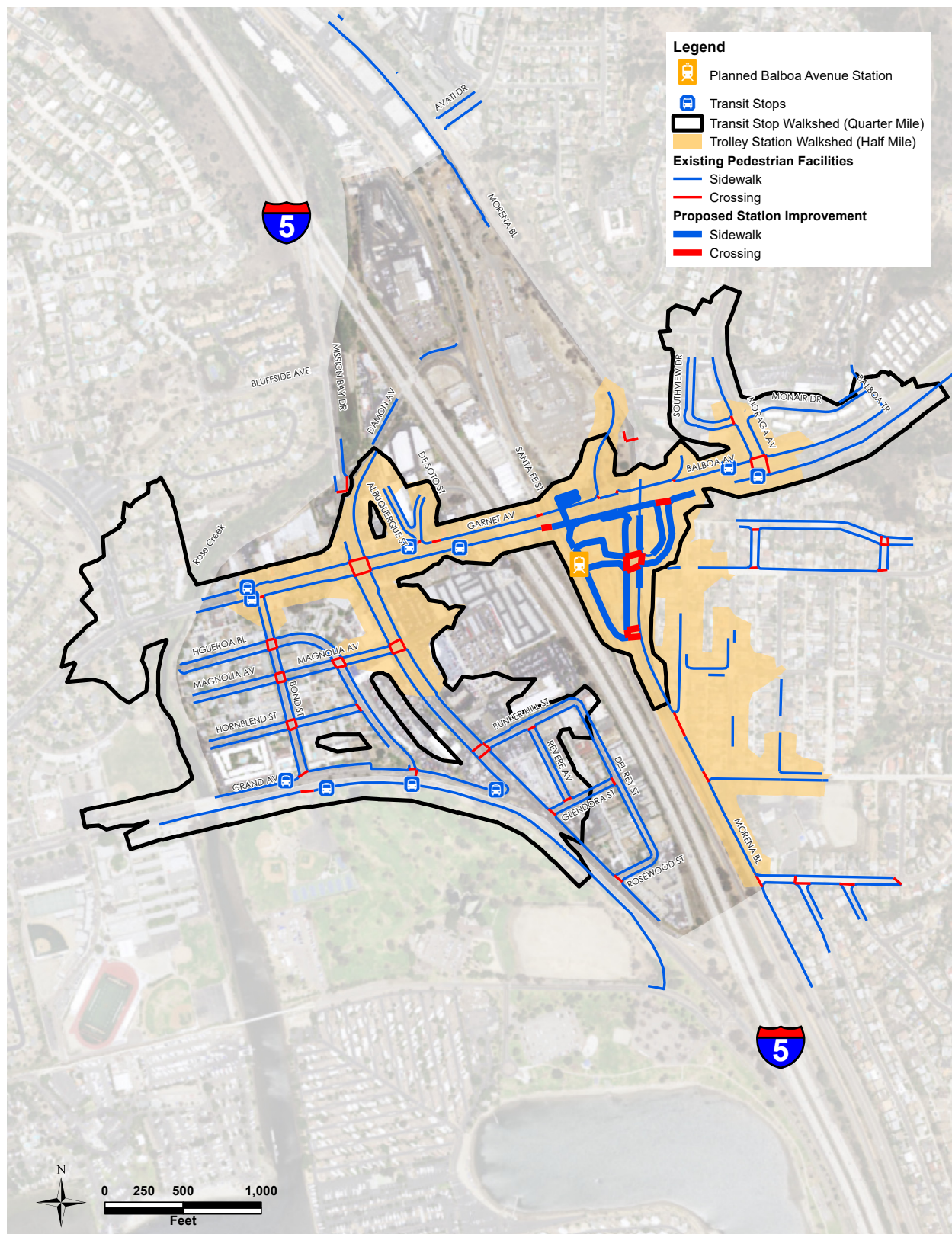


Figure 4-4
Existing Pedestrian Walkshed

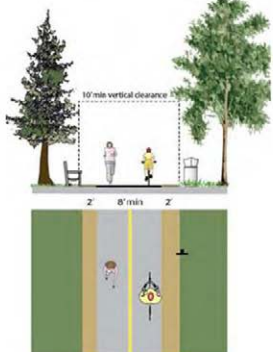


BICYCLE FACILITIES

The City of San Diego has developed a network of designated Class I, II, and III bikeways as part of their Bicycle Master Plan efforts. A Class I facility is a bike path that provides for bicycles to travel on a paved right-of-way completely separated from any street or highway. A Class II facility is a bike lane that provides bicycles an exclusive or semi-exclusive lane of travel on a roadway separated by a painted line. A Class III facility is a bike route that provides for shared use with motor vehicle traffic and is only identified by signage and/or pavement markings. **Table 4-5** provides more description and illustrates the types of bikeway identified in the City of San Diego Bicycle Master Plan (BMP).

Two additional bicycle facilities, Cycle Track (referred to as a Class IV Bicycle Lane by the City of San Diego) and Bicycle Boulevard, have been adopted into the SANDAG Regional Bike Plan (RBP). A Class IV Cycle Track is a bicycle facility that is located within the roadway right-of-way but physically separated from vehicle lanes by a physical barrier. Bicycle Boulevards are roadways where physical improvements such as traffic calming and diversions are intended to provide priority to bicyclists. Bicycle Boulevards are typically installed on local roads with a low volume of vehicles. **Table 4-6** further explains the two new bicycle facilities.

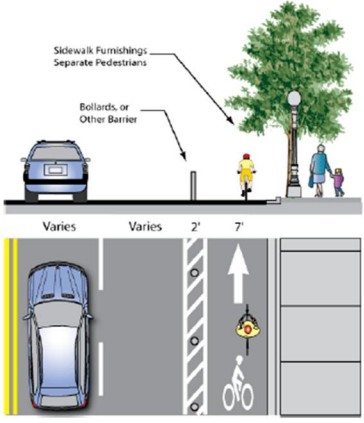
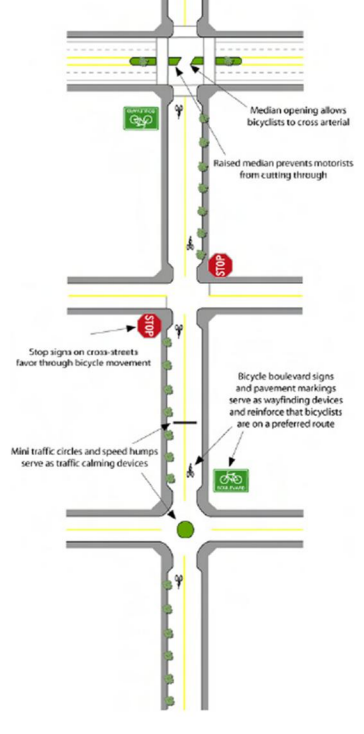
Existing bicycle facilities immediately adjacent to and within the Specific Plan area are shown in **Figure 4-5**. SanGIS, a data source provided by the San Diego Association of Governments (SANDAG), was referenced to provide a baseline for existing bicycle facilities. Updates and modifications to SanGIS data were completed as a result of field verifications. As seen in Figure 4-5, the existing bicycle network does not include any facilities that connect to the future Balboa Avenue station. Planned station improvements do not include any roadway re-striping or dedicated facilities to accommodate bicyclists; however, the Balboa Avenue station lot will provide bicycle amenities such as bicycle lockers and racks. The lack of roadway re-striping or dedicated facilities results in no changes to the existing network as a result of the Balboa Avenue station being constructed.

Table 4-5 Regional Bicycle Facility Classifications

<p>Class I – Bike Path</p> <p>Bike paths are bikeways that are physically separated from vehicular traffic. Also termed shared-use paths, bike paths accommodate bicycle, pedestrian, and other non-motorized travel. Paths can be constructed in roadway right-of-way or independent right-of-way. Bike paths provide critical connections in the region where roadways are absent or are not conducive to bicycle travel.</p>	
<p>Class II - Bike Lanes</p> <p>Bike lanes are defined by pavement markings and signage used to allocate a portion of a roadway for exclusive or preferential bicycle travel. Within the regional corridor system, bike lanes should be enhanced with treatments that improve safety and connectivity by addressing site-specific issues. Such treatments include innovative signage, intersection treatments, and bicycle loop detectors.</p>	
<p>Class III - Bike Routes</p> <p>Bike routes are located on shared roadways that accommodate vehicles and bicycles in the same travel lane. Established by signs, bike routes provide continuity to other bike facilities or designate preferred routes through corridors with high demand. Within the regional corridor system, bike routes should be enhanced with treatments that improve safety and connectivity by addressing site-specific issues.</p>	

Source: SANDAG Regional Bicycle Plan, dated April 2010 (ALTA Planning)

Table 4-6 Additional Bicycle Facility Classifications

<p>Cycle Tracks</p> <p>A cycle track is a hybrid type bicycle facility that combines the experience of a separated path with the on-street infrastructure of a conventional bike lane. Cycle tracks are bikeways located in roadway right-of-way but separated from vehicle lanes by physical barriers or buffers. Cycle tracks provide for one-way bicycle travel in each direction adjacent to vehicular travel lanes and are exclusively for bicycle use. Cycle tracks are not recognized by Caltrans Highway Design Manual as a bikeway facility. Development of cycle track on segments of the regional corridor system is proposed through experimental, pilot projects.</p>	 <p>Sidewalk Furnishings Separate Pedestrians</p> <p>Bollards, or Other Barrier</p> <p>Varies</p> <p>Varies</p> <p>2'</p> <p>7'</p>
<p>Bicycle Boulevards</p> <p>Bicycle boulevards are local roads or residential streets that have been enhanced with traffic calming and other treatments to facilitate safe and convenient bicycle travel. Bicycle boulevards accommodate bicyclists and motorists in the same travel lanes, typically without specific vehicle or bicycle lane delineation. These roadway designations prioritize bicycle travel above vehicular travel. The treatments applied to create a bike boulevard heighten motorists' awareness of bicyclists and slow vehicle traffic, making the boulevard more conducive to safe bicycle and pedestrian activity. Bicycle boulevard treatments include signage, pavement markings, intersection treatments, traffic calming measures and can include traffic diversions. Bicycle boulevards are not defined as bikeways by Caltrans Highway Design Manual; however, the basic design features of bicycle boulevards comply with Caltrans standards.</p>	 <p>Median opening allows bicyclists to cross arterial</p> <p>Raised median prevents motorists from cutting through</p> <p>Stop signs on cross-streets favor through bicycle movement</p> <p>Stop</p> <p>Stop</p> <p>Mini traffic circles and speed humps serve as traffic calming devices</p> <p>Bicycle boulevard signs and pavement markings serve as wayfinding devices and reinforce that bicyclists are on a preferred route</p>

Source: SANDAG Regional Bicycle Plan, dated April 2010 (ALTA Planning)



Figure 4-5
Existing Bicycle Network

BICYCLE LEVEL OF TRAFFIC STRESS

The Bicycle Level of Traffic Stress (BLTS) analysis was completed to summarize the biking conditions in the Specific Plan area. **Figure 4-6** summarizes the LTS score for each direction of roadway segments under existing conditions. **Table 4-7** details the percent of the total distance that fell within each level of traffic stress for the roadways studied.

Table 4-7 Existing Bicycle Facility Quality within Specific Plan Area

LTS 1	LTS 2	LTS 3	LTS 4
35%	0%	3%	62%

The results of the BLTS analysis show the percentages assigned to each level of traffic stress score based on linear distance of roadway. As seen in the table, a majority of the streets included in the analysis were scored at a high level of stress, or a LTS 4. The corridors scoring a LTS of 4 include Garnet Avenue, Grand Avenue, Morena Boulevard, and Balboa Avenue. These corridors represent the major north/south and east/west connections to the Balboa Avenue Station. The results show access to the Balboa Avenue station along these major corridors are difficult due to high speeds and lack of connecting facilities. The residential streets between Garnet Avenue and Grand Avenue, and between Mission Bay Drive and I-5 received low traffic stress scores. Although these streets do not have bicycle facilities, low traffic speeds result in a LTS 1 score. These minor streets currently lack connection to the Balboa Avenue Station.

PARKING SUPPLY

Aerial images and field verification was utilized to inventory existing parking lots, taking into consideration whether the existing parking lot is open to the public or closed for private purposes only. Additionally, inventory of approximate curbside parking spaces, and parking restrictions (meters or time-restrictions) were verified. Locations of on-street and off-street parking, including the surface parking associated with the Balboa Avenue station, were inventoried and are shown in **Figure 4-7**. The field review found no metered curbside parking spaces within the community boundary. With the exception of Mission Bay Drive which has a two-hour time restriction of on-street parking, all on-street parking spaces are available for free public parking 24 hours a day.

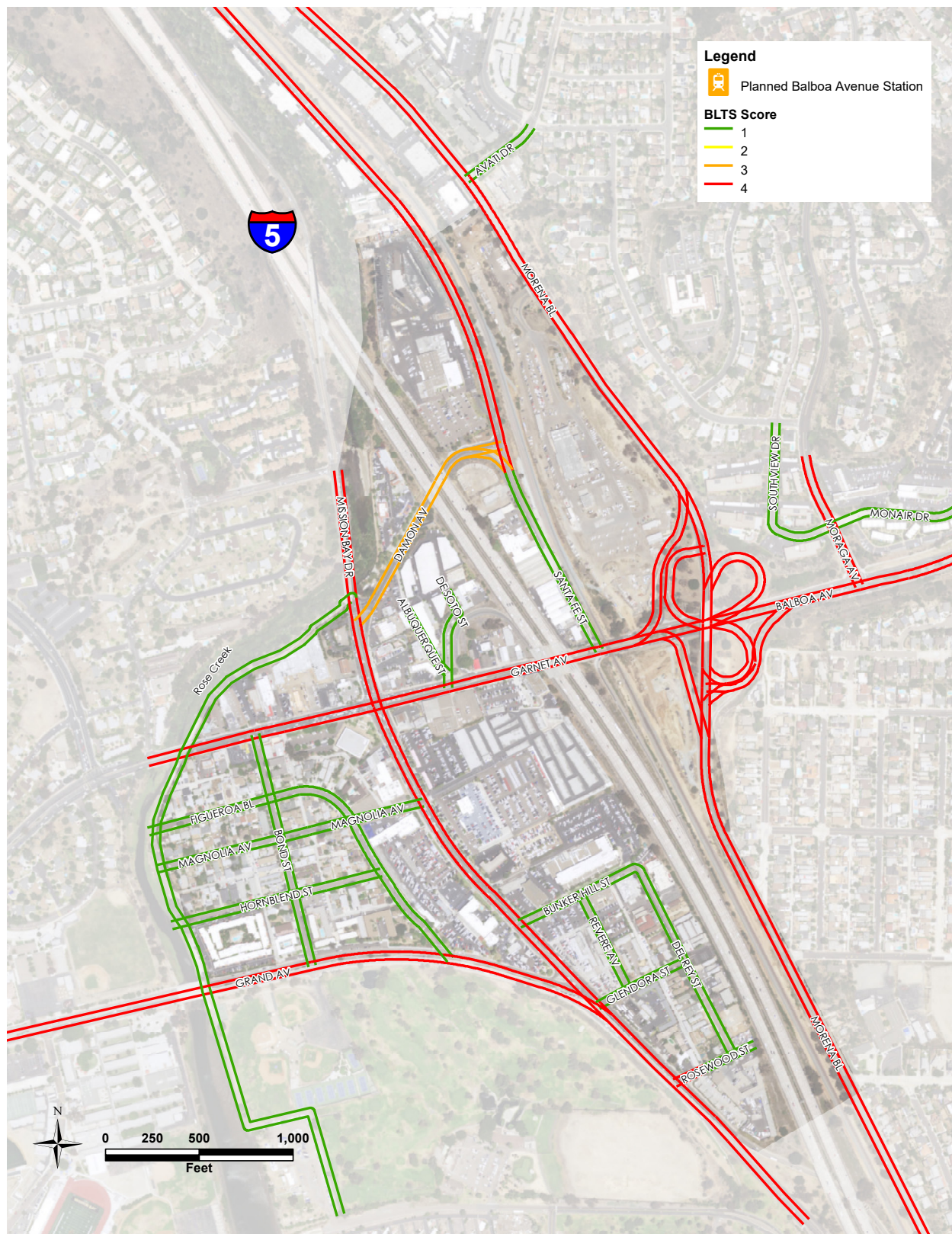


Figure 4-6
Existing BLTS Results

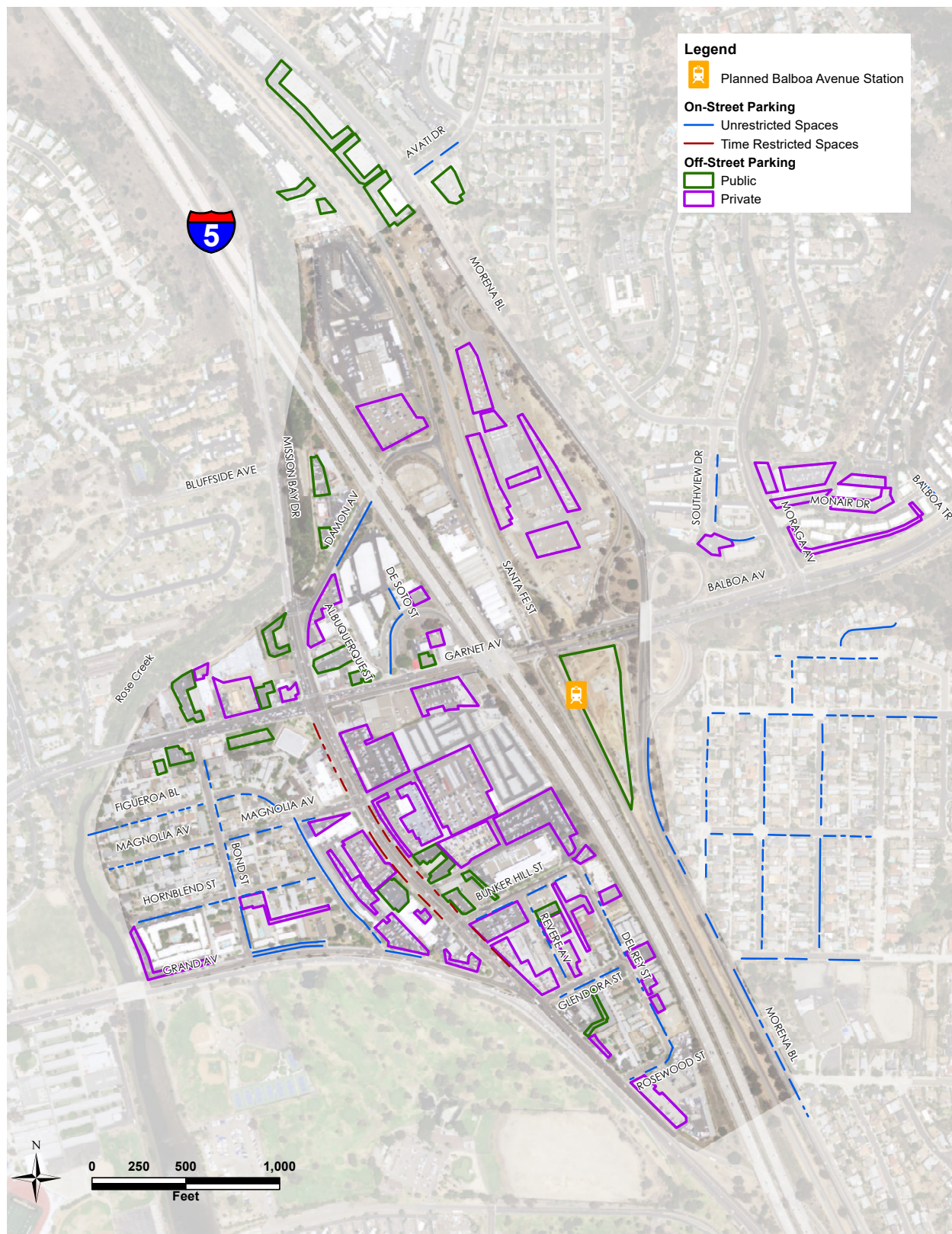


Figure 4-7
Existing Parking Supply

5 ACTIVE TRANSPORTATION: WALKABLE COMMUNITY

Figure 4-4 presented an overview of the existing pedestrian walkshed from Balboa Avenue station.

BASELINE NETWORK CONDITIONS

As shown in Figure 4-4, the Balboa Avenue station includes new pedestrian facilities adjacent to the station. These include a pedestrian facility adjacent to the rail bridge crossing Balboa Avenue, pedestrian ramps from the bridge to the street on both sides of Balboa Avenue, and new sidewalks and curb ramps along Balboa Avenue and Morena Boulevard within the vicinity of the Balboa Avenue station. Beyond the station improvements, no pedestrian facilities were identified. Recommendations within the Specific Plan area were made based on the existing network with station improvements assumed complete.

ACCESS TO TRANSIT

A half-mile walkshed from the station platform was created to define the areas that the Balboa Avenue station provides pedestrian access to. The half-mile walkshed is shown in **Figure 5-1**. This area is considered to be a distance that most pedestrians are willing to comfortably walk to access high-frequency transit.

RECOMMENDED IMPROVEMENTS

The existing conditions assessment identified gaps in the existing sidewalk network. By removing gaps in the existing sidewalk network, pedestrians will be able to access the Balboa Avenue station from greater distances without disruption or need to cross the street to continue use of the sidewalk. Taking into consideration the findings from the mobility assessment and previous planning studies, a variety of pedestrian-related opportunities have been identified. **Figure 5-1** shows the planned pedestrian network with changes summarized below:

1. Install Shared-Use Paths along both sides of Garnet Avenue east of Mission Bay Drive. The south side of Garnet Avenue would have a path between Mission Bay Drive and the station. The north side of Garnet Avenue would have a path between Mission Bay Drive and Moraga Avenue.
2. Install Shared-Use Paths on both sides of Mission Bay Drive from Garnet Avenue to Grand Avenue. Additional Shared-Use path connections are recommended along the east side of Mission Bay Drive from Grand Avenue to Rosewood Street, and from Garnet Avenue to Damon Avenue, and along the west side of Mission Bay Drive from Rosewood Street to the path within Mission Bay Park.
3. Install sidewalk on the south side of Balboa Avenue between the Morena Boulevard ramp and Moraga Avenue, connecting an existing bus stop to the sidewalk network adjacent to the Balboa Avenue station.
4. Install sidewalk on the east and west side of Morena Boulevard between the Balboa Avenue station and Avati Drive.
5. Install a shared-use path along Santa Fe Street from Garnet Avenue to Damon Avenue, with a crossing on Santa Fe Street to connect to the existing sidewalk along Damon Avenue.
6. Complete sidewalk connections along Damon Avenue between Mission Bay Drive and Santa Fe Street. Lighting improvements along this portion would also be provided to support a key bicycle connection on Damon Avenue and would benefit the pedestrian network.

7. Extend sidewalk along the west side of Mission Bay Drive from its current terminus to Bluffside Avenue provides connections to Rose Creek Trail and residents in the Mount Soledad area.
8. It is recommended that a shared-use pedestrian and bicycle facility be constructed across the I-5 freeway to create a low-stress connection for non-motorized uses to access the station and facilitate access to residences and Mission Bay Park. Additional enhancements and improvements should be considered to complement this connection and create a better interface between the built environment and this new facility.
9. Reconfigure the Morena Boulevard to westbound Balboa Avenue ramps to remove the free right movement and reduce conflicts for pedestrians. This improvement facilitates access to Balboa Avenue station for the residential areas east of Morena Boulevard and would reduce conflicts for pedestrians and cyclists as well.
10. A wayfinding signage program is recommended to guide pedestrians between the Balboa Avenue station platform and nearby key attractions.
11. General opportunities to improve pedestrian access to the Balboa Avenue station include pedestrian-scale lighting.

Planned Operational Improvements

The City continues to upgrade curb ramps and traffic signal operations as part of their ongoing maintenance and operations programs. Recommended improvements include pedestrian signal countdown timers, advanced stop bars, no right turn on red signs, and pedestrian lead intervals in addition to the operational improvements previously mentioned. It is also recommended that ADA compliant curb ramps are installed along Garnet Avenue/Balboa Avenue and Mission Bay Drive. Specific recommendations at the intersections at Garnet Avenue / Mission Bay Drive and Grand Avenue / Mission Bay Drive are provided in Figure 8-4 and 8-6.

PEDESTRIAN ENVIRONMENTAL QUALITY EVALUATION (PEQE)

Figure 5-2 shows the results of the PEQE analysis within the half-mile walkshed with the recommended network in place. Compared to the existing network, the planned network provides increased access along high and medium quality pedestrian facilities to businesses and retail along Garnet Avenue and Mission Bay Drive, and residential areas in Clairemont. The planned sidewalk network allows people travelling from the Balboa Avenue station to travel on average 0.35 miles before reaching a low quality pedestrian facility. **Table 5-1** summarizes the distance within the half-mile walkshed a pedestrian can travel in each direction before a low quality facility is encountered for both existing and planned conditions.

Table 5-1 Pedestrian Half Mile Walk from Station on Medium or High Quality Pedestrian Facilities Evaluation

Condition	North	South	East	West
Existing Network	0	30%	6%	0
Future Network	100%	100%	100%	100%

Note: Percent of Half Mile Walkshed that can be travelled in each direction

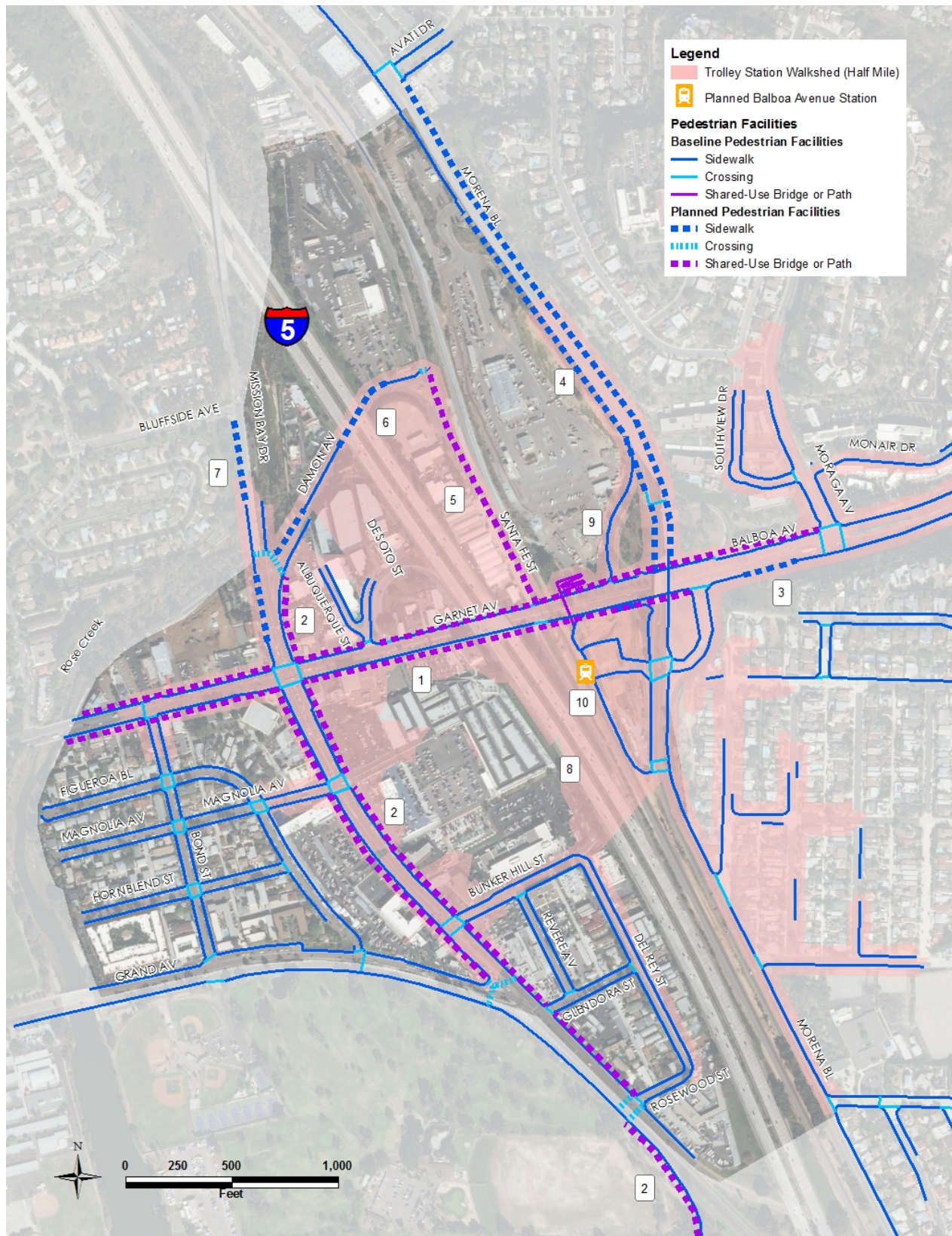


Figure 5-1
Future Planned Pedestrian Network and Station Walkshed



Figure 5-2
Future Planned PEQE Analysis Results

6 ACTIVE TRANSPORTATION: BICYCLING

Figure 4-5 presented an overview of the existing bicycle network in the Specific Plan area.

FUTURE NETWORK CHANGES

Based on the City of San Diego Bicycle Master Plan, Class II or Class III facilities are planned for Garnet Avenue/Balboa Avenue, Mission Bay Drive, and Santa Fe Drive and a Class II facility is planned for Morena Boulevard. Additionally, Class I facilities are proposed along the east side of I-5 from Gesner Street to Balboa Avenue and extension of the Rose Creek Trail to the north. The Balboa Avenue Station Area Specific Plan recommendations provide more specifics on these planned improvements and develop a network to connect these facilities with the Balboa Avenue station. It is assumed that all proposed bike lane (Class II) facilities shall include a buffer and all proposed bike route (Class III) facilities shall provide bicycle sharrow pavement markings, unless otherwise approved by the City Engineer.

RECOMMENDED IMPROVEMENTS

Garnet Avenue/Balboa Avenue provides the most direct connection between the Balboa Avenue station and the communities of Pacific Beach and Clairemont. It is recommended to modify the Garnet Avenue/Balboa Avenue corridor between Moraga Avenue and Soledad Mountain Road to add bicycle facilities and improve bicycle safety by removing free right-turn vehicle movements. Due to varied right-of-way constraints, the facilities provided along Garnet Avenue/Balboa Avenue would range from shared-use facilities adjacent to buffered bike lanes to shared-use facilities adjacent to sharrow pavement markings. Connections between the Balboa Avenue station and Garnet Avenue/Balboa Avenue are provided either via pedestrian ramps or roadway connections. The pedestrian ramps would be shared with pedestrians and are not specifically designed to accommodate bicyclists. As such, they would most likely require dismounting and walking bicycles, but provide direct and secluded access compared to sharing the roadway with vehicles. Bicycle channels should be installed on the stairways to facilitate the connection for bicyclists.

Mission Bay Drive will provide north-south connections between the station, Rose Creek Trail, and the Mission Bay Park. It is recommended to reconfigure the Mission Bay Drive corridor to accommodate Class I shared-use paths and Class II bicycle facilities. On Mission Bay Drive between Damon Avenue and Garnet Avenue, it is recommended to construct a Class I bicycle facility along the east side of the road by closing the existing free-right movement to Damon Avenue, a northbound Class II, and southbound Class III. Between Garnet Avenue and Grand Avenue, it is recommended that Mission Bay Drive be reconfigured to remove parking to include a Class II bicycle facilities along both sides of the corridor, and construct a Class I along both sides. South of Grand Avenue, it is recommended that a Class I is provided on the east side between Grand Avenue and Rosewood Street and on the west side south of Rosewood Street to connect with Mission Bay Park.

A shared-use pedestrian and bicycle facility across I-5 connecting the Balboa Avenue station to Bunker Hill Street is recommended. This improvement, in coordination with the addition of Class II bike lanes on Mission Bay Drive and Bunker Hill Street, provides an alternative connection from the Balboa Avenue station to Pacific Beach, Mission Bay Park and the Rose Creek Trail. This connection is an alternative to using the bicycle facilities along Garnet Avenue. The intersections along Mission Bay Drive at Bunker Hill Street and Magnolia Avenue should be considered for the addition of bicycle detection.

Rose Creek Trail is a major focus of the bicycle network in the area, providing connections north to the University community and south to Mission Bay Park. Existing ramps connect the trail to the sidewalk at Garnet Avenue and Grand Avenue, but do not provide easy transitions from the roadway to the ramps. It is recommended that these ramps are upgraded to improve bicycle access and visibility from these roadways.

With improved connectivity to Rose Creek Trail it is anticipated that bicycle ridership along the trail will increase. The existing trail is relatively narrow and is shared by pedestrians and bicyclists. It is recommended that the trail is modified to provide additional capacity for shared use.

A connection to Rose Creek Trail is also provided at the west end of Magnolia Avenue where it terminates as a cul-de-sac. It is recommended that **Magnolia Avenue** becomes a bicycle boulevard to provide a connection between Rose Creek Trail and Mission Bay Drive on a low-volume residential roadway. Improved visibility and reconstruction of the existing ramp from the cul-de-sac on Magnolia Avenue to the trail is recommended as part of the bicycle boulevard.

Santa Fe Street provides access to the Rose Canyon trail on the southern end of the University community and is a low-volume street that begins across Balboa Avenue from the Balboa Avenue station. Using MTS right-of-way between Damon Avenue and Balboa Avenue provides space for a two-directional shared-use path. To get from the Balboa Avenue station to Santa Fe Street, bicyclists would utilize the pedestrian facilities that cross Balboa Avenue adjacent to the rail and connect on the north side of Balboa Avenue near Santa Fe Street via ramps. The ramps, which are part of the Balboa Avenue station improvements, allow for space for a multi-use path at the base, providing a connection from Santa Fe Street to the Balboa Avenue station. This concept is provided in **Figure 8-5**.

A Class IV cycle track is recommended extending along **Morena Boulevard** from the Balboa Avenue station to Clairemont Drive where it will connect with the planned two-way cycle track along the west side of Morena Boulevard near the Clairemont and Tecolote stations. Class II bike lanes will then connect north of the Balboa Avenue station to Jutland Drive.

Figure 6-1 presents the recommended bicycle facilities within the Specific Plan area. The effectiveness of bicycle facilities is a combination of the facility provided along the side of the road and its continuity through each intersection. To address safety concerns for bicycles at intersections, it is recommended that signals along Class II and IV facilities include detection for bicyclists and consideration of additional improvements such as bicycle boxes, no right-turn-on-red restrictions for vehicles, and bicycle signal head indications. Specific recommendations at the intersections at Garnet Avenue / Mission Bay Drive and Grand Avenue / Mission Bay Drive are provided in **Figure 8-4 and 8-6**.

BICYCLE LEVEL OF TRAFFIC STRESS

The Bicycle Level of Traffic Stress (BLTS) analysis was completed for the recommended network to evaluate the bicycle conditions in the Specific Plan area. Residential streets within the Specific Plan area were assigned a BLTS score of 1 due to low traffic volumes and speeds, regardless of the presence of marked bicycle facilities. Additionally, per the Mineta Transportation Institute report on BLTS, bikeways with physical separation from motor vehicles have the lowest stress between intersections. For this analysis, Class IV bicycle facilities were considered BLTS 1 facilities. **Figure 6-2** summarizes the BLTS score for each direction of roadway segments throughout the area with the recommended improvements in place.

With the completed bicycle network in the community, the BLTS is reduced along the corridors where there is an investment in bicycle facilities. The BLTS methodology allows for moderate improvements in score with buffered or separated bicycle facilities, but has limits to how much the stress level can change since speed and number of lanes play a factor in the analysis and remain unchanged on several roadways. The proposed bicycle network includes several separated facilities that would provide bicyclists increased comfort that is not reflected in the BLTS scoring. As seen in Figure 6-2, separated paths provide low-stress opportunities. Riding on Balboa Avenue, and Garnet Avenue, still provide high traffic stress connections to the Balboa Avenue station. For changes to be reflected in the BLTS score assigned to facilities along the corridor, traffic calming or reduction in the posted speed limit would need to be implemented.

Table 6-1 summarizes the BLTS score between existing and future conditions for the facilities within the Specific Plan area. As seen in the table, over 60 percent of the bicycle facilities scored a LTS of 2 or better under future network conditions compared to 35 percent under existing network conditions.

Table 6-1 Proposed Bicycle Facility Quality within Specific Plan Area

Condition	LTS 1	LTS 2	LTS 3	LTS 4
Existing Network	35%	0%	3%	62%
Future Network	54%	12%	21%	13%



Figure 6-1
Future Planned Bicycle Facilities

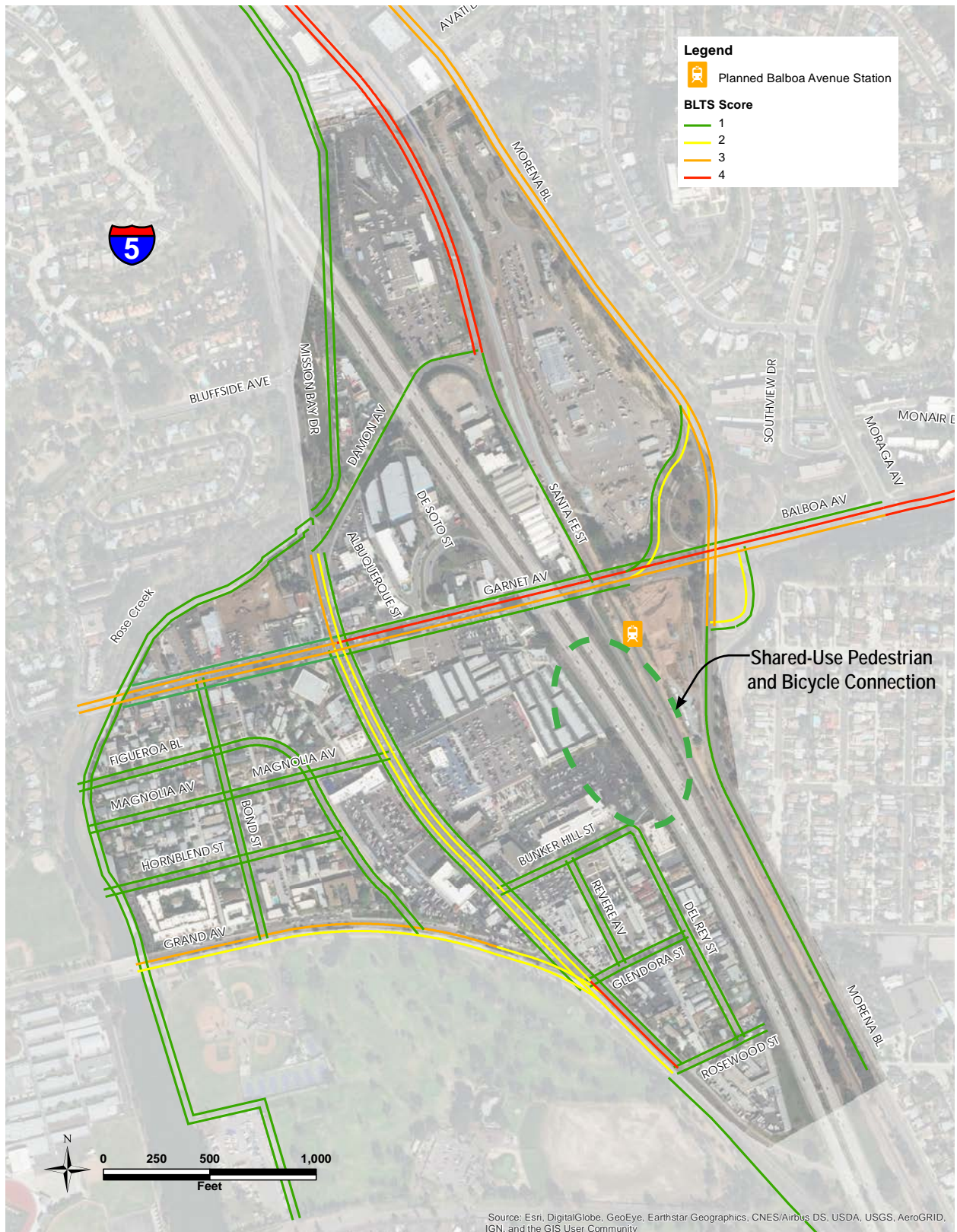


Figure 6-2
Future Planned BLTS Results

7 PUBLIC TRANSIT

Figure 7-1 shows an overview of the current transit system within the Specific Plan area with the proposed pedestrian network.

EXISTING NETWORK

Data regarding the existing network was documented in 2016. The following is a quick summary of available transit in the community.

Bus Routes

There are currently two transit lines providing access to the Specific Plan area.

Route 27 runs east/west along Balboa Avenue and Garnet Avenue with 30 minute peak headways and 30 minute off-peak headways and a daily ridership of 1,112. Route 27 serves destinations including Mission Beach, Kearny Mesa Transit Center, and Genesee Plaza (shopping centers, transit centers, employment, etc). The closest stops are located at Garnet Avenue and De Soto Street and they have a daily ridership of 92. The next closest stops are located at Balboa Avenue and Moraga Avenue and they have a daily ridership of 62. Transit route and stop data is shown in **Figure 7-2**.

Route 30 runs along Grand Avenue with 15-minute peak headways and 25 minute off-peak headways and a daily ridership of 9,731. Route 30 serves destinations including the VA Medical Center, UTC Shopping Mall, and the Old Town Transit Center (shopping centers, transit centers, employment, etc). The closest stops are located at Grand Avenue and Bond Street. The next closest stops are located at Grand Avenue and Mission Bay Drive. Current ridership data was unavailable at these locations. Transit route and stop data is shown in **Figure 7-3**.

FUTURE NETWORK CHANGES

A key focus of the Regional Transportation Plan prepared by the San Diego Association of Governments (SANDAG) is to develop an ambitious and far-reaching transit network that significantly expands the role that transit plays. As identified in the SANDAG 2050 Regional Transportation Plan (2050 RTP), these improvements include different transit options such as Light Rail Transit (LRT), Bus Rapid Transit (BRT), and High Frequency (Rapid) Local Bus. The Future Year conditions included transit projects identified in the 2050 RTP that are planned to be implemented by Year 2035. The following summarizes these planned improvements for the Balboa Avenue Station Specific Plan area:

- **Mid-Coast LRT Extension.** As stated previously, the Blue Line Trolley is planned to be extended from the Old Town Transit Center to the UTC Transit Center. The expected year for completion of this improvement is 2021.
- **Kearney Mesa to Pacific Beach Trolley.** This trolley route was planned to connect Kearny Mesa to Pacific Beach. The expected year for completion of this improvement is 2035.
- **COASTER Improvements.** The COASTER commuter train is planned to be expanded to have double tracking and increased frequencies between Oceanside and downtown San Diego. It is planned to achieve 20-minute peak headways. The expected year for completion of this improvement is consistent with the Mid-Coast LRT Extension.



Figure 7-1
Transit Network Summary

Effective JANUARY 25, 2015*



27

Pacific Beach – Kearny Mesa
via Balboa Av.

DESTINATIONS

- Balboa Av.
- Clairemont High School
- Crystal Pier
- Garnet Av.
- Genesee Plaza



Alternative formats available upon request. Please call: (619) 557-4555
Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555

The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses.
Los horarios e información que se indican en este itinerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.



Figure 7-2
Existing Transit Routes - Route 27

Effective JANUARY 29, 2017

30

Downtown – UTC / VA Medical Center
via Old Town / Pacific Beach / La Jolla / UCSD

DESTINATIONS

- Birch Aquarium
- Mission Bay High School
- UCSD
- VA Medical Center
- Westfield UTC

MTS

Metropolitan Transit System

Trolley Connections

Downtown
Old Town

01/17

The map illustrates the route of MTS Route 30, starting in Downtown San Diego and ending at the UTC/VA Medical Center. The route is marked with a thick black line and includes various transfer points (indicated by diamonds) and timepoints (indicated by letters in circles). The route passes through Old Town, Pacific Beach, La Jolla, and UCSD. An inset map provides a detailed view of the downtown area, showing the route between 1st and 11th Avenues. The map also includes a legend for transfer points and timepoints, and a north arrow.

Transfer point
Timepoint and/or transfer point

Old Town Transit Center
 8 9 10 28
 35 44 88 105
 150, Green Line, COASTER

UTC Transit Center
 31 41 50 101
 105 150 201 202
 204

Gilman Transit Center (UCSD)
 41 101 150 201
 202 237 921A

VA Medical Center
 31 41 60
 237 921 979

Westfield UTC
 41 101
 150 921A

Birch Aquarium
 41 101

La Jolla Shores
 101

La Jolla
 8 9 27

Mission Bay
 8 9 27

Midway
 8 9 27

Ocean Beach
 8 9 27

San Diego
 215 235
 280 290
 2 7 50
 110 201 923
 992
 UC San Diego Blue Line, Orange Line

Figure 7-3
Existing Transit Routes - Route 30

Balboa Avenue Station Area Specific Plan | Traffic Impact Study
December 2017

7-4

TRANSIT TRAVEL TIMES

Bus travel time has a big impact on transit service efficiency. **Table 7-1** compares the vehicle travel times for the future scenarios along the key transit corridor within the Specific Plan area. The comparison was made to assess the impact on overall travel time as a result of changes to the future networks.

Transit trips eastbound along Garnet Avenue will realize a small reduction in delay as a result of a transit-only lane. The proposed network that is assumed in the future preferred and future reduced scenarios include a transit-only lane along Balboa Avenue/Garnet Avenue between I-5 Northbound Off-ramp at Balboa Avenue and the Morena Boulevard ramps, as shown in **Figure 7-5**.

Table 7-1 Garnet Avenue/ Balboa Avenue Future Travel Time Summary

Direction	Peak Period	Existing	Future Adopted	Future Preferred	Future Reduced
Eastbound	AM	321.0	373.3	324.6	322.5
	PM	337.3	417.5	378.9	375.9
Westbound	AM	292.9	307.0	288.8	291.0
	PM	305.6	344.7	341.2	338.2

Notes:

Travel Time reported in seconds.

Study corridor is between Olney Street and Clairemont Drive and approximately 1.92 miles.

Speed limit varies between 30 mph and 45 mph.

Study corridor is considered an Urban Street Class II.

8 FUTURE YEAR VEHICLE NETWORK

This chapter discusses the vehicle network analyses and variations in results between the different network alternatives being considered.

FUTURE YEAR VOLUME FORECASTS

Land Use Assumptions

As stated previously, three future scenarios were analyzed. As its name suggests, the Adopted Community Plan Land Use assumptions for the Clairemont Mesa and Pacific Beach communities were considered for the Adopted Community Plan Future Scenario. **Table 8-1** shows the land use and trip generation inputs for the Adopted Community Plan.

Table 8-1 Adopted Land Use Community Trip Generation for Adopted Future Year Build-out

Land Use	Quantity	Trips
Residential	1,221 dwelling units	7,587
Non-Residential (a)	1,142,340 square feet	23,445
Total		31,032

Notes:

(a) Adopted value does not include auto dealership floor area

An updated land use scenario was then created for the Preferred Land Use Future Scenario. This scenario modified land use assumptions within the Specific Plan area only. **Table 8-2** shows the land use and trip generation inputs for the preferred land use.

Table 8-2 Preferred Land Use Community Trip Generation for Preferred Future Year Build-out

Land Use	Quantity	Trips
Residential	4,729 dwelling units	28,380
Non-Residential	1,037,757 square feet	27,245
Total		55,625

A reduced preferred land use scenario was then created for the Reduced Land Use Future Scenario. This scenario modified land use assumptions within the Specific Plan area only. **Table 8-3** shows the land use and trip generation inputs for the reduced land use.

Table 8-3 Reduced Land Use Community Trip Generation for Reduced Future Year Build-out

Land Use	Quantity	Trips
Residential	4,167 dwelling units	25,008
Non-Residential	1,037,757 square feet	27,245
Total		52,253

Model Calibration Process

A traffic model was prepared by SANDAG for existing and future community build-out conditions. Traffic counts from the data collection efforts for this project and historical counts from the City of San Diego, were used to calibrate the existing model results. Using the attributes included in the calibrated existing model, the future land use and network assumptions for the three future scenarios were input into the model to estimate future volumes. Based on the existing calibration exercise and the future volume projections, several post-model adjustments were made. Details of the adjustments are provided in **Appendix C**. Adjustments were typically required when the model-to-volume comparison was greater than 10%. The same post-model adjustments were made to each alternative.

The model data provides roadway and freeway volumes, and was not used for intersection volumes. Future peak period turning movements at the Specific Plan area intersections were developed using methodologies from National Cooperative Highway Research Program (NCHRP) 255 – Highway Traffic Data for Urbanized Area Project Planning and Design, Chapter 8. NCHRP Report 255 is a compilation of the best techniques that are currently being used in urban areas to forecast future traffic volumes. These techniques were identified through a survey of state and local agencies with follow-up field visits to obtain detailed information on procedural steps and typical applications. The method used to forecast the future turning movement volumes evaluation is the NCHRP's "Directional Volume Forecast". For this method, existing and future daily traffic volumes, existing peak period turning movements, and projected peak period "K" and directional "D" factors are used to calculate future year turning movements. Existing daily segment traffic volumes and peak period intersection turning movements were counted in the field. Future daily traffic volumes were obtained from the forecast model. Using the "Directional Volume Forecast" technique, the existing turning movements at each Specific Plan area intersection were factored based on increases in daily approach traffic and existing K and D factors. Each respective movement was derived using an iterative approach that balances the inflows and outflows for each approach. The supporting worksheets for calculating future volumes and the resulting peak period intersection turning movement volumes are included in **Appendix D**.

FUTURE ADOPTED COMMUNITY PLAN ANALYSIS

The following section will present the capacity and LOS analysis for the Adopted Community Plan Future Scenario including the significant impacts and mitigation measures. This scenario includes the funded, planned Mid-Coast LRT Extension station improvements. The intersection and roadway geometrics under the Future Adopted Community Plan scenario represent the base for all future scenarios. Intersection and roadway geometrics are shown in **Figure 8-1** and the Future Adopted Community Plan peak period volumes are shown in **Figure 8-2**.

INTERSECTIONS

Table 8-4 displays the LOS analysis results for the study intersections for the Adopted Community Plan Future Scenario. The intersections that would operate at poor LOS (E or F) and would be considered to have a significant impact when compared to existing conditions are as follows:

- Olney Street at Garnet Avenue (Int 1) – LOS E in the PM peak period
- Garnet Avenue at Mission Bay Drive (Int 5) – LOS E in the AM and PM peak periods
- Balboa Avenue at Morena Blvd NB Ramps (Int 7) – LOS F in the AM and PM peak periods
- Clairemont Drive at Balboa Avenue (Int 9) – LOS F in the PM peak period
- Morena Boulevard at Jutland Drive (Int 22) – LOS F in the PM peak period

Appendix E contains the peak period intersections LOS calculation worksheets.

ROADWAY SEGMENTS VOLUME-BASED

Table 8-5 displays the LOS analysis results for the volume-based roadway segments evaluation for the Adopted Community Plan Future Scenario. The roadway segments that would operate at poor LOS (E or F) and would be considered to have a significant impact when compared to existing conditions are as follows:

- Garnet Avenue between Bond Street and Mission Bay Dr – LOS F
- Garnet Avenue between Mission Bay Dr and I-5 SB On Ramp – LOS F
- Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp – LOS F
- Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps – LOS F
- Balboa Avenue between Morena Boulevard NB Ramps and Moraga Avenue – LOS F
- Balboa Avenue between Moraga Avenue and Clairemont Drive – LOS E
- Balboa Avenue east of Clairemont Drive – LOS F
- Mission Bay Drive between Bluffside Avenue and Damon Avenue – LOS E
- Mission Bay Drive between Damon Avenue and Garnet Avenue – LOS F
- Clairemont Drive between Denver Street and Morena Boulevard – LOS E

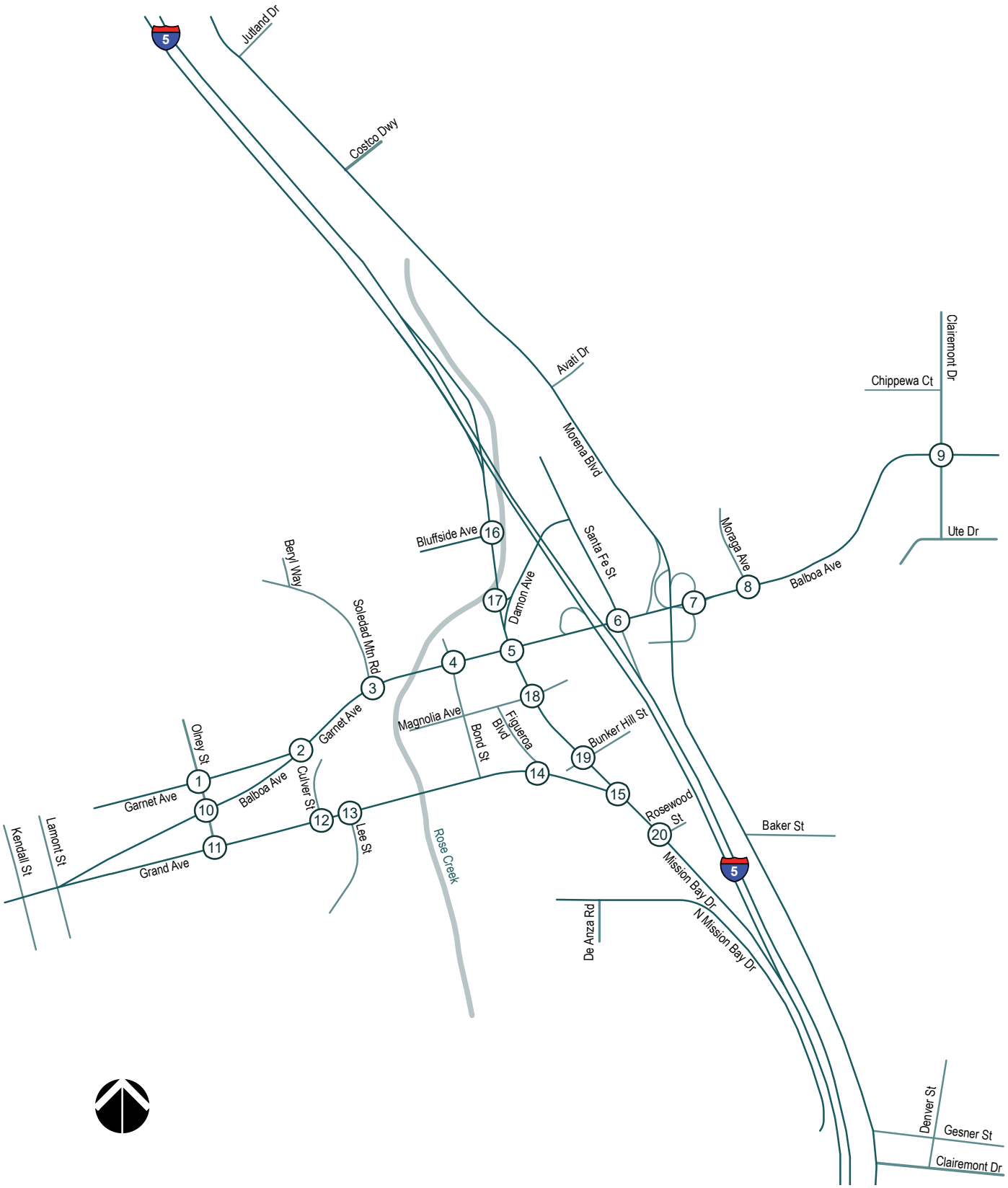
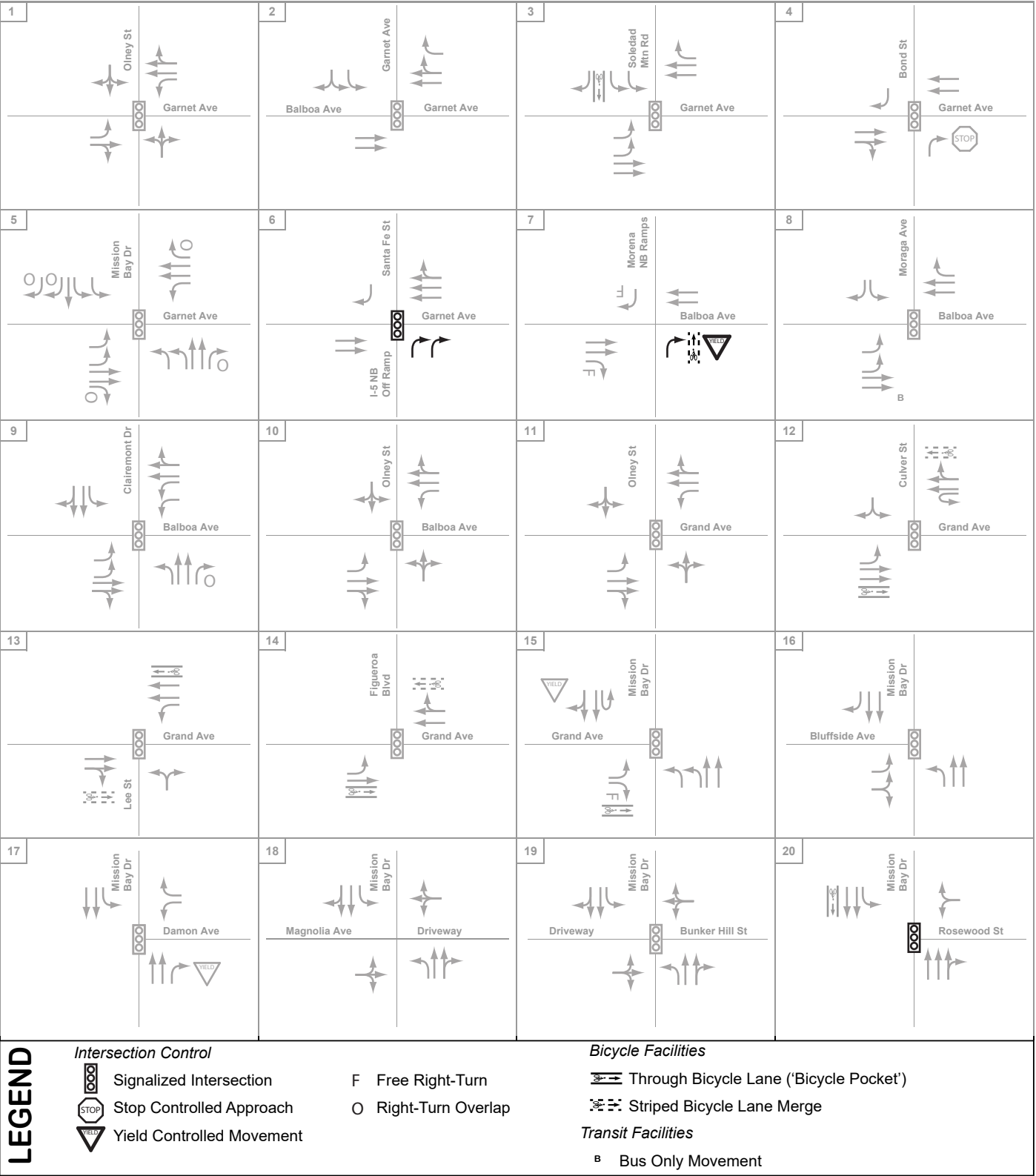
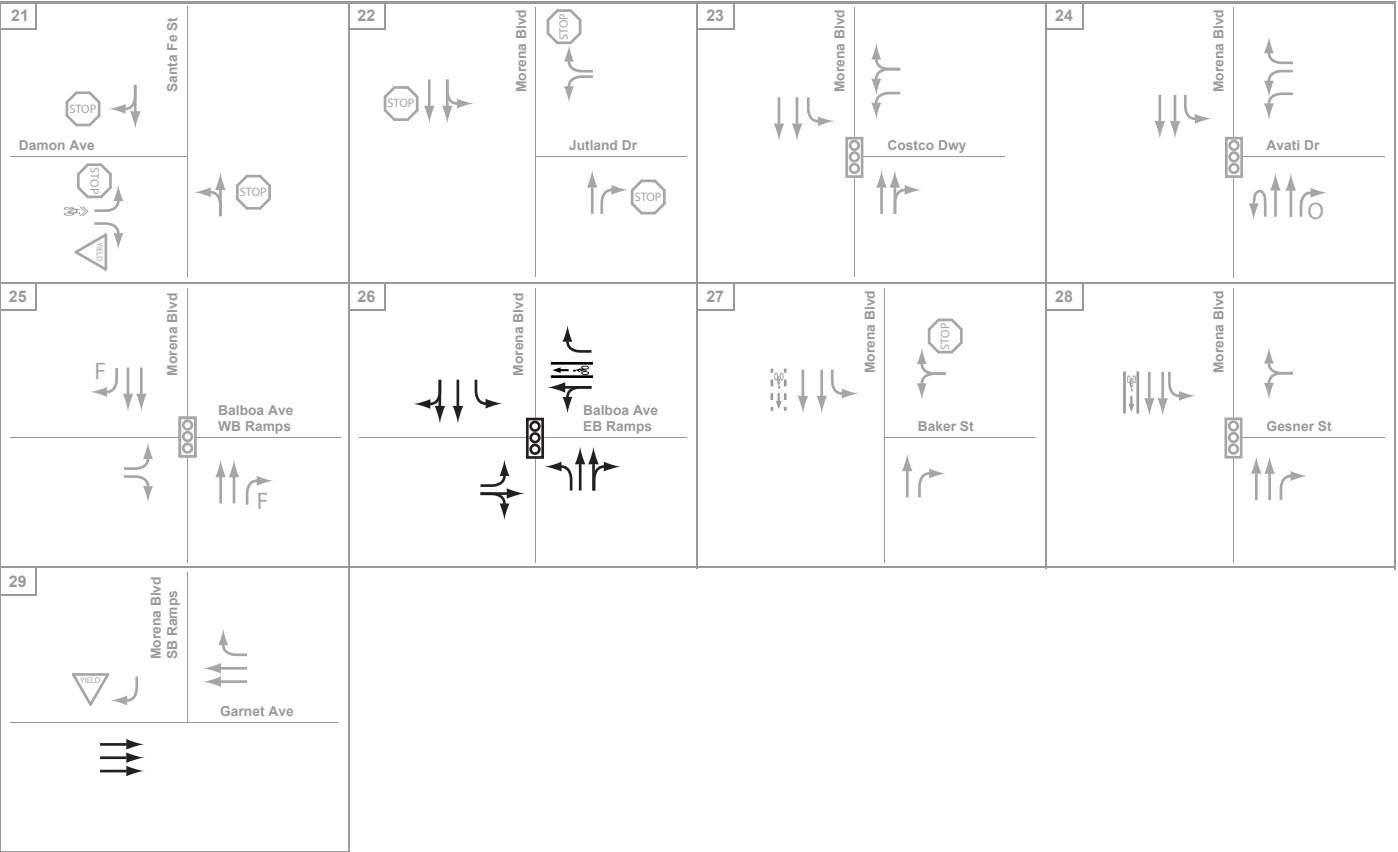


Figure 8-1
Future Adopted Community Plan Intersection Geometrics



LEGEND

Intersection Control

Signalized Intersection

Stop Controlled Approach

Yield Controlled Movement

F

Free Right-Turn

O

Right-Turn Overlap

HOV

HOV Only Movement

Bicycle Facilities

Through Bicycle Lane ('Bicycle Pocket')

Striped Bicycle Lane Merge

Figure 8-1
Future Adopted Community Plan Intersection Geometrics (Cont.)

8-5

Balboa Avenue Station Area Specific Plan | Traffic Impact Study
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1	↻ 25 / 57 ↻ 129 / 65 ↻ 83 / 56 Oliny Street	↻ ↻ 12 / 28 ↻ ↻ 703 / 1373 ↻ ↻ 7 / 18 Garnet Ave
	14 / 31 1100 / 956 97 / 115 ↻ ↻ ↻	100 / 271 73 / 110 20 / 22 ↻ ↻ ↻
2	↻ 0 / 2 ↻ 1113 / 1110 Garnet Ave	↻ ↻ 602 / 1107 ↻ ↻ 314 / 677 Garnet Ave
	1 / 0 733 / 576 ↻ ↻	↻ ↻ ↻
3	↻ 25 / 47 ↻ 564 / 570 Soledad Mtn Rd	↻ ↻ 614 / 599 ↻ ↻ 903 / 1892 Garnet Ave
	53 / 37 1683 / 1324 ↻ ↻	↻ ↻ ↻
4	↻ ↻ 1628 / 2415 Garnet Ave	
	2181 / 1822 33 / 68 ↻ ↻	Bond St ↻ 34 / 41
5	↻ 458 / 905 ↻ 259 / 369 ↻ 251 / 274 Mission Bay Dr	↻ ↻ 243 / 366 ↻ ↻ 693 / 901 ↻ ↻ 182 / 273 Garnet Ave
	833 / 569 860 / 832 541 / 456 ↻ ↻ ↻	461 / 663 445 / 396 229 / 290 ↻ ↻ ↻
6	↻ 66 / 170 ↻ 1113 / 1110 Santa Fe St	↻ ↻ 153 / 74 ↻ ↻ 1959 / 2229 Garnet Ave
	1291 / 1416 ↻ ↻	I-5 NB Off Ramp ↻ 230 / 898
7	↻ 280 / 90 ↻ 1501 / 1682 Balboa Ave	↻ ↻ ↻
	863 / 1449 657 / 860 ↻ ↻ Morena NB Ramps	↻ 210 / 337
8	↻ 265 / 297 ↻ 100 / 102 Moraga Ave	↻ ↻ 82 / 93 ↻ ↻ 1236 / 1385 Balboa Ave
	322 / 353 1076 / 1487 ↻ ↻	↻ ↻ ↻
9	↻ 355 / 335 ↻ 315 / 578 ↻ 185 / 307 Clairemont Dr	↻ ↻ 114 / 133 ↻ ↻ 815 / 1086 ↻ ↻ 368 / 446 Balboa Ave
	239 / 434 864 / 1144 73 / 59 ↻ ↻ ↻	146 / 86 374 / 358 363 / 363 ↻ ↻ ↻
10	↻ 15 / 38 ↻ 221 / 193 ↻ 12 / 18 Oliny Street	↻ ↻ 16 / 24 ↻ ↻ 166 / 527 ↻ ↻ 46 / 137 Balboa Ave
	57 / 32 521 / 356 20 / 38 ↻ ↻ ↻	17 / 19 179 / 322 90 / 44 ↻ ↻ ↻
11	↻ 19 / 60 ↻ 123 / 213 ↻ 136 / 73 Oliny Street	↻ ↻ 37 / 181 ↻ ↻ 471 / 1135 ↻ ↻ 37 / 122 Grand Ave
	27 / 46 1229 / 910 27 / 71 ↻ ↻ ↻	47 / 37 194 / 182 345 / 106 ↻ ↻ ↻
12	↻ 48 / 27 ↻ 166 / 77 Culver St	↻ ↻ 116 / 67 ↻ ↻ 471 / 1403 Grand Ave
	64 / 22 1533 / 1108 ↻ ↻	↻ ↻ ↻
13	↻ ↻ 593 / 1482 ↻ ↻ 124 / 89 Grand Ave	
	1631 / 1151 43 / 34 ↻ ↻ Lee St	49 / 17 46 / 27 ↻ ↻
14	↻ 29 / 45 ↻ 646 / 1476 Grand Ave	↻ ↻ ↻
	81 / 70 1654 / 1110 ↻ ↻	↻ ↻ ↻
15	↻ 100 / 265 ↻ 763 / 886 Mission Bay Dr	↻ ↻ ↻
	299 / 102 1400 / 990 ↻ ↻	460 / 1231 819 / 1071 ↻ ↻
16	↻ 196 / 496 ↻ 765 / 1322 Mission Bay Dr	↻ ↻ ↻
	584 / 243 120 / 143 ↻ ↻ Bluffsides Ave	94 / 311 1389 / 1093 ↻ ↻
17	↻ 819 / 1427 ↻ 52 / 64 Mission Bay Dr	↻ ↻ 42 / 135 ↻ ↻ 73 / 163 Damon Ave
	1465 / 1277 107 / 189 ↻ ↻	39 / 63 1058 / 1247 6 / 2 ↻ ↻ ↻
18	↻ 73 / 149 ↻ 839 / 916 ↻ 34 / 33 Mission Bay Dr	↻ ↻ 5 / 7 ↻ ↻ 1 / 1 ↻ ↻ 8 / 7 Driveway
	100 / 71 8 / 6 106 / 139 ↻ ↻ ↻	↻ ↻ ↻
19	↻ 820 / 984 ↻ 149 / 105 Mission Bay Dr	↻ ↻ 45 / 56 ↻ ↻ 35 / 116 Bunker Hill St
	1020 / 1130 82 / 36 ↻ ↻	↻ ↻ ↻
20	↻ 2193 / 1843 ↻ 19 / 7 Mission Bay Dr	↻ ↻ 21 / 29 ↻ ↻ 5 / 5 Rosewood St
	1249 / 2295 26 / 32 ↻ ↻	↻ ↻ ↻

Note:
2030 Building Alternative peak hour volumes from the *Mid-Coast Corridor Transit Project Transportation and Mitigation Report*, September 2014, were used for intersections 25 and 26. Through volumes at these intersections were then balanced based on adjacent intersection volumes. Volumes at intersections 7 and 29 were determined based on volumes at adjacent intersections.

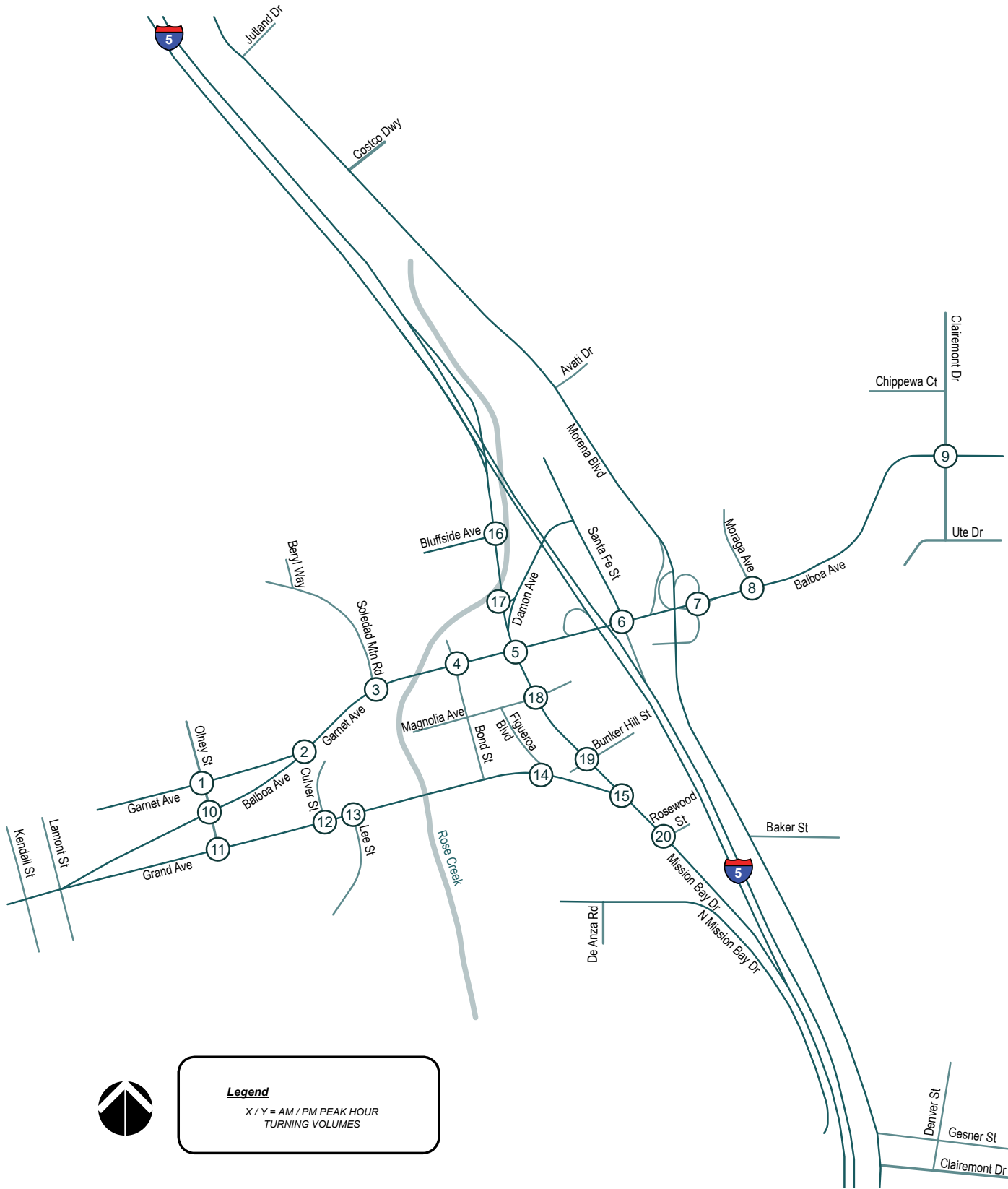


Figure 8-2
Future Adopted Community Plan Peak Period Volumes

<div>21</div> <div><div>67 / 118 ↕ ↕ Damon Ave</div><div>Santa Fe St</div><div>102 / 83 20 / 45 ↕</div><div>13 / 57 ↕ 125 / 70</div></div>	<div>22</div> <div><div>159 / 303 ↕ ↕ Morena Blvd</div><div>20 / 17 194 / 613 Jutland Dr</div><div>249 / 171 ↕ 416 / 275</div></div>	<div>23</div> <div><div>290 / 900 ↕ ↕ Morena Blvd</div><div>55 / 71 97 / 369 Costco Dwy</div><div>657 / 327 ↕ 117 / 364</div></div>	<div>24</div> <div><div>357 / 1264 ↕ ↕ Morena Blvd</div><div>34 / 48 231 / 193 Avati Dr</div><div>804 / 659 ↕ 121 / 193</div></div>
<div>25</div> <div><div>410 / 970 ↕ ↕ Balboa WB Ramps</div><div>Morena Blvd</div><div>90 / 150 ↕ 151 / 259 ↕</div><div>1146 / 1093 ↕ 280 / 90</div></div>	<div>26</div> <div><div>47 / 11 ↕ ↕ Balboa EB Ramps</div><div>Morena Blvd</div><div>29 / 80 10 / 27 1 / 5 ↕</div><div>440 / 530 ↕ ↕ 77 / 30 140 / 300 Balboa EB Ramps</div><div>9 / 5 ↕ 957 / 573 150 / 180</div></div>	<div>27</div> <div><div>364 / 1032 ↕ ↕ Morena Blvd</div><div>26 / 20 20 / 11 Baker St</div><div>965 / 478 ↕ 17 / 12</div></div>	<div>28</div> <div><div>386 / 1020 ↕ ↕ Morena Blvd</div><div>53 / 94 36 / 41 Gesner St</div><div>984 / 456 ↕ 45 / 49</div></div>
<div>29</div> <div><div>410 / 970 ↕ ↕ Garnet Ave</div><div>Morena SB Ramps</div><div>1520 / 2309 1 / 5 ↕</div><div>241 / 409 ↕ 1540 / 1363 Balboa Ave</div></div>			

Note:
2030 Building Alternative peak hour volumes from the *Mid-Coast Corridor Transit Project Transportation and Mitigation Report*, September 2014, were used for intersections 25 and 26. Through volumes at these intersections were then balanced based on adjacent intersection volumes. Volumes at intersections 7 and 29 were determined based on volumes at adjacent intersections.

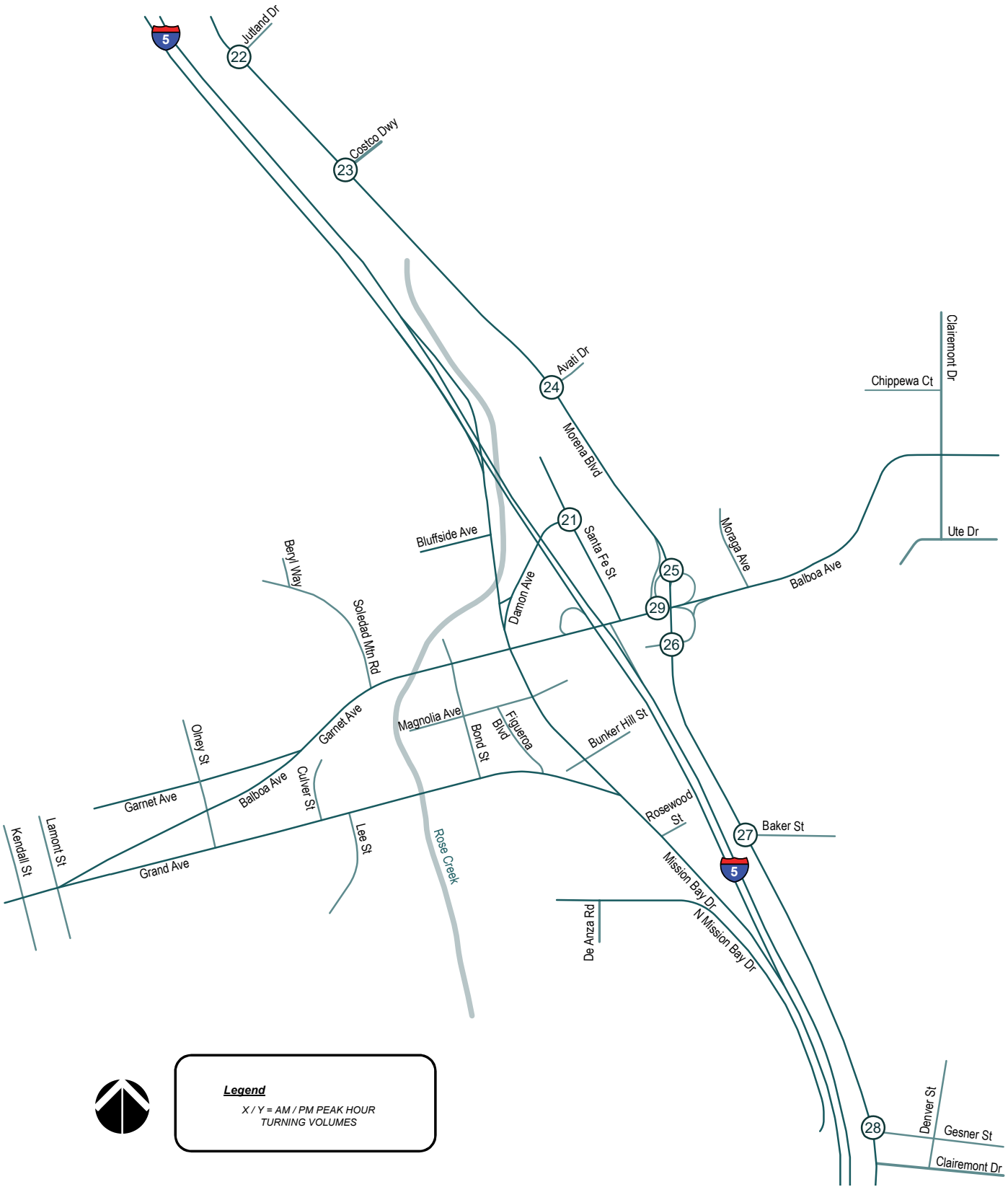


Figure 8-2
Future Adopted Community Plan Peak Period Volumes (Cont.)

Table 8-4 Future Adopted Community Plan Intersection Analysis Summary

Intersection		Traffic Control	Peak	Existing		Future Adopted		Impact?
				Delay (a)	LOS (b)	Delay (a)	LOS (b)	
1	Garnet Ave at Olney St	Signal	AM	15.4	B	36.3	D	
			PM	12.1	B	56.4	E	Yes
2	Garnet Ave at Balboa Ave	Signal	AM	11.1	B	13.0	B	
			PM	15.0	B	26.0	C	
3	Garnet Ave at Soledad Mountain Rd	Signal	AM	18.6	B	18.4	B	
			PM	29.2	C	30.6	C	
4	Garnet Ave at Bond St	Signal	AM	0.5	A	0.6	A	
			PM	0.6	A	0.6	A	
5	Garnet Ave at Mission Bay Dr	Signal	AM	55.7	E	61.5	E	Yes
			PM	58.0	E	70.5	E	Yes
6	Garnet Ave at Santa Fe St	One-Way Stop (c)	AM	16.8	C	12.4	B	
			PM	151.9	F	12.6	B	
7	Balboa Ave at Morena Blvd NB Ramps	One-Way Yield	AM	27.0	D	75.2	F	Yes
			PM	50.7	F	113.1	F	Yes
8	Balboa Ave at Moraga Ave	Signal	AM	16.2	B	17.0	B	
			PM	16.3	B	17.7	B	
9	Balboa Ave at Clairemont Dr	Signal	AM	47.6	D	51.0	D	
			PM	59.2	E	84.6	F	Yes
10	Balboa Ave at Olney St	Signal	AM	12.4	B	14.9	B	
			PM	12.9	B	19.2	B	
11	Grand Ave at Olney St	Signal	AM	32.9	C	41.6	D	
			PM	27.2	C	35.5	D	
12	Grand Ave at Culver St	Signal	AM	10.2	B	10.4	B	
			PM	5.8	A	7.0	A	
13	Grand Ave at Lee St	Signal	AM	9.5	A	10.4	B	
			PM	5.2	A	5.6	A	
14	Grand Ave at Figueroa Blvd	Signal	AM	14.9	B	12.7	B	
			PM	3.0	A	3.2	A	
15	Grand Ave at Mission Bay Dr	Signal	AM	34.5	C	16.2	B	
			PM	32.3	C	36.5	D	
16	Mission Bay Dr at Bluffside Ave	Signal	AM	21.6	C	23.9	C	
			PM	20.4	C	26.7	C	

Notes: **Bold** values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

(c) Intersection is assumed to be signalized in the Future Year scenario based on planned development project in the area.

Table 8-4 Future Adopted Community Plan Intersection Analysis Summary (Cont.)

Intersection		Traffic Control	Peak	Existing		Future Adopted		Impact?
				Delay (a)	LOS (b)	Delay (a)	LOS (b)	
17	Mission Bay Dr at Damon Ave	Signal	AM	8.2	A	8.0	A	
			PM	14.3	B	22.8	C	
18	Mission Bay Dr at Magnolia Ave	Signal	AM	14.7	B	19.7	B	
			PM	16.1	B	19.9	B	
19	Mission Bay Dr at Bunker Hill St	Signal	AM	6.5	A	7.1	A	
			PM	8.2	A	11.9	B	
20	Mission Bay Dr at Rosewood St	One-Way Stop (c)	AM	41.7	E	5.6	A	
			PM	176.0	F	6.7	A	
21	Santa Fe St at Damon Ave	All-Way Stop	AM	7.8	A	8.1	A	
			PM	8.1	A	8.3	A	
22	Morena Blvd at Jutland Dr	All-Way Stop	AM	12.7	B	12.6	B	
			PM	55.2	F	92.7	F	Yes
23	Morena Blvd at Costco Dwy	Signal	AM	9.6	A	9.4	A	
			PM	11.0	B	11.0	B	
24	Morena Blvd at Avati Dr	Signal	AM	9.1	A	9.7	A	
			PM	8.9	A	9.0	A	
25	Morena Blvd at WB Balboa Ave Ramps	Signal	AM	3.3	A	4.1	A	
			PM	4.7	A	5.7	A	
26	Morena Blvd at EB Balboa Ave Ramps	Two-Way Stop (c)	AM	96.7	F	21.8	C	
			PM	50.2	F	26.3	C	
27	Morena Blvd at Baker St	One-Way Stop	AM	35.1	E	31.2	D	
			PM	17.6	C	18.2	C	
28	Morena Blvd at Gesner St	Signal	AM	8.6	A	8.7	A	
			PM	7.5	A	7.5	A	
29	Balboa Ave at Morena Blvd SB Ramps	Free	AM	N/A	N/A	N/A	N/A	
			PM	N/A	N/A	N/A	N/A	

Notes: **Bold** values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

(c) Intersection is assumed to be signalized in the Future Year scenario based on planned development project in the area.

Table 8-5 Future Adopted Community Plan Volume-Based Roadway Segment Analysis Summary

Roadway Segment	Existing					Future Adopted					Impact?
	Functional Classification (a)	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	Functional Classification	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	
Balboa Ave											
Garnet Ave to Grand Ave	4 Lane Major Arterial	40,000	14,263	0.357	A	4 Lane Major Arterial	40,000	14,400	0.360	A	
Garnet Ave											
Bond St to Mission Bay Dr	4 Lane Major Arterial	40,000	58,694	1.467	F	4 Lane Major Arterial	40,000	63,200	1.580	F	Yes
Mission Bay Dr to I-5 SB On-Ramp	5 Lane Major Arterial	45,000	37,406	0.831	D	5 Lane Major Arterial	45,000	48,100	1.069	F	Yes
I-5 SB On-Ramp to I-5 NB Off-Ramp	5 Lane Major Arterial	45,000	48,857	1.086	F	5 Lane Major Arterial	45,000	66,600	1.480	F	Yes
I-5 NB Off-Ramp to Morena Blvd SB Ramps	5 Lane Major Arterial	45,000	52,073	1.157	F	5 Lane Major Arterial	45,000	77,500	1.722	F	Yes
Balboa Ave (CA-274)											
Morena Boulevard SB Ramps to Morena Boulevard NB Ramps	4 Lane Major Arterial	40,000	49,079	1.227	F	5 Lane Major Arterial	45,000	49,400	1.098	F	
Morena Blvd NB Ramps to Moraga Ave	4 Lane Major Arterial	40,000	43,115	1.078	F	4 Lane Major Arterial	40,000	45,500	1.138	F	Yes
Moraga Ave to Clairemont Dr	4 Lane Major Arterial	40,000	34,903	0.873	D	4 Lane Major Arterial	40,000	38,200	0.955	E	Yes
East of Clairemont Dr	4 Lane Major Arterial	40,000	37,383	0.935	E	4 Lane Major Arterial	40,000	43,000	1.075	F	Yes
Grand Ave											
Kendall St to Lamont St	4 Lane Major Arterial	40,000	51,778	1.294	F	4 Lane Major Arterial	40,000	24,500	0.613	C	
Lee St to Bond St (On Rose Creek Bridge)	4 Lane Major Arterial	40,000	37,915	0.948	E	4 Lane Major Arterial	40,000	35,700	0.893	E	
Figueroa Blvd to Mission Bay Dr	4 Lane Major Arterial	40,000	38,202	0.955	E	4 Lane Major Arterial	40,000	36,500	0.913	E	
Mission Bay Dr											
Bluffside Ave to Damon Ave	4 Lane Major Arterial	40,000	35,580	0.890	E	4 Lane Major Arterial	40,000	39,600	0.990	E	Yes
Damon Ave to Garnet Ave	4 Lane Major Arterial	40,000	40,680	1.017	F	4 Lane Major Arterial	40,000	42,400	1.060	F	Yes
Garnet Ave to Magnolia Ave	4 Lane Major Arterial	40,000	29,702	0.743	C	4 Lane Major Arterial	40,000	33,800	0.845	D	
Magnolia Ave to Bunker Hill St	4 Lane Major Arterial	40,000	29,821	0.746	C	4 Lane Major Arterial	40,000	34,800	0.870	D	
Bunker Hill St to Grand Ave	4 Lane Major Arterial	40,000	29,002	0.725	C	4 Lane Major Arterial	40,000	34,100	0.853	D	
Grand Avenue to I-5 Ramps	5 Lane Major Arterial	45,000	55,051	1.223	F	5 Lane Major Arterial	45,000	52,400	1.164	F	

Notes: **Bold** values indicate roadway segments operating at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Existing road classifications are based on field work conducted in May 2016.

(b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by National Data and Surveying Services (NDS) and measured in May and June of 2016.

(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

Table 8-5 Future Adopted Community Plan Volume-Based Roadway Segment Analysis Summary (Cont.)

Roadway Segment	Existing					Future Adopted					Impact?
	Functional Classification (a)	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	Functional Classification	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	
Morena Blvd											
Jutland Dr to Avati Dr	4 Lane Major Arterial	40,000	11,554	0.289	A	4 Lane Major Arterial	40,000	17,200	0.430	B	
Avati Dr to Balboa Ave Ramps	4 Lane Major Arterial	40,000	20,136	0.503	B	4 Lane Major Arterial	40,000	22,100	0.553	C	
Balboa Ave Ramps to Ticonderoga St	3 Lane Major Arterial	30,000	15,823	0.527	C	4 Lane Major Arterial	40,000	16,900	0.423	B	
Gesner St to Clairemont Dr	4 Lane Major Arterial	40,000	15,584	0.390	B	4 Lane Major Arterial	40,000	16,400	0.41	B	
Clairemont Dr											
Chippewa Court to Balboa Avenue	4 Lane Major Arterial	40,000	21,259	0.531	C	4 Lane Major Arterial	40,000	25,800	0.645	C	
Balboa Avenue to Ute Drive	4 Lane Major Arterial	40,000	19,325	0.483	B	4 Lane Major Arterial	40,000	26,700	0.668	C	
Denver Street to Morena Boulevard	4 Lane Major Arterial	40,000	31,162	0.779	D	4 Lane Major Arterial	40,000	39,200	0.980	E	Yes
Damon Ave (d)											
Mission Bay Drive to Santa Fe Street	2 Lane Collector (w/o two-way left turn lane)	8,000	4,415	0.552	C	2 Lane Collector (w/o two-way left turn lane)	8,000	4,400	0.550	C	
Santa Fe St											
Damon Avenue to Balboa Avenue	2 Lane Collector (w/o two-way left turn lane)	8,000	2,431	0.304	A	2 Lane Collector (w/o two-way left turn lane)	8,000	4,900	0.613	C	
Soledad Mountain Rd											
Beryl Street to Garnet Avenue	4 Lane Major Arterial	40,000	27,235	0.681	C	4 Lane Major Arterial	40,000	28,700	0.718	D	
N Mission Bay Dr											
De Anza Road to Mission Bay Drive	2 Lane Collector (w/o two-way left turn lane)	8,000	2,456	0.307	A	2 Lane Collector (w/o two-way left turn lane)	8,000	2,500	0.313	D	

Notes: **Bold** values indicate roadway segments operating at LOS E or F. **Bold and shaded** values indicate an impact.

- (a) Existing road classifications are based on field work conducted in May 2016.
- (b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by National Data and Surveying Services (NDS) and measured in May and June of 2016.
- (c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.
- (d) Damon Avenue is classified as a local street but functions as a collector with in the community.

CORRIDORS SPEED-BASED

Table 8-6 displays the LOS analysis results for the speed-based corridor segments evaluation for the Adopted Community Plan Future Scenario using the roadway network discussed in the previous section. The corridors that would operate at poor LOS (E or F) and would be considered to have a significant impact when compared to existing conditions are as follows:

- Northbound Mission Bay Drive between Grand Avenue and Bluffside Avenue – LOS E in the PM peak period
- Southbound Mission Bay Drive between Bluffside Avenue and Grand Avenue – LOS E in the AM peak period and LOS F in the PM peak period
- Eastbound Garnet Avenue/Balboa Avenue between Olney Street and Clairemont Drive – LOS E in the PM peak period

Appendix E contains the travel time details along each corridor.

Table 8-6 Future Adopted Community Plan Speed-Based Corridor Analysis Summary

Corridor	Direction	Urban Street Class	Peak	Existing			Future Adopted		
				Travel Time (sec)	Speed (mph)	LOS (a)	Travel Time (sec)	Speed (mph)	LOS (a)
Mission Bay Drive									
Grand Avenue to Bluffside Avenue	Northbound	III	AM	140.5	15.9	D	147.2	15.2	D
			PM	167.5	13.3	E	202.0	11.0	E
Bluffside Avenue to Grand Avenue	Soutbound	III	AM	157.9	13.9	E	178.3	12.5	E
			PM	218.6	10.0	E	292.9	7.6	F
Garnet Avenue/ Balboa Avenue									
Olney Street to Clairemont Drive	Eastbound	II	AM	321.0	20.5	D	373.3	17.6	D
			PM	337.3	19.5	D	417.5	15.8	E
Clairemont Drive to Olney Street	Westbound	II	AM	292.9	22.6	C	307.0	21.6	D
			PM	305.6	21.7	D	344.7	19.2	D

Notes: **Bold** values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

FREEWAY SEGMENTS

Table 8-7 displays the LOS analysis results for the study freeway segments for the Adopted Future Scenario. As shown, all segments operate at LOS E in the northbound direction during the AM peak period except I-5 from Mission Bay Drive to Clairemont Drive; and operate at LOS E in the southbound direction during the PM peak period.

FREEWAY RAMP METERS

Table 8-8 displays the LOS analysis results for the study intersections for the Adopted Future Scenario. As shown, the following location is projected to result in a delay greater than 15-minutes and would be considered to have a significant impact when compared to existing conditions:

- I-5 SB and Mission Bay Drive – PM peak period (54 minute delay)

Table 8-7 Future Adopted Community Plan Freeway Segment Analysis Summary

Freeway Segment		Dir	Number of Lanes	Future Adopted								Existing				Δ in Speed		Impact?
				Peak-Hour Volume (a)		Speed (mph) (b)		Density (pc/mi/ln)		LOS (c)		Speed (mph) (b)		LOS (c)				
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
I-5	SR-52 to Mission Bay Dr	NB	5	10,431	6,642	56.6	68.0	40.2	23.7	E	C	61.1	68.0	D	C	4.5	0.0	YES
		SB	5	6,061	10,110	68.0	58.3	23.7	37.8	C	E	68.0	62.4	C	D	0.0	4.1	YES
	Mission Bay Dr to Garnet Ave/ Balboa Ave	NB	4	8,209	5,227	57.5	68.0	38.9	23.7	E	C	64.3	68.0	D	C	6.8	0.0	YES
		SB	4	4,770	7,956	68.0	59.1	23.7	36.7	C	E	68.0	65.2	C	D	0.0	6.1	YES
	Garnet Ave/ Balboa Ave to Mission Bay Dr	NB	4	7,849	6,998	59.8	64.2	35.8	29.7	E	D	66.5	68.0	D	C	6.8	3.8	YES
		SB	4	6,045	8,355	67.7	56.5	24.4	40.3	C	E	68.0	65.0	C	D	0.3	8.4	YES
	Mission Bay Dr to Clairemont Dr	NB	5	9,153	8,161	62.7	66.1	31.9	26.9	D	D	66.4	68.0	D	C	3.8	1.9	NO
		SB	5	7,050	9,743	68.0	60.1	23.7	35.4	C	E	68.0	64.8	C	D	0.0	4.7	YES

Notes: Bold values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Peak-hour volumes were estimated using SANDAG forecast model outputs.

(b) The speed was calculated from a base free-flow speed (BFFS) of 75.4 mph (per equation 11-1 in the 2010 HCM) using Exhibit 11-3 in the 2010 HCM.

(c) The LOS for the respective freeway segments were based on the methodologies contained in Chapter 11 of the 2010 Highway Capacity Manual.

Table 8-8 Future Adopted Community Plan Freeway Ramp Meter Analysis Summary

On Ramp	Peak Hour	Number of Lanes		Meter Rate (veh/hr) (a)	Future Adopted				Existing				Impact?
					Demand (veh/hr/ln) (b)	Excess Demand (veh/hr)	Delay (min)	Queue (feet) (c)	Demand (veh/hr/ln) (b)	Excess Demand (veh/hr)	Delay (min)	Queue (feet) (c)	
		GP	HOV										
I-5 SB & Mission Bay Drive	AM	2	1	n/a	590				584				
	PM			475	903	428	54	10,700	894	419	53	10,475	YES
I-5 SB & Westbound Balboa Ave	AM	2	0	n/a	269				240				
	PM			542	412	0	0	0	368	0	0	0	NO
I-5 NB & Mission Bay Drive	AM	2	0	811	987	176	13	4,400	910	99	7	2,475	NO
	PM			n/a	668				615				

Notes: Bold values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Meter Rate is the peak hour capacity expected to be processed through the ramp meter. Values were obtained from Caltrans. Most Conservative rate (Rate 15) was used.

(b) Demand is the peak hour demand expected to use the on-ramp.

(c) Assumes an average vehicle length of 25 feet.

SIGNIFICANT IMPACTS

Project impacts for the Adopted Community Plan Future Scenario were determined based on a comparison between the future year and existing conditions. Per the City of San Diego's significance thresholds and the analysis methodology presented in this report, the following cumulative impacts were identified:

Intersections

Cumulative impacts were identified at the following study intersections:

- Olney Street at Garnet Avenue (Int 1) – LOS E in the PM peak period
- Garnet Avenue at Mission Bay Drive (Int 5) – LOS E in the AM and PM peak periods
- Balboa Avenue at Morena Blvd NB Ramps (Int 7) – LOS F in the AM and PM peak periods
- Clairemont Drive at Balboa Avenue (Int 9) – LOS F in the PM peak period
- Morena Boulevard at Jutland Drive (Int 22) – LOS F in the PM peak period

Roadway Segments

Cumulative impacts were determined at the following study roadway segments:

- Garnet Avenue between Bond Street and Mission Bay Dr – LOS F
- Garnet Avenue between Mission Bay Dr and I-5 SB On Ramp – LOS F
- Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp – LOS F
- Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps – LOS F
- Balboa Avenue between Morena Boulevard NB Ramps and Moraga Avenue – LOS F
- Balboa Avenue between Moraga Avenue and Clairemont Drive – LOS E
- Balboa Avenue east of Clairemont Drive – LOS F
- Mission Bay Drive between Bluffside Avenue and Damon Avenue – LOS E
- Mission Bay Drive between Damon Avenue and Garnet Avenue – LOS F
- Clairemont Drive between Denver Street and Morena Boulevard – LOS E

Freeway Segments

Cumulative impacts were determined at the following study freeway segments:

- I-5 between SR-52 and Mission Bay Drive – LOS E in NB during AM peak period and in SB during PM peak period
- I-5 between Mission Bay Drive and Garnet Avenue/Balboa Avenue – LOS E in NB during AM peak period and in SB during PM peak period
- I-5 between Garnet Avenue/Balboa Avenue and Mission Bay Drive – LOS E in NB during AM peak period and in SB during PM peak period
- I-5 between Mission Bay Drive and Clairemont Drive – LOS E in SB during PM peak period

Freeway Ramp Meters

Cumulative impacts were determined at the following study freeway ramp meters:

- I-5 SB and Mission Bay Drive PM peak period (54 minute delay)

MITIGATION MEASURES

The required mitigation measures for roadway and intersections that would be significantly impacted under the Adopted Community Plan Future Scenario when compared to existing conditions are presented below.

Intersections

Garnet Avenue & Olney Street (Intersection 1): Remove parking and restripe to include a northbound left-turn lane. The required mitigation at this intersection is shown in **Appendix F**. The impact at this intersection associated with the Future Adopted Land Use scenario would be fully mitigated with the implementation of this measure. This improvement is recommended under the Adopted Community Plan Scenario.

Garnet Avenue & Mission Bay (Intersection 5): Construct a second southbound through lane, a third westbound through lane, and a second westbound left-turn lane. The impact at this intersection associated with the Future Adopted Land Use scenario would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition that would significantly impact four adjacent commercial properties. These properties are not assumed to be redeveloped as part of the Future Adopted Land Use scenario. Due to the impact to adjacent properties and potential effect on pedestrian travel, this improvement is not recommended under the Adopted Community Plan scenario.

Balboa Avenue & Morena Boulevard NB Ramps (Intersection 7): Install a partial traffic signal at this intersection to control the eastbound and northbound approaches. The impact at this intersection associated with the Future Adopted Land Use scenario would be fully mitigated with the implementation of this measure. This improvement is recommended under the Adopted Community Plan Scenario.

Balboa Avenue & Clairemont Drive (Intersection 9): Construct a southbound right-turn lane and a second southbound left-turn lane. Construct a westbound right-turn lane. The required mitigation at this intersection is shown in **Appendix F**. The impact at this intersection associated with the Future Adopted Land Use scenario would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition that would significantly impact one adjacent commercial property and would increase pedestrian crossing distances. Further, the Clairemont Community Plan Update is currently underway and may further consider the need for and feasibility of these improvements as part of their evaluation when looking at land use changes for the community as a whole. Due to the impact to adjacent properties and potential effect on pedestrian travel, this improvement is not recommended under the Adopted Community Plan scenario.

Morena Boulevard & Jutland Drive (Intersection 22): Install a traffic signal or roundabout at this intersection. The required mitigation at this intersection is shown in **Appendix F**. The impact at this intersection associated with the Future Adopted Land Use scenario would be fully mitigated with the implementation of this measure. This improvement is recommended under the Adopted Community Plan Scenario.

Roadway Segments

Garnet Avenue between Bond Street and Mission Bay Drive: Widen this segment of Garnet Avenue to an 8-lane Major Arterial. With the implementation of this mitigation, the roadway segment will still operate at unacceptable conditions, but would operate better than existing conditions and therefore would not be considered a significant impact. This improvement would require right-of-way acquisition and significantly

impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Garnet Avenue between Mission Bay Drive and I-5 SB On Ramp: Widen this segment of Garnet Avenue to a 7-lane Major Arterial. The significant traffic impact associated with the Future Adopted Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp: Widen this segment of Garnet Avenue to an 8-lane Major Arterial. With the implementation of this partial mitigation, the roadway segment will still operate at unacceptable conditions and the significant traffic associated with the Future Adopted Land Use scenario would remain significant. This improvement would require reconstruction of the freeway undercrossing. It would also impact properties on either side of the freeway undercrossing to create transitions or widen the roadway on either side to match this width. Due to these factors, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps: Widen this segment of Garnet Avenue to an 8-lane Major Arterial. With the implementation of this partial mitigation, the roadway segment will still operate at unacceptable conditions and the significant traffic associated with the Future Adopted Land Use scenario would remain significant. This improvement would require right-of-way acquisition and significantly impact the Balboa Avenue Station on the south and the City's operations yard on the north side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Balboa Avenue between Morena Boulevard NB Ramps and Moraga Avenue: Widen this segment of Balboa Avenue to a 8-lane Major Arterial. The significant traffic impact associated with the Future Adopted Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition. Doing this widening in isolation without widening of adjacent roadway widths to the west would not improve operations as it is a very short segment and appropriate transitions would be required. Due to these factors, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Balboa Avenue between Moraga Avenue and Clairemont Drive: Widen this segment of Balboa Avenue to a 5-lane Major Arterial. The significant traffic impact associated with the Future Adopted Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significant cost to design for the steep slopes on either side of the roadway. Due to these factors, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Balboa Avenue east of Clairemont Drive: Widen this segment of Balboa Avenue to a 6-lane Major Arterial. The significant traffic impact associated with the Future Adopted Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significant cost to design for the steep slopes on either side of the roadway. Due to these factors, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Bluffside Avenue and Damon Avenue: Widen this segment of Mission Bay Drive to a 6-lane Major Arterial. The significant traffic impact associated with the Future Adopted Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure;

however, this would require widening of the bridge over Rose Creek. Due to the environmental constraints and concerns with impacting Rose Creek, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Damon Avenue and Garnet Avenue: Widen this segment of Mission Bay Drive to a 6-lane Major Arterial. The significant traffic impact associated with the Future Adopted Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Clairemont Drive between Denver Street and Morena Boulevard: Widen this segment of Clairemont Drive to a 5-lane Major Arterial. The significant traffic impact associated with the Future Adopted Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Freeway Segments

No mitigation measures are identified for impacts to freeways because freeway improvements are not within the authority of the City. The improvements identified in SANDAG's RTP would improve operations along the freeway segments and ramps; however, to what extent is still undetermined, as these are future improvements that must be defined more over time. Furthermore, implementation of freeway improvements in a timely manner is beyond the full control of the City since Caltrans has approval authority over freeway improvements. The City will continue to coordinate with Caltrans and SANDAG on future improvements, as future project-level developments proceed, to develop potential "fair share" multi-modal mitigation strategies for freeway impacts, as appropriate. The following are the freeway mainline improvements identified in SANDAG's RTP:

I-5 between SR-52 and Clairemont Drive: SANDAG San Diego Forward 2050 Revenue Constrained Network includes operational improvements and construction of managed lanes along I-5 between SR-52 and Clairemont Drive. This project is expected to be constructed by the year 2050. There is some uncertainty related to the actual improvements and associated traffic impacts that will materialize over time. Future development projects' transportation studies would be able to more accurately identify individual project-level impacts and provide the mechanism to mitigate them through fair share contributions in addition to the funding identified in the Revenue Constrained Network.

Freeway Ramp Meters

The City of San Diego shall coordinate with Caltrans to address ramp capacity at impacted on-ramp locations. Improvements could include additional lanes, interchange reconfigurations, Transportation Demand Measures (TDM); however, specific capacity improvements are still undetermined, as these are future improvements that must be defined more over time. Furthermore, implementation of freeway improvements in a timely manner is beyond the full control of the City since Caltrans has approval authority over freeway improvements.

POST-MITIGATION ANALYSIS

The following section will present the capacity and LOS analysis for the Adopted Community Plan Future Scenario with the implementation of the traffic mitigation measures described above.

Intersections

Table 8-9 displays the LOS analysis results for the study intersections after the implementation of the mitigation measures described above for the Future Adopted Land Use Scenario. As shown in the table, all intersections would operate at LOS D or better during both peak periods after the implementation of the traffic mitigation measures.

Appendix G contains the peak period intersection LOS calculation worksheets.

Roadway Segments

Table 8-10 displays the LOS analysis results for the study roadway segments after the implementation of the mitigation measures described above for the Future Adopted Land Use Scenario. As shown in the table, all but three segments would operate at LOS D or better. The three roadway segments that would continue to operate at poor LOS (E or F) after implementation of the traffic mitigation measures are as follows:

- Garnet Avenue between Bond Street and Mission Bay Drive – LOS F
- Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp – LOS F
- Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps – LOS F

Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp and between I-5 NB Off Ramp and Morena Boulevard SB Ramps would be considered to continue to have a significant impact when compared to existing conditions. Based on the feasibility of the traffic mitigation measures, none of the roadway segment improvements are recommended as part of the Adopted Community Plan scenario.

Table 8-7 Future Adopted Community Plan with Recommended Mitigation Intersection Analysis Summary

Intersection		Peak Period	Future Adopted		After Mitigations		Recommended?	Description
			Delay (a)	LOS (b)	Delay (a)	LOS (b)		
1	Olney St & Garnet Ave	AM	36.3	D	30.0	C	YES	Remove parking and restripe NB approach to include a left-turn lane.
		PM	56.4	E	39.0	D		
5	Mission Bay Dr & Garnet Ave	AM	61.5	E	52.1	D	NO	Widen Garnet Avenue to add a third WB through lane and second WB left-turn lane. Add second SB through lane.
		PM	70.5	E	50.3	D		
7	Balboa EB Ramps & Balboa Ave	AM	75.2	F	4.5	A	YES	Install a partial traffic signal at this intersection to control the EB and NB approaches.
		PM	113.1	F	8.3	A		
9	Clairemont Dr & Balboa Ave	AM	51.0	D	33.3	C	NO	Add a SB right-turn lane and second SB left-turn lane. Add a WB right-turn lane.
		PM	84.6	F	52.4	D		
22	Morena Blvd & Jutland Dr	AM	12.6	B	5.9 / 7.4	A / A	YES	Install a traffic signal or roundabout.
		PM	92.7	F	10.7 / 14.7	B / B		

Notes: **Bold** values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

Table 8-8 Future Adopted Community Plan with Recommended Mitigation Roadway Segment Analysis Summary

Roadway Segment	Future ADT (a)	Future Adopted			After Mitigations			Recommended?
		Functional Classification	V/C Ratio (b)	LOS	Functional Classification	V/C Ratio (b)	LOS	
Garnet Avenue								
Bond St to Mission Bay Dr	63,200	4 Lane Major Arterial	1.58	F	8 Lane Major Arterial	1.053	F	NO
Mission Bay Dr to I-5 SB On-Ramp	48,100	5 Lane Major Arterial	1.069	F	7 Lane Major Arterial	0.875	D	NO
I-5 SB On-Ramp to I-5 NB Off-Ramp	66,600	5 Lane Major Arterial	1.48	F	8 Lane Major Arterial	1.110	F	NO
I-5 NB Off-Ramp to Morena Blvd SB Ramps	77,500	5 Lane Major Arterial	1.722	F	8 Lane Major Arterial	1.292	F	NO
Balboa Avenue								
Morena Boulevard NB Ramps to Moraga Avenue	45,500	4 Lane Major Arterial	1.138	F	8 Lane Major Arterial	0.758	C	NO
Moraga Avenue to Clairemont Drive	38,200	4 Lane Major Arterial	0.955	E	5 Lane Major Arterial	0.849	D	NO
East of Clairemont Drive	43,000	4 Lane Major Arterial	1.075	F	6 Lane Major Arterial	0.860	D	NO
Mission Bay Drive								
Bluffside Avenue to Damon Avenue	39,600	4 Lane Major Arterial	0.99	E	6 Lane Major Arterial	0.792	C	NO
Damon Ave to Garnet Ave	42,400	4 Lane Major Arterial	1.06	F	6 Lane Major Arterial	0.848	D	NO
Clairemont Drive								
Denver St to Morena Blvd	39,200	4 Lane Major Arterial	0.98	E	5 Lane Major Arterial	0.871	D	NO

Notes: **Bold** values indicate roadway segments operating at LOS E or F. **Bold and shaded** values indicate an impact.

(a) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

(b) ADT volumes for the roadway segments were determined from SANDAG Modeling.

FUTURE PREFERRED SPECIFIC PLAN ANALYSIS

The following section will present the capacity and LOS analysis for the Future Preferred Specific Plan Scenario. The Preferred Specific Plan Scenario includes the change in land use assumptions associated with the Preferred Specific Plan alternative and recommended transportation projects to connect people to the Balboa Avenue station via all modes of travel.

The following improvements are included as part of the Preferred Specific Plan Scenario:

Mission Bay Drive at Damon Avenue would be reconfigured to eliminate the northbound free right turn movement, and provide a larger refuge area in the northeast corner. Planned improvement concepts for this intersection are displayed in **Figure 8-3**.

Mission Bay Drive at Garnet Avenue would have pedestrian crossings upgraded to have a more visible appearance by use of continental striping or textured pavement. Class II bicycle facilities will be included on Mission Bay Drive between Damon Avenue and Rosewood Street and on Garnet Avenue between Soledad Mountain Road and Mission Bay Drive. In addition, Class I shared-use paths will be provided along both sides of Mission Bay Drive and Garnet Avenue for the majority of the roadway segments, providing connections to the existing Rose Creek Trail. Planned improvement concepts for this intersection are displayed in **Figure 8-4**.

Balboa Avenue/Garnet Avenue between Mission Bay Drive and the I-5 NB off-ramp would be reconfigured to provide a shared-use path for pedestrians and bicycles in both the eastbound and westbound direction. The westbound shared-use path will connect to Moraga Avenue east of the Balboa Station. Additional changes in this segment include a dedicated bus lane and stop in the eastbound direction, and removal of several free right turns. This includes reconfiguration of the Morena Boulevard ramps to remove the westbound free right movements at Balboa Avenue/Garnet Avenue and remove the northbound Morena Boulevard to westbound Balboa Avenue loop ramp. Planned improvement concepts for this roadway segment are displayed in **Figure 8-5**.

Mission Bay Drive at Grand Avenue would be changed to realign the lanes in a way such that Grand Avenue becomes the through movement rather than Mission Bay Drive. Pedestrian crossings would be included in the reconfigured intersection design. Planned improvement concepts for this intersection are displayed in **Figure 8-6**. This would also modify the intersection of Grand Avenue at Figueroa Drive to have two eastbound travel lanes instead of one.

Mission Bay Drive between Rosewood Street and Damon Avenue would be reconfigured to include shared-use paths northbound and southbound bike lanes would also be provided between Grand Avenue and Garnet Avenue by removing the existing parking lane along both sides of Mission Bay Drive. Planned improvements along Mission Bay Drive can be seen in **Figure 8-7**.

The Preferred Specific Plan intersection geometrics when compared to adopted scenario, are shown in **Figure 8-8** and the Preferred Specific Plan peak period volumes are shown in **Figure 8-9**.

INTERSECTIONS

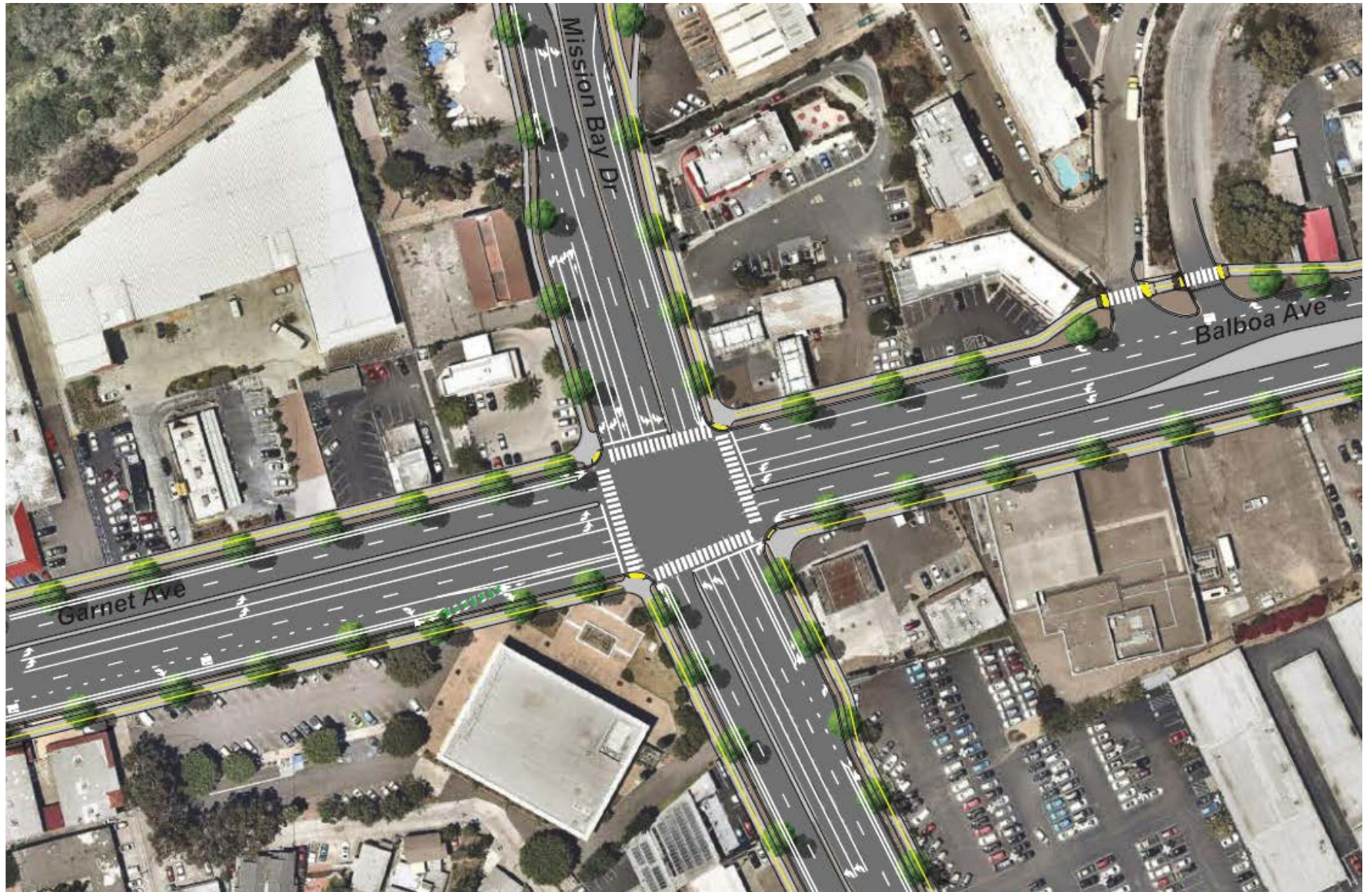
Table 8-11 displays the LOS analysis results for the study intersections for the Preferred Specific Plan Future Scenario.



Figure 8-3

Preferred Specific Plan Projects: Mission Bay Drive at Damon Avenue





*Figure 8-4
Preferred Specific Plan Projects: Mission Bay Drive at Garnet Avenue*



Figure 8-5
Preferred Specific Plan Projects: Balboa Avenue



Figure 8-6
Preferred Specific Plan Projects: Mission Bay Drive at Grand Avenue

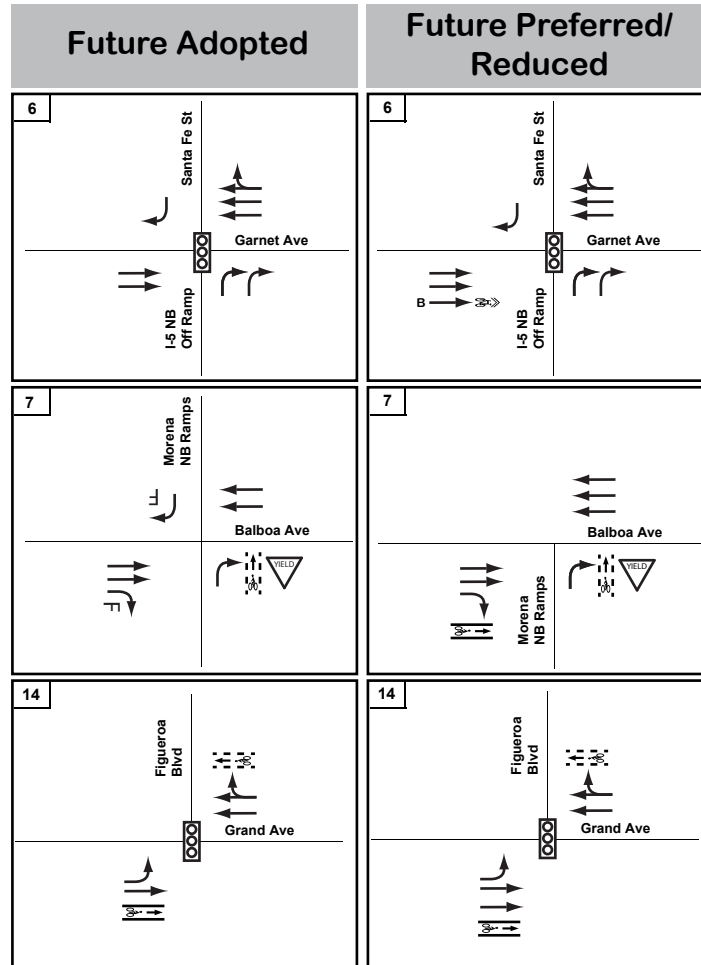


Match Line - See Below Left



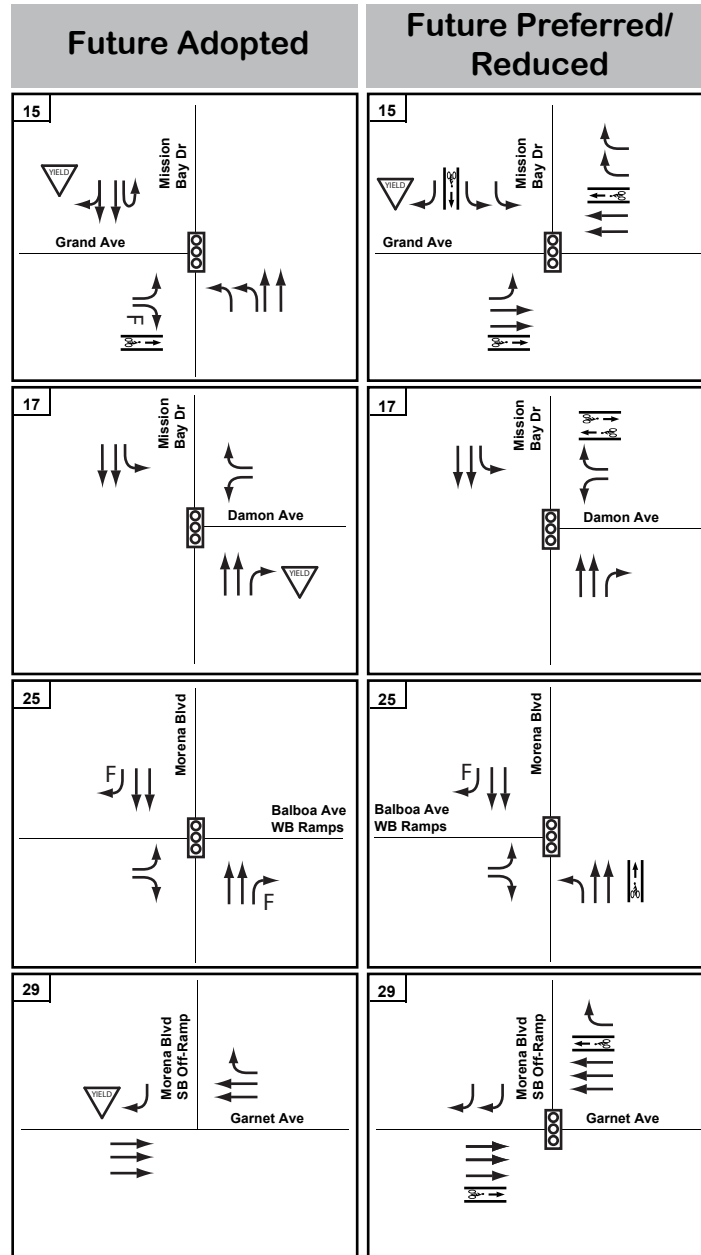
Match Line - See Upper Right

Figure 8-7
Preferred Specific Plan Projects: Mission Bay Drive between Damon Avenue and Rosewood Street



LEGEND	Intersection Control		Bicycle Facilities	
		Signalized Intersection		Through Bicycle Lane ('Bicycle Pocket')
		Stop Controlled Approach		Striped Bicycle Lane Merge
		Yield Controlled Movement		Cycle Track
		F Free Right-Turn	Transit Facilities	
		O Right-Turn Overlap	B Bus Only Movement	

Figure 8-8
Preferred Specific Plan Intersection Geometrics



LEGEND

Intersection Control



Signalized Intersection



Stop Controlled Approach



Yield Controlled Movement

F Free Right-Turn

O Right-Turn Overlap

Bicycle Facilities

Through Bicycle Lane ('Bicycle Pocket')

Striped Bicycle Lane Merge

Cycle Track

Transit Facilities

Bus Only Movement

Figure 8-8
Preferred Specific Plan Intersection Geometrics (Cont.)

1	↖ 26 / 60 ↗ 131 / 66 ↘ 69 / 48	Olney Street	↖ 9 / 24 ↗ 679 / 1319 ↘ 7 / 15	Garnet Ave	2	↖ 0 / 140 ↗ 931 / 796	Garnet Ave	↖ 722 / 1307 ↗ 328 / 516	3	↖ 67 / 129 ↗ 487 / 456	Soledad Mtn Rd	↖ 512 / 511 ↗ 815 / 1683	Garnet Ave	4	↖ 1796 / 1488 ↗ 37 / 84 ↘ 37 / 46	Bond St	↖ 1384 / 2044	Garnet Ave
	↖ 13 / 31 ↗ 1063 / 918 ↘ 108 / 128		↖ 115 / 301 ↗ 75 / 110 ↘ 17 / 18			↖ 46 / 0 ↗ 470 / 387		↖ 142 / 103 ↗ 1437 / 1139		↖ 1796 / 1488 ↗ 37 / 84 ↘ 37 / 46								
5	↖ 358 / 731 ↗ 338 / 481 ↘ 252 / 277	Mission Bay Dr	↖ 247 / 357 ↗ 526 / 678 ↘ 231 / 331	Garnet Ave	6	↖ 74 / 189	Santa Fe St	↖ 174 / 84 ↗ 1759 / 1986	7			↖ 1312 / 1470	Balboa Ave	8	↖ 261 / 288 ↗ 94 / 94	Moraga Ave	↖ 77 / 86 ↗ 1051 / 1182	Balboa Ave
	↖ 661 / 445 ↗ 659 / 630 ↘ 538 / 443		↖ 441 / 653 ↗ 568 / 507 ↘ 282 / 354			↖ 1193 / 1327		↖ 741 / 1272 ↗ 657 / 860		↖ 311 / 342 ↗ 909 / 1261								
9	↖ 285 / 253 ↗ 344 / 605 ↘ 210 / 346	Clairemont Dr	↖ 124 / 160 ↗ 716 / 954 ↘ 434 / 538	Balboa Ave	10	↖ 14 / 39 ↗ 236 / 207 ↘ 11 / 19	Olney Street	↖ 17 / 24 ↗ 165 / 524 ↘ 46 / 140	11	↖ 17 / 54 ↗ 114 / 213 ↘ 163 / 94	Olney Street	↖ 49 / 216 ↗ 479 / 1151 ↘ 45 / 134	Grand Ave	12	↖ 48 / 28 ↗ 171 / 79	Culver St	↖ 120 / 71 ↗ 496 / 1471	Grand Ave
	↖ 186 / 351 ↗ 752 / 1004 ↘ 62 / 50		↖ 126 / 72 ↗ 406 / 392 ↘ 440 / 435			↖ 57 / 33 ↗ 521 / 353 ↘ 20 / 40		↖ 28 / 41 ↗ 1247 / 930 ↘ 25 / 57		↖ 64 / 20 ↗ 1611 / 1164								
13			↖ 617 / 1543 ↗ 130 / 96	Grand Ave	14	↖ 47 / 70 ↗ 662 / 1515	Figueroa Blvd	↖ 47 / 70 ↗ 662 / 1515	15	↖ 91 / 233 ↗ 845 / 980	Mission Bay Dr	↖ 897 / 1151 ↗ 488 / 1323		16	↖ 256 / 650 ↗ 767 / 1275	Mission Bay Dr	↖ 101 / 329 ↗ 1354 / 1068	
	↖ 1698 / 1200 ↗ 48 / 35		↖ 52 / 18 ↗ 48 / 28					↖ 130 / 115 ↗ 1697 / 1138		↖ 275 / 86 ↗ 1501 / 1050		↖ 728 / 322 ↗ 129 / 155						
17	↖ 779 / 1362 ↗ 75 / 98	Mission Bay Dr	↖ 59 / 190 ↗ 86 / 189	Damon Ave	18	↖ 130 / 252 ↗ 899 / 962 ↘ 32 / 30	Mission Bay Dr	↖ 5 / 7 ↗ 2 / 2 ↘ 8 / 6	19	↖ 838 / 1007 ↗ 259 / 188	Mission Bay Dr	↖ 87 / 126 ↗ 45 / 154	Bunker Hill St	20	↖ 2372 / 1993 ↗ 16 / 5	Mission Bay Dr	↖ 18 / 25 ↗ 4 / 4	Rosewood St
			↖ 1419 / 1203 ↗ 127 / 226			↖ 173 / 132 ↗ 10 / 8 ↘ 163 / 213		↖ 55 / 92 ↗ 1153 / 1363 ↘ 6 / 3		↖ 1076 / 1194 ↗ 110 / 42		↖ 1355 / 2486 ↗ 21 / 27						

Note:
2030 Building Alternative peak hour volumes from the *Mid-Coast Corridor Transit Project Transportation and Mitigation Report*, September 2014, were used for intersections 25 and 26. Through volumes at these intersections were then balanced based on adjacent intersection volumes. Volumes at intersections 7 and 29 were determined based on volumes at adjacent intersections.

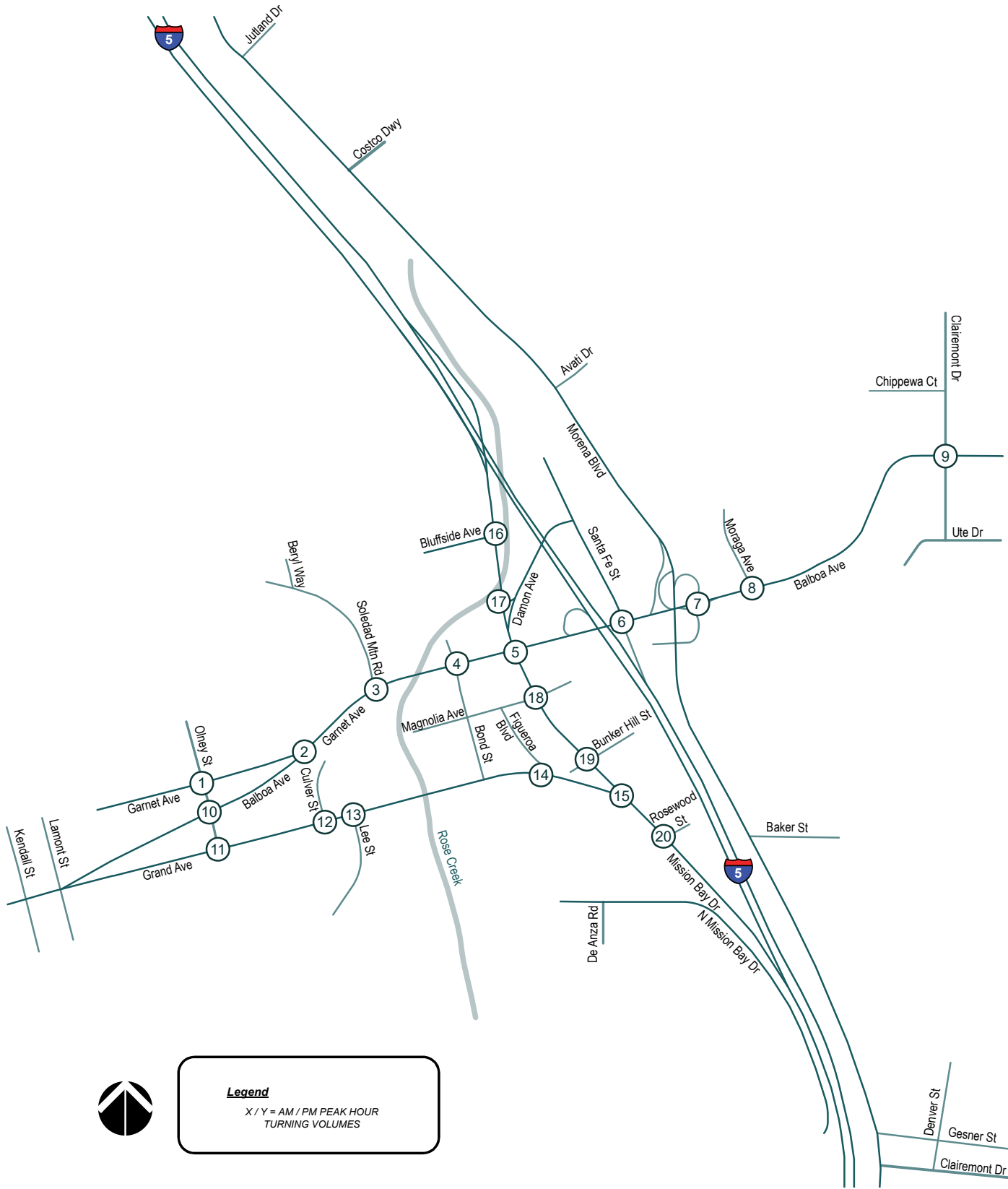


Figure 8-9
Future Preferred Specific Plan Peak Period Volumes

21	88 / 154 ↕ ↕ Damon Ave	Santa Fe St	22	164 / 317 ↕ ↕ Morena Blvd	13 / 10 ↕ 190 / 588 Jutland Dr	23	287 / 892 ↕ ↕ Morena Blvd	56 / 76 ↕ 100 / 378 Costco Dwy	24	356 / 1255 ↕ ↕ Morena Blvd	38 / 54 ↕ 222 / 184 Avati Dr
	129 / 109 ↕ 37 / 66 ↕	21 / 81 ↕ 134 / 65		257 / 176 ↕ ↕ 391 / 259	654 / 320 ↕ ↕ 122 / 372		800 / 656 ↕ ↕ 116 / 185				
25	410 / 970 ↕ ↕ Balboa WB Ramps	Morena Blvd	26	47 / 11 ↕ ↕ 272 / 895 50 / 130 Morena Blvd	440 / 530 ↕ ↕ 77 / 30 140 / 300 Balboa EB Ramps	27	290 / 840 ↕ ↕ 20 / 47 Morena Blvd	36 / 28 ↕ 27 / 15 Baker St	28	342 / 906 ↕ ↕ 48 / 102 Morena Blvd	48 / 86 ↕ 33 / 38 Gesner St
	90 / 150 ↕ 151 / 259 ↕	280 / 90 ↕ 1422 / 1254		29 / 80 10 / 27 1 / 5 ↕ ↕ ↕	9 / 5 ↕ ↕ 953 / 644 150 / 180		782 / 380 ↕ ↕ 23 / 22	875 / 404 ↕ ↕ 41 / 46			
29	690 / 1060 ↕ Garnet Ave	Morena SB Ramps									
	1398 / 2132 ↕	241 / 409 ↕ ↕ 1071 / 1061 Balboa Ave									

Note:
2030 Building Alternative peak hour volumes from the *Mid-Coast Corridor Transit Project Transportation and Mitigation Report*, September 2014, were used for intersections 25 and 26. Through volumes at these intersections were then balanced based on adjacent intersection volumes. Volumes at intersections 7 and 29 were determined based on volumes at adjacent intersections.

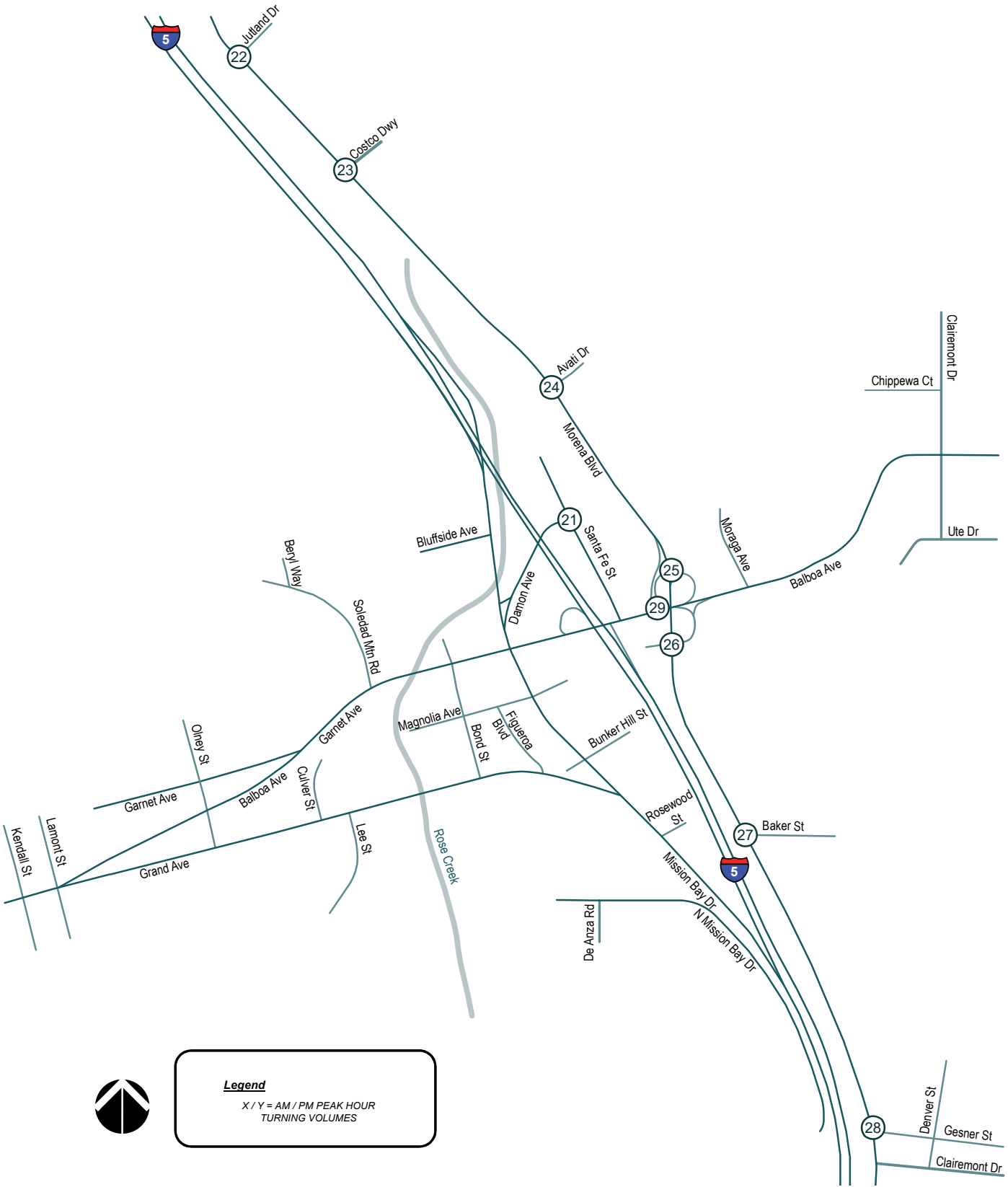


Figure 8-9
Future Preferred Specific Plan Peak Period Volumes (Cont.)

Table 8-9 Future Preferred Specific Plan Intersection Analysis Summary

Intersection		Traffic Control	Peak	Existing		Future Preferred		Impact?
				Delay (a)	LOS (b)	Delay (a)	LOS (b)	
1	Garnet Ave at Olney St	Signal	AM	15.4	B	36.2	D	Yes
			PM	12.1	B	58.8	E	
2	Garnet Ave at Balboa Ave	Signal	AM	11.1	B	10.9	B	
			PM	15.0	B	14.7	B	
3	Garnet Ave at Soledad Mountain Rd	Signal	AM	18.6	B	16.6	B	
			PM	29.2	C	24.5	C	
4	Garnet Ave at Bond St	Signal	AM	0.5	A	0.4	A	
			PM	0.6	A	0.4	A	
5	Garnet Ave at Mission Bay Dr	Signal	AM	55.7	E	57.5	E	Yes
			PM	58.0	E	66.3	E	
6	Garnet Ave at Santa Fe St	Signal (c)	AM	16.8	C	5.5	A	
			PM	151.9	F	9.3	A	
7	Balboa Ave at Morena Blvd NB Ramps	One-Way Yield	AM	27.0	D	14.7	B	Yes
			PM	50.7	F	57.9	F	
8	Balboa Ave at Moraga Ave	Signal	AM	16.2	B	14.6	B	
			PM	16.3	B	15.2	B	
9	Balboa Ave at Clairemont Dr	Signal	AM	47.6	D	40.9	D	Yes
			PM	59.2	E	72.1	E	
10	Balboa Ave at Olney St	Signal	AM	12.4	B	15.3	B	
			PM	12.9	B	20.4	C	
11	Grand Ave at Olney St	Signal	AM	32.9	C	47.8	D	
			PM	27.2	C	37.9	D	
12	Grand Ave at Culver St	Signal	AM	10.2	B	10.7	B	
			PM	5.8	A	7.1	A	
13	Grand Ave at Lee St	Signal	AM	9.5	A	11.8	B	
			PM	5.2	A	5.8	A	
14	Grand Ave at Figueroa Blvd	Signal	AM	14.9	B	4.6	A	
			PM	3.0	A	13.8	B	
15	Grand Ave at Mission Bay Dr	Signal	AM	34.5	C	36.7	D	
			PM	32.3	C	39.8	D	
16	Mission Bay Dr at Bluffs Ave	Signal	AM	21.6	C	23.3	C	
			PM	20.4	C	32.8	C	

Notes: **Bold** values indicate intersections operating at LOS E or F. **Bold and shaded** values indicate an impact.

- (a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.
- (b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.
- (c) Intersection was analyzed as a one-way stop under Existing Conditions.
- (d) Intersection was analyzed as a two-way stop under Existing Conditions.
- (e) Intersection was analyzed as a free movement under Existing Conditions.

Table 8-9 Future Preferred Specific Plan Intersection Analysis Summary (Cont.)

Intersection		Traffic Control	Peak	Existing		Future Preferred		Impact?
				Delay (a)	LOS (b)	Delay (a)	LOS (b)	
17	Mission Bay Dr at Damon Ave	Signal	AM	8.2	A	14.9	B	
			PM	14.3	B	20.7	C	
18	Mission Bay Dr at Magnolia Ave	Signal	AM	14.7	B	34.1	C	
			PM	16.1	B	36.9	D	
19	Mission Bay Dr at Bunker Hill St	Signal	AM	6.5	A	25.8	C	
			PM	8.2	A	22.9	C	
20	Mission Bay Dr at Rosewood St	Signal (c)	AM	41.7	E	4.3	A	
			PM	176.0	F	3.9	A	
21	Santa Fe St at Damon Ave	All-Way Stop	AM	7.8	A	8.7	A	
			PM	8.1	A	9.3	A	
22	Morena Blvd at Jutland Dr	All-Way Stop	AM	12.7	B	12.1	B	
			PM	55.2	F	81.5	F	Yes
23	Morena Blvd at Costco Dwy	Signal	AM	9.6	A	9.6	A	
			PM	11.0	B	11.9	B	
24	Morena Blvd at Avati Dr	Signal	AM	9.1	A	10.7	B	
			PM	8.9	A	8.9	A	
25	Morena Blvd at WB Balboa Ave Ramps	Signal	AM	3.3	A	7.1	A	
			PM	4.7	A	7.7	A	
26	Morena Blvd at EB Balboa Ave Ramps	Signal (d)	AM	96.7	F	21.7	C	
			PM	50.2	F	13.2	B	
27	Morena Blvd at Baker St	One-Way Stop	AM	35.1	E	23.8	C	
			PM	17.6	C	15.5	C	
28	Morena Blvd at Gesner St	Signal	AM	8.6	A	10.7	B	
			PM	7.5	A	7.4	A	
29	Balboa Ave at Morena Blvd SB Ramps	Signal (e)	AM	NA	NA	6.8	A	
			PM	NA	NA	12.0	B	

Notes: **Bold** values indicate intersections operating at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

(c) Intersection was analyzed as a one-way stop under Existing Conditions.

(d) Intersection was analyzed as a two-way stop under Existing Conditions.

(e) Intersection was analyzed as a free movement under Existing Conditions.

The intersections that would operate at poor LOS (E or F) and would be considered to have a significant impact when compared to existing conditions are as follows:

- Olney Street at Garnet Avenue (Int 1) – LOS E in the PM peak period
- Mission Bay Drive at Garnet Avenue (Int 5) – LOS E in the PM peak period
- Balboa Avenue at Morena Boulevard NB Ramps (Int 7) – LOS F in the PM peak period
- Clairemont Drive at Balboa Avenue (Int 9) – LOS E in the PM peak period
- Morena Boulevard at Jutland Drive (Int 22) – LOS F in the PM peak period

Appendix H contains the peak period intersections LOS calculation worksheets.

ROADWAY SEGMENTS VOLUME-BASED

Table 8-10 displays the LOS analysis results for the volume-based roadway segments evaluation for the Preferred Community Plan Future Scenario. The roadway segments that would operate at poor LOS (E or F) and would be considered to have a significant impact when compared to existing conditions is as follows:

- Garnet Avenue between Mission Bay Drive and I-5 SB On Ramp – LOS E
- Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp – LOS F
- Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps – LOS F
- Balboa Avenue east of Clairemont Drive – LOS F
- Mission Bay Drive between Bluffside Avenue and Damon Avenue – LOS E
- Mission Bay Drive between Damon Avenue and Garnet Avenue – LOS F
- Mission Bay Drive between Garnet Avenue and Magnolia Ave – LOS E
- Mission Bay Drive between Magnolia Avenue to Bunker Hill Street – LOS E
- Mission Bay Drive between Bunker Hill Street and Grand Avenue – LOS E
- Mission Bay Drive between Grand Avenue and I-5 Ramps – LOS F
- Clairemont Drive between Denver Street and Morena Boulevard – LOS F

CORRIDORS SPEED-BASED

Table 8-11 displays the LOS analysis results for the speed-based corridor segments evaluation for the Preferred Specific Plan Scenario using the roadway network discussed in the previous section. The corridors that would operate at poor LOS (E or F) and would be considered to have a significant impact when compared to existing conditions are as follows:

- Northbound Mission Bay Drive between Grand Avenue and Bluffside Avenue – LOS E in both the AM and PM peak periods.
- Southbound Mission Bay Drive between Bluffside Avenue and Grand Avenue – LOS E in the AM peak period and LOS F in the PM peak period.

Appendix H contains the travel time details along each corridor.

Table 8-10 Future Preferred Specific Plan Volume-Based Roadway Segment Analysis Summary

Roadway Segment	Existing					Future Preferred					Impact?
	Functional Classification (a)	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	Functional Classification	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	
Balboa Ave											
Garnet Ave to Grand Ave	4 Lane Major Arterial	40,000	14,263	0.357	A	4 Lane Major Arterial	40,000	13,200	0.330	A	
Garnet Ave											
Bond St to Mission Bay Dr	4 Lane Major Arterial	40,000	58,694	1.467	F	4 Lane Major Arterial	40,000	52,200	1.305	F	
Mission Bay Dr to I-5 SB On-Ramp	5 Lane Major Arterial	45,000	37,406	0.831	D	5 Lane Major Arterial	45,000	43,000	0.956	E	Yes
I-5 SB On-Ramp to I-5 NB Off-Ramp	5 Lane Major Arterial	45,000	48,857	1.086	F	5 Lane Major Arterial	45,000	60,500	1.344	F	Yes
I-5 NB Off-Ramp to Morena Blvd SB Ramps	5 Lane Major Arterial	45,000	52,073	1.157	F	5 Lane Major Arterial	45,000	71,500	1.589	F	Yes
Balboa Ave (CA-274)											
Morena Boulevard SB Ramps to Morena Boulevard NB Ramps	4 Lane Major Arterial	40,000	49,079	1.227	F	5 Lane Major Arterial	45,000	45,700	1.016	F	
Morena Blvd NB Ramps to Moraga Ave	4 Lane Major Arterial	40,000	43,115	1.078	F	5 Lane Major Arterial	45,000	39,800	0.884	D	
Moraga Ave to Clairemont Dr	4 Lane Major Arterial	40,000	34,903	0.873	D	4 Lane Major Arterial	40,000	32,600	0.815	D	
East of Clairemont Dr	4 Lane Major Arterial	40,000	37,383	0.935	E	4 Lane Major Arterial	40,000	42,500	1.063	F	Yes
Grand Ave											
Kendall St to Lamont St	4 Lane Major Arterial	40,000	51,778	1.294	F	4 Lane Major Arterial	40,000	24,000	0.600	C	
Lee St to Bond St (On Rose Creek Bridge)	4 Lane Major Arterial	40,000	37,915	0.948	E	4 Lane Major Arterial	40,000	37,200	0.930	E	
Figueroa Blvd to Mission Bay Dr	4 Lane Major Arterial	40,000	38,202	0.955	E	4 Lane Major Arterial	40,000	37,900	0.948	E	
Mission Bay Dr											
Bluffside Ave to Damon Ave	4 Lane Major Arterial	40,000	35,580	0.890	E	4 Lane Major Arterial	40,000	39,000	0.975	E	Yes
Damon Ave to Garnet Ave	4 Lane Major Arterial	40,000	40,680	1.017	F	4 Lane Major Arterial	40,000	41,300	1.033	F	Yes
Garnet Ave to Magnolia Ave	4 Lane Major Arterial	40,000	29,702	0.743	C	4 Lane Major Arterial	40,000	38,300	0.958	E	Yes
Magnolia Ave to Bunker Hill St	4 Lane Major Arterial	40,000	29,821	0.746	C	4 Lane Major Arterial	40,000	38,700	0.968	E	Yes
Bunker Hill St to Grand Ave	4 Lane Major Arterial	40,000	29,002	0.725	C	4 Lane Major Arterial	40,000	35,900	0.898	E	Yes
Grand Avenue to I-5 Ramps	5 Lane Major Arterial	45,000	55,051	1.223	F	5 Lane Major Arterial	45,000	56,600	1.258	F	Yes

Notes: **Bold** values indicate roadway segments operating at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Existing road classifications are based on field work conducted in May 2016.

(b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by National Data and Surveying Services (NDS) and measured in May and June of 2016.

(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

Table 8-10 Future Preferred Specific Plan Volume-Based Roadway Segment Analysis Summary (Cont.)

Roadway Segment	Existing					Future Preferred					Impact?
	Functional Classification (a)	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	Funcitonal Classification	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	
Morena Blvd											
Jutland Dr to Avati Dr	4 Lane Major Arterial	40,000	11,554	0.289	A	4 Lane Major Arterial	40,000	17,200	0.430	B	
Avati Dr to Balboa Ave Ramps	4 Lane Major Arterial	40,000	20,136	0.503	B	4 Lane Major Arterial	40,000	21,800	0.545	C	
Balboa Ave Ramps to Ticonderoga St	3 Lane Major Arterial	30,000	15,823	0.527	C	3 Lane Collector (w/ two-way left-turn lane)	22,500	13,900	0.618	C	
Gesner St to Clairemont Dr	4 Lane Major Arterial	40,000	15,584	0.390	B	3 Lane Collector (w/ two-way left-turn lane)	22,500	14,600	0.649	C	
Clairemont Dr											
Chippewa Court to Balboa Avenue	4 Lane Major Arterial	40,000	21,259	0.531	C	4 Lane Major Arterial	40,000	25,300	0.633	C	
Balboa Avenue to Ute Drive	4 Lane Major Arterial	40,000	19,325	0.483	B	4 Lane Major Arterial	40,000	22,900	0.573	C	
Denver Street to Morena Boulevard	4 Lane Major Arterial	40,000	31,162	0.779	D	4 Lane Major Arterial	40,000	41,200	1.030	F	Yes
Damon Ave (d)											
Mission Bay Drive to Santa Fe Street	2 Lane Collector (w/o two-way left-turn lane)	8,000	4,415	0.552	C	2 Lane Collector (w/o two-way left turn lane)	8,000	5,900	0.738	D	
Santa Fe St											
Damon Avenue to Balboa Avenue	2 Lane Collector (w/o two-way left-turn lane)	8,000	2,431	0.304	A	2 Lane Collector (w/o two-way left turn lane)	8,000	5,600	0.700	D	
Soledad Mountain Rd											
Beryl Street to Garnet Avenue	4 Lane Major Arterial	40,000	27,235	0.681	C	4 Lane Major Arterial	40,000	27,900	0.698	C	
N Mission Bay Dr											
De Anza Road to Mission Bay Drive	2 Lane Collector (w/o two-way left-turn lane)	8,000	2,456	0.307	A	2 Lane Collector (w/o two-way left turn lane)	8,000	2,500	0.313	B	

Notes: **Bold** values indicate roadway segments operating at LOS E or F. **Bold and shaded** values indicate an impact.

- (a) Existing road classifications are based on field work conducted in May 2016.
- (b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by National Data and Surveying Services (NDS) and measured in May and June of 2016.
- (c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.
- (d) Damon Avenue is classified as a local street but functions as a collector within the community.

Table 8-83 Future Preferred Specific Plan Speed-Based Corridor Analysis Summary

Corridor	Direction	Urban Street Class	Peak Period	Existing			Future Preferred		
				Travel Time (sec)	Speed (mph)	LOS (a)	Travel Time (sec)	Speed (mph)	LOS (a)
Mission Bay Drive									
Grand Avenue to Bluffside Avenue	Northbound	III	AM	140.5	15.9	D	180.0	12.4	E
			PM	167.5	13.3	E	180.4	12.4	E
Bluffside Avenue to Grand Avenue	Southbound	III	AM	157.9	13.9	E	191.6	11.7	E
			PM	218.6	10.0	E	294.7	7.5	F
Garnet Avenue/ Balboa Avenue									
Olney Street to Clairemont Drive	Eastbound	II	AM	321.0	20.5	D	324.6	20.3	D
			PM	337.3	19.5	D	378.9	17.4	D
Clairemont Drive to Olney Street	Westbound	II	AM	292.9	22.6	C	288.8	22.9	C
			PM	305.6	21.7	D	341.2	19.4	D

Notes: **Bold** values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

FREEWAY SEGMENTS

Table 8-14 displays the LOS analysis results for the study freeway segments for the Preferred Specific Plan Future Scenario. As shown, all segments operate at LOS E in the northbound direction during the AM peak period except I-5 from Mission Bay Drive to Clairemont Drive; and all segments operate at LOS E in the southbound direction during the PM peak period within the study area.

FREEWAY RAMP METERS

Table 8-15 displays the analysis results for the ramp meters using the existing configuration and meter rates and the future peak-hour traffic volumes for the Preferred Specific Plan Future Scenario. As shown, the following locations are projected to result in a delay greater than 15-minutes and would be considered to have a significant impact when compared to existing conditions:

- I-5 SB and Mission Bay Drive – PM peak period (60 minute delay)
- I5 NB and Mission Bay Drive – AM peak period (17 minute delay)

Table 8-14 Future Preferred Specific Plan Freeway Segment Analysis Summary

Freeway Segment		Dir	Number of Lanes	Future Preferred								Existing				Δ in Speed		Impact?
				Peak-Hour Volume (a)		Speed (mph) (b)		Density (pc/mi/ln)		LOS (c)		Speed (mph) (b)		LOS (c)				
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
I-5	SR-52 to Mission Bay Dr	NB	5	10,662	6,789	55.3	68.0	42.0	23.7	E	C	61.1	68.0	D	C	5.8	0.0	YES
		SB	5	6,195	10,334	68.0	57.1	23.7	39.5	C	E	68.0	62.4	C	D	0.0	5.3	YES
	Mission Bay Dr to Garnet Ave/ Balboa Ave	NB	4	8,320	5,298	56.8	68.0	40.0	23.7	E	C	64.3	68.0	D	C	7.5	0.0	YES
		SB	4	4,834	8,064	68.0	58.4	23.7	37.6	C	E	68.0	65.2	C	D	0.0	6.8	YES
	Garnet Ave/ Balboa Ave to Mission Bay Dr	NB	4	7,827	6,978	59.9	64.3	35.6	29.6	E	D	66.5	68.0	D	C	6.6	3.7	YES
		SB	4	6,028	8,331	67.7	56.7	24.3	40.1	C	E	68.0	65.0	C	D	0.3	8.3	YES
	Mission Bay Dr to Clairemont Dr	NB	5	9,238	8,237	62.3	65.9	32.3	27.3	D	D	66.4	68.0	D	C	4.1	2.1	NO
		SB	5	7,116	9,834	68.0	59.6	23.7	36.0	C	E	68.0	64.8	C	D	0.0	5.1	YES

Notes: Bold values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Peak-hour volumes were estimated using SANDAG forecast model outputs.

(b) The speed was calculated from a base free-flow speed (BFFS) of 75.4 mph (per equation 11-1 in the 2010 HCM) using Exhibit 11-3 in the 2010 HCM.

(c) The LOS for the respective freeway segments were based on the methodologies contained in Chapter 11 of the 2010 Highway Capacity Manual.

Table 8-15 Future Preferred Specific Plan Freeway Ramp Meter Analysis Summary

On Ramp	Peak Hour	Number of Lanes		Meter Rate (veh/hr) (a)	Future Preferred				Existing				Impact?
					Demand (veh/hr/ln) (b)	Excess Demand (veh/hr)	Delay (min)	Queue (feet) (c)	Demand (veh/hr/ln) (b)	Excess Demand (veh/hr)	Delay (min)	Queue (feet) (c)	
		GP	HOV										
I-5 SB & Mission Bay Drive	AM	2	1	n/a	621				584				YES
	PM			475	951	476	60	11,900	894	419	53	10,475	
I-5 SB & Westbound Balboa Ave	AM	2	0	n/a	253				240				NO
	PM			542	387	0	0	0	368	0	0	0	
I-5 NB & Mission Bay Drive	AM	2	0	811	1041	230	17	5,750	910	99	7	2,475	YES
	PM			n/a	695				615				

Notes: Bold values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Meter Rate is the peak hour capacity expected to be processed through the ramp meter. Values were obtained from Caltrans. Most Conservative rate (Rate 15) was used.

(b) Demand is the peak hour demand expected to use the on-ramp.

(c) Assumes an average vehicle length of 25 feet.

SIGNIFICANT IMPACTS

Project impacts for the Preferred Specific Plan Scenario were determined based on a comparison between the future year and existing conditions. Per the City of San Diego's significance thresholds and the analysis methodology presented in this report, the following cumulative impacts were identified.

Intersections

Cumulative impacts were determined at the following study intersections:

- Olney Street at Garnet Avenue (Int 1) – LOS E in the PM peak period
- Mission Bay Drive at Garnet Avenue (Int 5) – LOS E in the PM peak period
- Balboa Avenue at Morena Boulevard NB Ramps (Int 7) – LOS F in the PM peak period
- Clairemont Drive at Balboa Avenue (Int 9) – LOS E in the PM peak period
- Morena Boulevard at Jutland Drive (Int 22) – LOS F in the PM peak period

Roadway Segments

Cumulative impacts were determined at the following study roadway segments:

- Garnet Avenue between Mission Bay Drive and I-5 SB On Ramp – LOS E
- Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp – LOS F
- Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps – LOS F
- Balboa Avenue east of Clairemont Drive – LOS F
- Mission Bay Drive between Bluffside Avenue and Damon Avenue – LOS E
- Mission Bay Drive between Damon Avenue and Garnet Avenue – LOS F
- Mission Bay Drive between Garnet Avenue and Magnolia Ave – LOS E
- Mission Bay Drive between Magnolia Avenue to Bunker Hill Street – LOS E
- Mission Bay Drive between Bunker Hill Street and Grand Avenue – LOS E
- Mission Bay Drive between Grand Avenue and I-5 Ramps – LOS F
- Clairemont Drive between Denver Street and Morena Boulevard – LOS F

Freeway Segments

Cumulative impacts were determined at the following study freeway segments:

- I-5 between SR-52 and Mission Bay Drive – LOS E in NB during AM peak period and in SB during PM peak period
- I-5 between Mission Bay Drive and Garnet Avenue/Balboa Avenue – LOS E in NB during AM peak period and in SB during PM peak period
- I-5 between Garnet Avenue/Balboa Avenue and Mission Bay Drive – LOS E in NB during AM peak period and in SB during PM peak period
- I-5 between Mission Bay Drive and Clairemont Drive – LOS E in SB during PM peak period

Freeway Ramp Meters

Cumulative impacts were determined at the following study freeway ramp meters:

- I-5 SB and Mission Bay Drive – PM peak period (54 minute delay)
- I-5 NB and Mission Bay Drive – AM peak period (17 minute delay)

MITIGATION MEASURES

The required mitigation measures for roadway and intersections that would be significantly impacted under the Preferred Specific Plan Future Scenario when compared to existing conditions are presented below.

Intersections

Garnet Avenue & Olney Street (Intersection 1): Remove parking and restripe to include a northbound left-turn lane. The required mitigation at this intersection is shown in **Appendix F**. The impact at this intersection associated with the Future Preferred Land Use scenario would be fully mitigated with the implementation of this measure. This improvement is recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive & Garnet Avenue (Intersection 5): Expand Garnet Avenue between Soledad Mountain Road and Mission Bay Drive to include three eastbound through lanes with the outside eastbound through lane becoming a right-turn lane at the intersection with Mission Bay Drive and construct a second westbound left-turn lane. The required mitigation at this intersection is shown in **Figure 8-4**. The impact at this intersection associated with the Future Preferred Land Use scenario would be fully mitigated with the implementation of this measure. With this mitigation, the intersection would operate still operate at a LOS E in the PM peak period, however it would operate better than existing conditions. This improvement is recommended as part of the Balboa Avenue Specific Plan.

Balboa Avenue & Morena Boulevard NB Ramps (Intersection 7): Install a partial traffic signal at this intersection to control the eastbound and northbound approaches. The required mitigation at this intersection is shown in **Figure 8-5**. The impact at this intersection associated with the Future Preferred Land Use scenario would be fully mitigated with the implementation of this measure. This improvement is recommended as part of the Balboa Avenue Specific Plan.

Balboa Avenue & Clairemont Drive (Intersection 9): Construct a southbound right-turn lane and a second southbound left-turn lane. Construct a westbound right-turn lane. The required mitigation at this intersection is shown in **Appendix F**. The impact at this intersection associated with the Future Preferred Land Use scenario would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition that would significantly impact one adjacent commercial property and would increase pedestrian crossing distances. Further, the Clairemont Community Plan Update is currently underway and may further consider the need for and feasibility of these improvements as part of their evaluation when looking at land use changes for the community as a whole. Due to the impact to adjacent properties and potential effect on pedestrian travel, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Morena Boulevard & Jutland Drive (Intersection 22): Install a traffic signal or roundabout at this intersection. The required mitigation at this intersection is shown in **Appendix F**. The significant traffic impact associated with the Future Preferred Land Use scenario to this intersection would be fully mitigated

with the implementation of this measure. This improvement is recommended as part of the Balboa Avenue Specific Plan.

Roadway Segments

Garnet Avenue between Mission Bay Drive and I-5 SB On Ramp: Widen this segment of Garnet Avenue to a 6-lane Major Arterial. The significant traffic impact associated with the Future Preferred Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp: Widen this segment of Garnet Avenue to an 8-lane Major Arterial. With the implementation of this mitigation, the roadway segment will still operate at unacceptable conditions, but would operate better than existing conditions and would therefore not be considered a significant impact. This improvement would require reconstruction of the freeway undercrossing. It would also impact properties on either side of the freeway undercrossing to create transitions or widen the roadway on either side to match this width. Due to these factors, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps: Widen this segment of Garnet Avenue to an 8-lane Major Arterial. With the implementation of this partial mitigation, the roadway segment will still operate at unacceptable conditions and the significant traffic associated with the Future Preferred Land Use scenario would remain significant. This improvement would require right-of-way acquisition and significantly impact the Balboa Avenue Station on the south and the City's operations yard on the north side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Balboa Avenue east of Clairemont Drive: Widen this segment of Balboa Avenue to a 6-lane Major Arterial. The significant traffic impact associated with the Future Preferred Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significant cost to design for the steep slopes on either side of the roadway. Further, the Clairemont Community Plan Update is currently underway and may further consider the need for the feasibility of these improvements as part of their evaluation when looking at land use changes for the community as a whole. Due to these factors, these improvements are not recommended as part of the Balboa Avenue Station Area Specific Plan.

Mission Bay Drive between Bluffside Avenue and Damon Avenue: Widen this segment of Mission Bay Drive to a 5-lane Major Arterial. The significant traffic impact associated with the Future Preferred Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require widening of the bridge over Rose Creek. Due to the environmental constraints and concerns with impacting Rose Creek, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Damon Avenue and Garnet Avenue: Widen this segment of Mission Bay Drive to a 6-lane Major Arterial. The significant traffic impact associated with the Future Preferred Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Garnet Avenue and Magnolia Avenue: Widen this segment of Mission Bay Drive to a 5-lane Major Arterial. The significant traffic impact associated with the Future Preferred Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Magnolia Avenue and Bunker Hill Street: Widen this segment of Mission Bay Drive to a 5-lane Major Arterial. The significant traffic impact associated with the Future Preferred Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Bunker Hill Street and Grand Avenue: Widen this segment of Mission Bay Drive to a 5-lane Major Arterial. The significant traffic impact associated with the Future Preferred Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Grand Avenue and I-5 Ramps: Widen this segment of Mission Bay Drive to an 8-lane Major Arterial. With the implementation of this mitigation, the roadway segment will still operate at unacceptable conditions, but would operate better than existing conditions and would therefore not be considered a significant impact; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment and potential wetland areas adjacent to the west side of the roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Clairemont Drive between Denver Street and Morena Boulevard: Widen this segment of Clairemont Drive to a 6-lane Major Arterial. The significant traffic impact associated with the Future Preferred Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Further, the Clairemont Community Plan Update is currently underway and may further consider the need for and feasibility of this mitigation as part of their evaluation when looking at land use changes for the community as a whole. Due to these factors, these improvements are not recommended as part of the Balboa Avenue Station Area Specific Plan.

Freeway Segments

No mitigation measures are identified for impacts to freeways because freeway improvements are not within the authority of the City. The improvements identified in SANDAG's RTP would improve operations along the freeway segments and ramps; however, to what extent is still undetermined, as these are future improvements that must be defined more over time. Furthermore, implementation of freeway improvements in a timely manner is beyond the full control of the City since Caltrans has approval authority over freeway improvements. The City will continue to coordinate with Caltrans and SANDAG on future improvements, as future project-level developments proceed, to develop potential "fair share" multi-modal mitigation strategies for freeway impacts, as appropriate. The following are the freeway mainline improvements identified in SANDAG's RTP:

I-5 between SR-52 and Clairemont Drive: SANDAG San Diego Forward 2050 Revenue Constrained Network includes operational improvements and construction of managed lanes along I-5 between SR-52 and Clairemont Drive. This project is expected to be constructed by the year 2050. There is some uncertainty related to the actual improvements and associated traffic impacts that will materialize over time. Future development projects' transportation studies would be able to more accurately identify individual project-level impacts and provide the mechanism to mitigate them through fair share contributions in addition to the funding identified in the Revenue Constrained Network.

Freeway Ramp Meters

The City of San Diego shall coordinate with Caltrans to address ramp capacity at impacted on-ramp locations. Improvements could include additional lanes, interchange reconfigurations, Transportation Demand Measures (TDM); however, specific capacity improvements are still undetermined, as these are future improvements that must be defined more over time. Furthermore, implementation of freeway improvements in a timely manner is beyond the full control of the City since Caltrans has approval authority over freeway improvements. Additionally, the Preferred Plan includes a variety of transit, pedestrian and bicycle facilities that may help to reduce single-occupancy vehicle (SOV) travel which can help improve ramp capacity.

POST-MITIGATION ANALYSIS

The following section will present the capacity and LOS analysis for the Preferred Community Plan Future Scenario with the implementation of the traffic mitigation measures described above.

Intersections

Table 8-16 displays the LOS analysis results for the study intersections after the implementation of the mitigation measures described above for the Future Preferred Land Use Scenario. As shown in the table, all intersections would operate at better than existing conditions during both peak periods after the implementation of the traffic mitigation measures. **Appendix I** contains the peak period intersection LOS calculation worksheets.

Roadway Segments

Table 8-17 displays the LOS analysis results for the study roadway segments after the implementation of the mitigation measures described above for the Future Preferred Land Use Scenario. As shown in the table, the roadway segment that would continue to operate at poor LOS (E or F) after implementation of the traffic mitigation measures are as follows:

- Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp – LOS F
- Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps – LOS F
- Mission Bay Drive between Grand Avenue and I-5 Ramps – LOS E

Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps would be considered to continue to have a significant impact when compared to existing conditions. Based on the feasibility of the traffic mitigation measures, none of the roadway segment improvements are recommended as part of the Balboa Avenue Specific Plan.

Table 8-96 Future Preferred Specific Plan with Recommended Mitigation Intersection Analysis Summary

Intersection		Peak Period	Future Preferred		After Mitigations		Recommended?	Description
			Delay (a)	LOS (b)	Delay (a)	LOS (b)		
1	Olney St & Garnet Ave	AM	36.2	D	28.5	C	YES	Remove parking and restripe NB approach to include a left-turn lane.
		PM	58.8	E	41.3	D		
5	Mission Bay Dr & Garnet Ave	AM	57.5	E	54.9	D	YES	Expand Garnet Avenue to 3 EB through lanes with the outside lane becoming a right-turn lane at the intersection and construct a second WB left-turn lane.
		PM	66.3	E	56.9	E		
7	Balboa EB Ramps & Balboa Ave	AM	14.7	B	4.1	A	YES	Install a partial traffic signal at this intersection to control the EB and NB approaches.
		PM	57.9	F	7.2	A		
9	Clairemont Dr & Balboa Ave	AM	40.9	D	27.4	C	NO	Add a SB right-turn lane and second left-turn lane. Add a WB right-turn lane.
		PM	72.1	E	39.5	D		
22	Morena Blvd & Jutland Dr	AM	12.1	B	5.8 / 7.3	A / A	YES	Install a traffic signal or roundabout.
		PM	81.5	F	10.4 / 13.8	B / B		

Notes: **Bold** values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

Table 8-13 Future Preferred Specific Plan with Recommended Mitigation Roadway Segment Analysis Summary

Roadway Segment	Future ADT (a)	Future Preferred			After Mitigations			Recommended?
		Functional Classification	V/C Ratio (b)	LOS	Functional Classification	V/C Ratio (b)	LOS	
Garnet Avenue								
Mission Bay Drive to I-5 SB On-Ramp	43,000	5 Lane Major Arterial	0.956	E	6 Lane Major Arterial	0.860	D	NO
I-5 SB On-Ramp to I-5 NB Off-Ramp	60,500	5 Lane Major Arterial	1.344	F	8 Lane Major Arterial	1.008	F	NO
I-5 NB Off-Ramp to Morena Blvd SB Ramps	71,500	5 Lane Major Arterial	1.589	F	8 Lane Major Arterial	1.192	F	NO
Balboa Avenue								
East of Clairemont Drive	42,500	4 Lane Major Arterial	1.063	F	6 Lane Major Arterial	0.850	D	NO
Mission Bay Drive								
Bluffside Ave to Damon Ave	39,000	4 Lane Major Arterial	0.975	E	5 Lane Major Arterial	0.867	D	NO
Damon Avenue to Garnet Avenue	41,300	4 Lane Major Arterial	1.033	F	6 Lane Major Arterial	0.826	D	NO
Garnet Ave to Magnolia Ave	38,300	4 Lane Major Arterial	0.958	E	5 Lane Major Arterial	0.851	D	NO
Magnolia Ave to Bunker Hill St	38,700	4 Lane Major Arterial	0.968	E	5 Lane Major Arterial	0.860	D	NO
Bunker Hill St to Grand Ave	35,900	4 Lane Major Arterial	0.898	E	5 Lane Major Arterial	0.798	D	NO
Grand Ave to I-5 Ramps	56,600	5 Lane Major Arterial	1.258	F	8 Lane Major Arterial	0.943	E	NO
Clairemont Drive								
Denver St to Morena Blvd	41,200	4 Lane Major Arterial	1.03	F	6 Lane Major Arterial	0.824	D	NO

Notes: **Bold** values indicate roadway segments operating at LOS E or F. **Bold and shaded** values indicate an impact.

(a) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

(b) ADT volumes for the roadway segments were determined from SANDAG Modeling.

FUTURE REDUCED SPECIFIC PLAN ANALYSIS

The following section will present the capacity and LOS analysis for the Future Reduced Specific Plan Scenario. The Reduced Specific Plan Scenario includes the change in land use assumptions associated with the Reduced Specific Plan alternative and the same recommended transportation projects identified in the Preferred Specific Plan to connect people to the Balboa Avenue station. As shown in the tables at the beginning of Chapter 7, the Reduced Specific Plan is slightly less intensified compared to the Preferred Specific Plan. The location of redevelopment opportunities within the Specific Plan area are the same between the Preferred and Reduced scenarios; therefore, transportation connection locations were kept constant between the scenarios. Future Reduced Specific Plan peak period volumes are shown in **Figure 8-10**. Changes to intersection and roadway geometrics are consistent with the Preferred Specific Plan scenario, shown in Figure 7-7 in the previous section.

INTERSECTIONS

Table 8-14 displays the LOS analysis results for the study intersections for the Reduced Specific Plan Scenario. The intersections that would operate at poor LOS (E or F) and would be considered to have a significant impact when compared to existing conditions are as follows:

- Mission Bay Drive at Garnet Avenue (Int 5) – LOS E PM peak period
- Balboa Avenue at Morena Boulevard NB Ramps (Int 7) – LOS F in the PM peak period
- Clairemont Drive at Balboa Avenue (Int 9) – LOS E in the PM peak period
- Morena Boulevard at Jutland Drive (Int 22) – LOS F in the PM peak period

Appendix J contains the peak period intersections LOS calculation worksheets.

ROADWAY SEGMENTS VOLUME-BASED

Table 8-15 displays the LOS analysis results for the volume-based roadway segments evaluation for the Reduced Specific Plan Scenario. The roadway segments that would operate at poor LOS (E or F) and would be considered to have a significant impact when compared to existing conditions is as follows:

- Garnet Avenue between Mission Bay Drive and I-5 SB On Ramp – LOS E
- Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp – LOS F
- Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps – LOS F
- Balboa Avenue east of Clairemont Drive – LOS F
- Mission Bay Drive between Bluffside Avenue and Damon Avenue – LOS E
- Mission Bay Drive between Damon Avenue and Garnet Avenue – LOS F
- Mission Bay Drive between Garnet Avenue and Magnolia Avenue – LOS E
- Mission Bay Drive between Magnolia Avenue and Bunker Hill Street – LOS E
- Mission Bay Drive between Bunker Hill Street and Grand Avenue – LOS E
- Mission Bay Drive between Grand Avenue and I-5 Ramps – LOS F
- Clairemont Drive between Denver Street and Morena Boulevard – LOS F

21	87 / 153 ↕ ↕ Damon Ave	Santa Fe St	22	163 / 316 ↕ ↕ Morena Blvd	13 / 11 ↕ 190 / 588 Jutland Dr	23	287 / 891 ↕ ↕ Morena Blvd	56 / 75 ↕ 99 / 376 Costco Dwy	24	352 / 1254 ↕ ↕ Morena Blvd	37 / 53 ↕ 230 / 190 Avati Dr
	128 / 108 ↕	↕ ↕ 21 / 80 134 / 66		↕ ↕ 257 / 175 391 / 260	↕ ↕ 653 / 320 121 / 370		↕ ↕ 799 / 653 119 / 191				
	36 / 65 ↕										
25	410 / 970 ↕ ↕ Balboa WB Ramps	Morena Blvd	26	47 / 11 ↕ ↕ 258 / 919 ↕ ↕ 50 / 130 Morena Blvd	440 / 530 ↕ ↕ 77 / 30 140 / 300 Balboa EB Ramps	27	290 / 840 ↕ ↕ 21 / 46 Morena Blvd	35 / 27 ↕ 27 / 15 Baker St	28	342 / 906 ↕ ↕ 47 / 103 Morena Blvd	49 / 86 ↕ 33 / 38 Gesner St
	90 / 150 ↕	↕ ↕ 280 / 90 1439 / 1268		↕ ↕ 29 / 80 10 / 27 1 / 5 ↕ ↕	↕ ↕ 9 / 5 970 / 658 150 / 180		↕ ↕ 783 / 380 22 / 23	↕ ↕ 874 / 404 42 / 46			
	151 / 259 ↕										
29	690 / 1060 ↕ Garnet Ave	Morena SB Ramps									
	1395 / 2128 ↕	↕ ↕ 241 / 409 1058 / 1048 Balboa Ave									

Note:
2030 Building Alternative peak hour volumes from the *Mid-Coast Corridor Transit Project Transportation and Mitigation Report*, September 2014, were used for intersections 25 and 26. Through volumes at these intersections were then balanced based on adjacent intersection volumes. Volumes at intersections 7 and 29 were determined based on volumes at adjacent intersections.

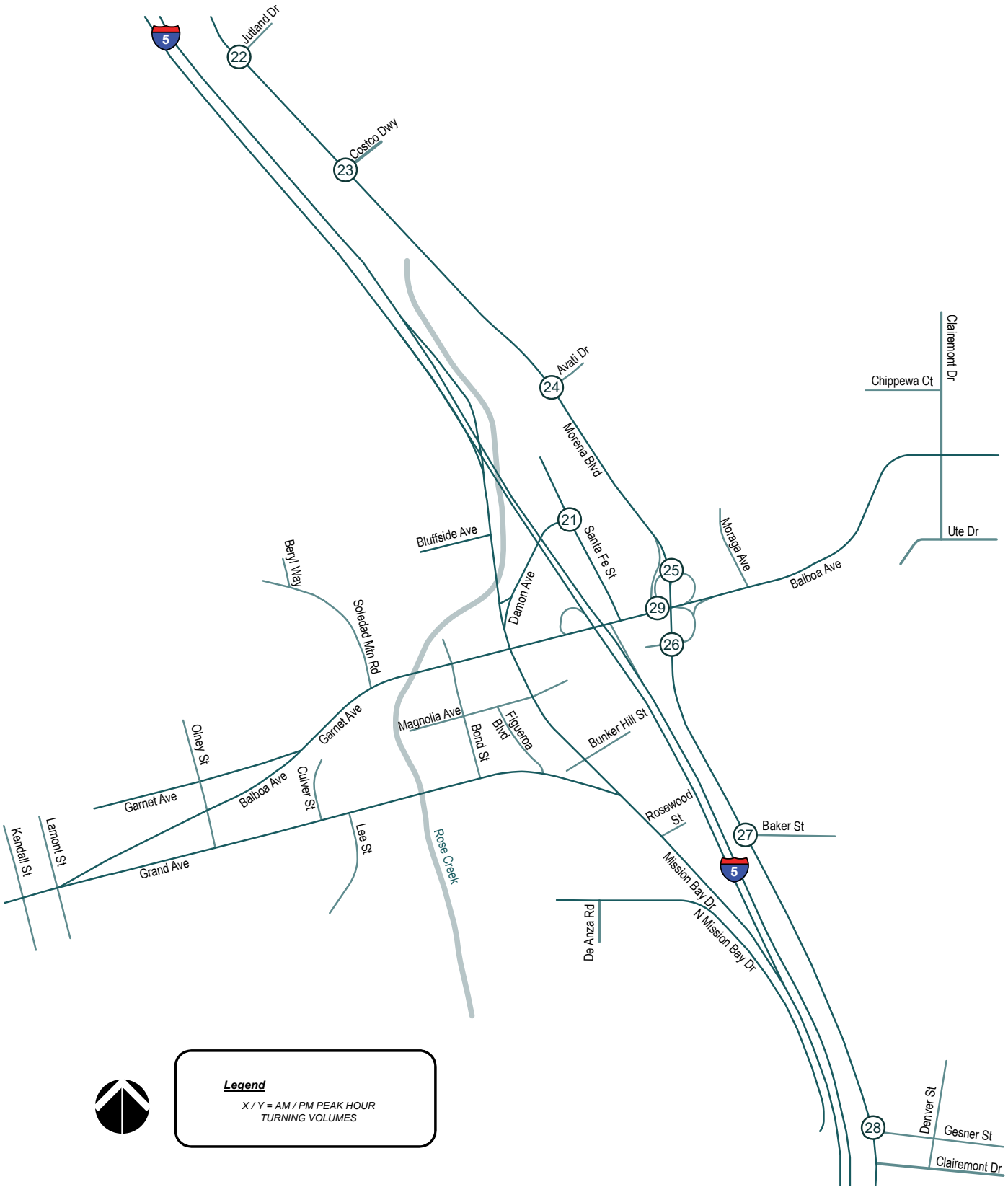


Figure 8-10
Future Reduced Specific Plan Peak Period Volumes (Cont.)

Table 8-14 Future Reduced Specific Plan Intersection Analysis Summary

Intersection		Traffic Control	Peak	Existing		Future Reduced		Impact?
				Delay (a)	LOS (b)	Delay (a)	LOS (b)	
1	Garnet Ave at Olney St	Signal	AM	15.4	B	24.8	C	
			PM	12.1	B	22.2	C	
2	Garnet Ave at Balboa Ave	Signal	AM	11.1	B	11.2	B	
			PM	15.0	B	14.5	B	
3	Garnet Ave at Soledad Mountain Rd	Signal	AM	18.6	B	16.5	B	
			PM	29.2	C	24.0	C	
4	Garnet Ave at Bond St	Signal	AM	0.5	A	0.4	A	
			PM	0.6	A	0.5	A	
5	Garnet Ave at Mission Bay Dr	Signal	AM	55.7	E	55.8	E	
			PM	58.0	E	64.0	E	Yes
6	Garnet Ave at Santa Fe St	Signal (c)	AM	16.8	C	5.5	A	
			PM	151.9	F	9.3	A	
7	Balboa Ave at Morena Blvd NB Ramps	One-Way Yield	AM	27.0	D	14.7	B	
			PM	50.7	F	65.5	F	Yes
8	Balboa Ave at Moraga Ave	Signal	AM	16.2	B	14.5	B	
			PM	16.3	B	15.1	B	
9	Balboa Ave at Clairemont Dr	Signal	AM	47.6	D	40.3	D	
			PM	59.2	E	70.9	E	Yes
10	Balboa Ave at Olney St	Signal	AM	12.4	B	15.3	B	
			PM	12.9	B	20.5	C	
11	Grand Ave at Olney St	Signal	AM	32.9	C	49.4	D	
			PM	27.2	C	40.6	D	
12	Grand Ave at Culver St	Signal	AM	10.2	B	10.7	B	
			PM	5.8	A	8.2	A	
13	Grand Ave at Lee St	Signal	AM	9.5	A	11.7	B	
			PM	5.2	A	7.3	A	
14	Grand Ave at Figueroa Blvd	Signal	AM	14.9	B	4.2	A	
			PM	3.0	A	13.1	B	
15	Grand Ave at Mission Bay Dr	Signal	AM	34.5	C	35.6	D	
			PM	32.3	C	37.9	D	
16	Mission Bay Dr at Bluffside Ave	Signal	AM	21.6	C	22.7	C	
			PM	20.4	C	30.6	C	

Notes: **Bold** values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

- (a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.
- (b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.
- (c) Intersection was analyzed as a one-way stop under Existing Conditions.
- (d) Intersection was analyzed as a two-way stop under Existing Conditions.
- (e) Intersection was analyzed as a free movement under Existing Conditions.

Table 8-14 Future Reduced Specific Plan Intersection Analysis Summary (Cont.)

Intersection		Traffic Control	Peak Period	Existing		Future Reduced		Impact?
				Delay (a)	LOS (b)	Delay (a)	LOS (b)	
17	Mission Bay Dr at Damon Ave	Signal	AM	8.2	A	14.9	B	
			PM	14.3	B	20.5	C	
18	Mission Bay Dr at Magnolia Ave	Signal	AM	14.7	B	29.4	C	
			PM	16.1	B	31.5	C	
19	Mission Bay Dr at Bunker Hill St	Signal	AM	6.5	A	21.0	C	
			PM	8.2	A	19.9	B	
20	Mission Bay Dr at Rosewood St	Signal (c)	AM	41.7	E	3.4	A	
			PM	176.0	F	3.3	A	
21	Santa Fe St at Damon Ave	All-Way Stop	AM	7.8	A	8.7	A	
			PM	8.1	A	9.3	A	
22	Morena Blvd at Jutland Dr	All-Way Stop	AM	12.7	B	12.1	B	
			PM	55.2	F	81.3	F	Yes
23	Morena Blvd at Costco Dwy	Signal	AM	9.6	A	9.6	A	
			PM	11.0	B	11.9	B	
24	Morena Blvd at Avati Dr	Signal	AM	9.1	A	11.1	B	
			PM	8.9	A	9.0	A	
25	Morena Blvd at WB Balboa Ave Ramps	Signal	AM	3.3	A	7.1	A	
			PM	4.7	A	7.8	A	
26	Morena Blvd at EB Balboa Ave Ramps	Signal (d)	AM	96.7	F	21.9	C	
			PM	50.2	F	13.4	B	
27	Morena Blvd at Baker St	One-Way Stop	AM	35.1	E	23.9	C	
			PM	17.6	C	15.5	C	
28	Morena Blvd at Gesner St	Signal	AM	8.6	A	10.4	B	
			PM	7.5	A	7.5	A	
29	Balboa Ave at Morena Blvd SB Ramps	Signal (e)	AM	NA	NA	6.7	A	
			PM	NA	NA	12.3	B	

Notes: **Bold** values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

- (a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.
- (b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.
- (c) Intersection was analyzed as a one-way stop under Existing Conditions.
- (d) Intersection was analyzed as a two-way stop under Existing Conditions.
- (e) Intersection was analyzed as a free movement under Existing Conditions.

Table 8-15 Future Reduced Specific Plan Volume-Based Roadway Segment Analysis Summary

Roadway Segment	Existing					Future Reduced					Impact?
	Functional Classification (a)	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	Functional Classification	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	
Balboa Ave											
Garnet Ave to Grand Ave	4 Lane Major Arterial	40,000	14,263	0.357	A	4 Lane Major Arterial	40,000	13,200	0.330	A	
Garnet Ave											
Bond St to Mission Bay Dr	4 Lane Major Arterial	40,000	58,694	1.467	F	4 Lane Major Arterial	40,000	52,900	1.323	F	
Mission Bay Dr to I-5 SB On-Ramp	5 Lane Major Arterial	45,000	37,406	0.831	D	5 Lane Major Arterial	45,000	42,100	0.936	E	Yes
I-5 SB On-Ramp to I-5 NB Off-Ramp	5 Lane Major Arterial	45,000	48,857	1.086	F	5 Lane Major Arterial	45,000	59,200	1.316	F	Yes
I-5 NB Off-Ramp to Morena Blvd SB Ramps	5 Lane Major Arterial	45,000	52,073	1.157	F	5 Lane Major Arterial	45,000	71,200	1.582	F	Yes
Balboa Ave (CA-274)											
Morena Boulevard SB Ramps to Morena Boulevard NB Ramps	4 Lane Major Arterial	40,000	49,079	1.227	F	5 Lane Major Arterial	45,000	45,300	1.007	F	
Morena Blvd NB Ramps to Moraga Ave	4 Lane Major Arterial	40,000	43,115	1.078	F	5 Lane Major Arterial	45,000	39,400	0.876	D	
Moraga Ave to Clairemont Dr	4 Lane Major Arterial	40,000	34,903	0.873	D	4 Lane Major Arterial	40,000	32,400	0.810	D	
East of Clairemont Dr	4 Lane Major Arterial	40,000	37,383	0.935	E	4 Lane Major Arterial	40,000	42,200	1.055	F	Yes
Grand Ave											
Kendall St to Lamont St	4 Lane Major Arterial	40,000	51,778	1.294	F	4 Lane Major Arterial	40,000	23,600	0.590	C	
Lee St to Bond St (On Rose Creek Bridge)	4 Lane Major Arterial	40,000	37,915	0.948	E	4 Lane Major Arterial	40,000	37,600	0.940	E	
Figueroa Blvd to Mission Bay Dr	4 Lane Major Arterial	40,000	38,202	0.955	E	4 Lane Major Arterial	40,000	38,200	0.955	E	
Mission Bay Dr											
Bluffside Ave to Damon Ave	4 Lane Major Arterial	40,000	35,580	0.890	E	4 Lane Major Arterial	40,000	39,400	0.985	E	Yes
Damon Ave to Garnet Ave	4 Lane Major Arterial	40,000	40,680	1.017	F	4 Lane Major Arterial	40,000	41,600	1.040	F	Yes
Garnet Ave to Magnolia Ave	4 Lane Major Arterial	40,000	29,702	0.743	C	4 Lane Major Arterial	40,000	37,200	0.930	E	Yes
Magnolia Ave to Bunker Hill St	4 Lane Major Arterial	40,000	29,821	0.746	C	4 Lane Major Arterial	40,000	37,700	0.943	E	Yes
Bunker Hill St to Grand Ave	4 Lane Major Arterial	40,000	29,002	0.725	C	4 Lane Major Arterial	40,000	35,300	0.883	E	Yes
Grand Avenue to I-5 Ramps	5 Lane Major Arterial	45,000	55,051	1.223	F	5 Lane Major Arterial	45,000	56,300	1.251	F	Yes

Notes: **Bold** values indicate roadway segments operating at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Existing road classifications are based on field work conducted in May 2016.

(b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by National Data and Surveying Services (NDS) and measured in May and June of 2016.

(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

Table 8-15 Future Reduced Specific Plan Volume-Based Roadway Segment Analysis Summary (Cont.)

Roadway Segment	Existing					Future Reduced					Impact?
	Funcitonal Classification (a)	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	Functional Classification	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	
Morena Blvd											
Jutland Dr to Avati Dr	4 Lane Major Arterial	40,000	11,554	0.289	A	4 Lane Major Arterial	40,000	17,200	0.430	B	
Avati Dr to Balboa Ave Ramps	4 Lane Major Arterial	40,000	20,136	0.503	B	4 Lane Major Arterial	40,000	21,900	0.548	C	
Balboa Ave Ramps to Ticonderoga St	3 Lane Major Arterial	30,000	15,823	0.527	C	3 Lane Collector (w/ two-way left-turn lane)	22,500	13,900	0.618	C	
Gesner St to Clairemont Dr	4 Lane Major Arterial	40,000	15,584	0.390	B	3 Lane Collector (w/ two-way left-turn lane)	22,500	14,600	0.649	C	
Clairemont Dr											
Chippewa Court to Balboa Avenue	4 Lane Major Arterial	40,000	21,259	0.531	C	4 Lane Major Arterial	40,000	25,200	0.630	C	
Balboa Avenue to Ute Drive	4 Lane Major Arterial	40,000	19,325	0.483	B	4 Lane Major Arterial	40,000	22,700	0.568	C	
Denver Street to Morena Boulevard	4 Lane Major Arterial	40,000	31,162	0.779	D	4 Lane Major Arterial	40,000	40,500	1.013	F	Yes
Damon Ave (d)											
Mission Bay Drive to Santa Fe Street	2 Lane Collector (w/o two-way left turn lane)	8,000	4,415	0.552	C	2 Lane Collector (w/o two-way left-turn lane)	8,000	5,900	0.738	D	
Santa Fe St											
Damon Avenue to Balboa Avenue	2 Lane Collector (w/o two-way left turn lane)	8,000	2,431	0.304	A	2 Lane Collector (w/o two-way left-turn lane)	8,000	5,600	0.700	D	
Soledad Mountain Rd											
Beryl Street to Garnet Avenue	4 Lane Major Arterial	40,000	27,235	0.681	C	4 Lane Major Arterial	40,000	26,800	0.670	C	
N Mission Bay Dr											
De Anza Road to Mission Bay Drive	2 Lane Collector (w/o two-way left turn lane)	8,000	2,456	0.307	A	2 Lane Collector (w/o two-way left-turn lane)	8,000	2,800	0.350	B	

Notes: **Bold** values indicate roadway segments operating at LOS E or F. **Bold and shaded** values indicate an impact.

- (a) Existing road classifications are based on field work conducted in May 2016.
- (b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by National Data and Surveying Services (NDS) and measured in May and June of 2016.
- (c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.
- (d) Damon Avenue is classified as a local street but functions as a collector with in the community.

CORRIDORS SPEED-BASED

Table 8-16 displays the LOS analysis results for the speed-based corridor segments evaluation for the Reduced Specific Plan Scenario using the roadway network discussed in the previous section. The corridors that would operate at poor LOS (E or F) and would be considered to have a significant impact when compared to existing conditions is as follows:

- Northbound Mission Bay Drive between Grand Avenue and Bluffside – LOS E in the AM and PM peak periods
- Southbound Mission Bay Drive between Bluffside Avenue and Grand Avenue – LOS E in the AM peak period and LOS F in the PM peak period

Appendix J contains the travel time details along each corridor.

Table 8-16 Future Reduced Specific Plan Speed-Based Corridor Analysis Summary

Corridor	Direction	Urban Street Class	Peak Period	Existing			Future Reduced		
				Travel Time (sec)	Speed (mph)	LOS (a)	Travel Time (sec)	Speed (mph)	LOS (a)
Mission Bay Drive									
Grand Avenue to Bluffside Avenue	Northbound	III	AM	140.5	15.9	D	178.7	12.5	E
			PM	167.5	13.3	E	178.2	12.5	E
Bluffside Avenue to Grand Avenue	Soutbound	III	AM	157.9	13.9	E	192.7	11.4	E
			PM	218.6	10.0	E	283.9	7.7	F
Garnet Avenue/ Balboa Avenue									
Olney Street to Clairemont Drive	Eastbound	II	AM	321.0	20.5	D	322.5	20.4	D
			PM	337.3	19.5	D	375.9	17.5	D
Clairemont Drive to Olney Street	Westbound	II	AM	292.9	22.6	C	291.0	22.8	C
			PM	305.6	21.7	D	338.2	19.6	D

Notes: **Bold** values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

FREEWAY SEGMENTS

Table 8-21 displays the LOS analysis results for the study freeway segments for the Reduced Specific Plan Future Scenario. As shown, all segments operate at LOS E in the northbound direction during the AM peak period except I-5 from Mission Bay Drive to Clairemont Drive; and all segments operate at LOS E in the southbound direction during the PM peak period within the study area.

FREEWAY RAMP METERS

Table 8-22 displays the analysis results for the ramp meters using the existing configuration and meter rates and the future peak-hour traffic volumes for the Reduced Specific Plan Future Scenario. As shown, the following locations are projected to result in a delay greater than 15-minutes and would be considered to have a significant impact when compared to existing conditions:

- I-5 SB and Mission Bay Drive – PM peak period (60 minute delay)
- I-5 NB and Mission Bay Drive – AM peak period (16 minute delay)

Table 8-21 Future Reduced Specific Plan Freeway Segment Analysis Summary

Freeway Segment		Dir	Number of Lanes	Future Reduced								Existing				Δ in Speed		Impact?
				Peak-Hour Volume (a)		Speed (mph) (b)		Density (pc/mi/ln)		LOS (c)		Speed (mph) (b)		LOS (c)				
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
I-5	SR-52 to Mission Bay Dr	NB	5	10,609	6,756	55.6	68.0	41.6	23.7	E	C	61.1	68.0	D	C	5.5	0.0	YES
		SB	5	6,164	10,283	68.0	57.4	23.7	39.1	C	E	68.0	62.4	C	D	0.0	5.0	YES
	Mission Bay Dr to Garnet Ave/ Balboa Ave	NB	4	8,296	5,282	56.9	68.0	39.7	23.7	E	C	64.3	68.0	D	C	7.4	0.0	YES
		SB	4	4,820	8,040	68.0	58.6	23.7	37.4	C	E	68.0	65.2	C	D	0.0	6.6	YES
	Garnet Ave/ Balboa Ave to Mission Bay Dr	NB	4	7,793	6,948	60.1	64.4	35.4	29.4	E	D	66.5	68.0	D	C	6.5	3.6	YES
		SB	4	6,003	8,296	67.8	56.9	24.1	39.7	C	E	68.0	65.0	C	D	0.2	8.0	YES
	Mission Bay Dr to Clairemont Dr	NB	5	9,199	8,201	62.5	66.0	32.1	27.1	D	D	66.4	68.0	D	C	3.9	2.0	NO
		SB	5	7,085	9,792	68.0	59.9	23.7	35.7	C	E	68.0	64.8	C	D	0.0	4.9	YES

Notes: Bold values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Peak-hour volumes were estimated using SANDAG forecast model outputs.

(b) The speed was calculated from a base free-flow speed (BFFS) of 75.4 mph (per equation 11-1 in the 2010 HCM) using Exhibit 11-3 in the 2010 HCM.

(c) The LOS for the respective freeway segments were based on the methodologies contained in Chapter 11 of the 2010 Highway Capacity Manual.

Table 8-22 Future Preferred Specific Plan Freeway Ramp Meter Analysis Summary

On Ramp	Peak Hour	Number of Lanes		Meter Rate (veh/hr) (a)	Future Reduced				Existing				Impact?
					Demand (veh/hr/ln) (b)	Excess Demand (veh/hr)	Delay (min)	Queue (feet) (c)	Demand (veh/hr/ln) (b)	Excess Demand (veh/hr)	Delay (min)	Queue (feet) (c)	
		GP	HOV										
I-5 SB & Mission Bay Drive	AM	2	1	n/a	621				584				YES
	PM			475	950	475	60	11,875	894	419	53	10,475	
I-5 SB & Westbound Balboa Ave	AM	2	0	n/a	246				240				NO
	PM			542	376	0	0	0	368	0	0	0	
I-5 NB & Mission Bay Drive	AM	2	0	811	1028	217	16	5,425	910	99	7	2,475	YES
	PM			n/a	688				615				

Notes: Bold values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Meter Rate is the peak hour capacity expected to be processed through the ramp meter. Values were obtained from Caltrans. Most Conservative rate (Rate 15) was used.

(b) Demand is the peak hour demand expected to use the on-ramp.

(c) Assumes an average vehicle length of 25 feet.

SIGNIFICANT IMPACTS

Project impacts for the Reduced Specific Plan Scenario were determined based on a comparison between the future year and existing conditions. Per the City of San Diego's significance thresholds and the analysis methodology presented in this report, the following cumulative impacts were identified.

Intersections

Cumulative impacts were determined at the following study intersections:

- Mission Bay Drive at Garnet Avenue (Int 5) – LOS E PM peak period
- Balboa Avenue at Morena Boulevard NB Ramps (Int 7) – LOS F in the PM peak period
- Clairemont Drive at Balboa Avenue (Int 9) – LOS E in the PM peak period
- Morena Boulevard at Jutland Drive (Int 22) – LOS F in the PM peak period

Roadway Segments

Cumulative impacts were determined at the following study roadway segments:

- Garnet Avenue between Mission Bay Drive and I-5 SB On Ramp – LOS E
- Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp – LOS F
- Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps – LOS F
- Balboa Avenue east of Clairemont Drive – LOS F
- Mission Bay Drive between Bluffside Avenue and Damon Avenue – LOS E
- Mission Bay Drive between Damon Avenue and Garnet Avenue – LOS F
- Mission Bay Drive between Garnet Avenue and Magnolia Avenue – LOS E
- Mission Bay Drive between Magnolia Avenue and Bunker Hill Street – LOS E
- Mission Bay Drive between Bunker Hill Street and Grand Avenue – LOS E
- Mission Bay Drive between Grand Avenue and I-5 Ramps – LOS F
- Clairemont Drive between Denver Street and Morena Boulevard – LOS F

Freeway Segments

Cumulative impacts were determined at the following study freeway segments:

- I-5 between SR-52 and Mission Bay Drive – LOS E in NB during AM peak period and in SB during PM peak period
- I-5 between Mission Bay Drive and Garnet Avenue/Balboa Avenue – LOS E in NB during AM peak period and in SB during PM peak period
- I-5 between Garnet Avenue/Balboa Avenue and Mission Bay Drive – LOS E in NB during AM peak period and in SB during PM peak period
- I-5 between Mission Bay Drive and Clairemont Drive – LOS E in SB during PM peak period

Freeway Ramp Meters

Cumulative impacts were determined at the following study freeway ramp meters:

- I-5 SB and Mission Bay Drive – PM peak period (60 minute delay)
- I-5 NB and Mission Bay Drive – AM peak period (16 minute delay)

MITIGATION MEASURES

The required mitigation measures for roadway and intersections that would be significantly impacted under the Reduced Specific Plan Future Scenario when compared to existing conditions are presented below.

Intersections

Mission Bay Drive & Garnet Avenue (Intersection 5): Expand Garnet Avenue between Soledad Mountain Road and Mission Bay Drive to include three eastbound through lanes with the outside eastbound through lane becoming a right-turn lane at the intersection with Mission Bay Drive and construct a second westbound left-turn lane. The required mitigation at this intersection is shown in **Figure 8-4**. The impact at this intersection associated with the Future Reduced Land Use scenario would be fully mitigated with the implementation of this measure. With this mitigation, the intersection would still operate at a LOS E in the PM peak period, however it would operate better than existing conditions. This improvement is recommended as part of the Balboa Avenue Specific Plan.

Balboa Avenue & Morena Boulevard NB Ramps (Intersection 7): Install a partial traffic signal at this intersection to control the eastbound and northbound approaches. The required mitigation at this intersection is shown in **Figure 8-5**. The significant traffic impact associated with the Future Reduced Land Use scenario to this intersection would be fully mitigated with the implementation of this measure. This improvement is recommended as part of the Balboa Avenue Specific Plan.

Balboa Avenue & Clairemont Drive (Intersection 9): Construct a southbound right-turn lane and a second southbound left-turn lane. Construct a westbound right-turn lane. The required mitigation at this intersection is shown in **Appendix F**. The impact at this intersection associated with the Future Reduced Land Use scenario would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition that would significantly impact one adjacent commercial property and would increase pedestrian crossing distances. Further, the Clairemont Community Plan Update is currently underway and may further consider the need for and feasibility of these improvements as part of their evaluation when looking at land use changes for the community as a whole. Due to the impact to adjacent properties and potential effect on pedestrian travel, this improvement is not recommended as part of the Reduced Specific Plan Future scenario.

Morena Boulevard & Jutland Drive (Intersection 22): Install a traffic signal or roundabout at this intersection. The required mitigation at this intersection is shown in **Appendix F**. The significant traffic impact associated with the Future Reduced Land Use scenario to this intersection would be fully mitigated with the implementation of this measure. This improvement is recommended as part of the Balboa Avenue Specific Plan.

Roadway Segments

Garnet Avenue between Mission Bay Drive and I-5 SB On Ramp: Widen this segment of Garnet Avenue to a 6-lane Major Arterial. The significant traffic impact associated with the Future Reduced Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Garnet Avenue between I-5 Southbound On Ramp and I-5 Northbound Off Ramp: Widen this segment of Garnet Avenue to an 8-lane Major Arterial. With the implementation of this mitigation, the roadway segment will still operate at unacceptable conditions, but would operate better than existing conditions and would therefore not be considered a significant impact. This improvement would require reconstruction of the freeway undercrossing. It would also impact properties on either side of the freeway undercrossing to create transitions or widen the roadway on either side to match this width. Due to these factors, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps: Widen this segment of Garnet Avenue to an 8-lane Major Arterial. With the implementation of this partial mitigation, the roadway segment will still operate at unacceptable conditions, therefore, the significant traffic associated with the Future Reduced Land Use scenario would remain significant. This improvement would require right-of-way acquisition and significantly impact the Balboa Avenue station on the south and the City's operations yard on the north side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Balboa Avenue east of Clairemont Drive: Widen this segment of Balboa Avenue to a 6-lane Major Arterial. The significant traffic impact associated with the Future Reduced Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significant cost to design for the steep slopes on either side of the roadway. Due to these factors, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Bluffside Avenue and Damon Avenue: Widen this segment of Mission Bay Drive to a 5-lane Major Arterial. The significant traffic impact associated with the Future Reduced Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require widening of the bridge over Rose Creek. Due to the environmental constraints and concerns with impacting Rose Creek, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Damon Avenue and Garnet Avenue: Widen this segment of Mission Bay Drive to a 6-lane Major Arterial. The significant traffic impact associated with the Future Reduced Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Garnet Avenue and Magnolia Avenue: Widen this segment of Mission Bay Drive to a 5-lane Major Arterial. The significant traffic impact associated with the Future Reduced Land Use

scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Magnolia Avenue and Bunker Hill Street: Widen this segment of Mission Bay Drive to a 5-lane Major Arterial. The significant traffic impact associated with the Future Reduced Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Bunker Hill Street and Grand Avenue: Widen this segment of Mission Bay Drive to a 5-lane Major Arterial. The significant traffic impact associated with the Future Reduced Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Mission Bay Drive between Grand Avenue and I-5 Ramps: Widen this segment of Mission Bay Drive to an 8-lane Major Arterial. With the implementation of this mitigation, the roadway segment will still operate at unacceptable conditions, but would operate better than existing conditions and would therefore not be considered a significant impact; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment and potential wetland areas adjacent to the west side of the roadway. Due to the impact to adjacent properties, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Clairemont Drive between Denver Street and Morena Boulevard: Widen this segment of Clairemont Drive to a 6-lane Major Arterial. The significant traffic impact associated with the Future Reduced Land Use scenario to this roadway segment would be fully mitigated with the implementation of this measure; however, this would require right-of-way acquisition and significantly impact the properties on each side of this roadway segment. Further, the Clairemont Community Plan Update is currently underway and may further consider the need and feasibility of this mitigation as part of their evaluation when looking at land use changes for the community as a whole. Due to these factors, this improvement is not recommended as part of the Balboa Avenue Specific Plan.

Freeway Segments

No mitigation measures are identified for impacts to freeways because freeway improvements are not within the authority of the City. The improvements identified in SANDAG's RTP would improve operations along the freeway segments and ramps; however, to what extent is still undetermined, as these are future improvements that must be defined more over time. Furthermore, implementation of freeway improvements in a timely manner is beyond the full control of the City since Caltrans has approval authority over freeway improvements. The City will continue to coordinate with Caltrans and SANDAG on future improvements, as future project-level developments proceed, to develop potential "fair share" multi-modal mitigation strategies for freeway impacts, as appropriate. The following are the freeway mainline improvements identified in SANDAG's RTP:

I-5 between SR-52 and Clairemont Drive: SANDAG San Diego Forward 2050 Revenue Constrained Network includes operational improvements and construction of managed lanes along I-5 between SR-52 and Clairemont Drive. This project is expected to be constructed by the year 2050. There is some uncertainty related to the actual improvements and associated traffic impacts that will materialize over time. Future development projects' transportation studies would be able to more accurately identify individual project-level impacts and provide the mechanism to mitigate them through fair share contributions in addition to the funding identified in the Revenue Constrained Network.

Freeway Ramp Meters

The City of San Diego shall coordinate with Caltrans to address ramp capacity at impacted on-ramp locations. Improvements could include additional lanes, interchange reconfigurations, Transportation Demand Measures (TDM); however, specific capacity improvements are still undetermined, as these are future improvements that must be defined more over time. Furthermore, implementation of freeway improvements in a timely manner is beyond the full control of the City since Caltrans has approval authority over freeway improvements. Additionally, the Reduced Plan includes a variety of transit, pedestrian and bicycle facilities that may help to reduce single-occupancy vehicle (SOV) travel which can help improve ramp capacity.

POST-MITIGATION ANALYSIS

The following section will present the capacity and LOS analysis for the Reduced Community Plan Future Scenario with the implementation of the traffic mitigation measures described above.

Intersections

Table 8-23 displays the LOS analysis results for the study intersections after the implementation of the mitigation measures described above for the Future Reduced Land Use Scenario. As shown in the table, all intersections would operate at LOS D or better during both peak periods after the implementation of the traffic mitigation measures except for the intersection of Garnet Avenue at Mission Bay Drive (Int 5) which would operate at poor LOS (E or F) after implementation of the traffic mitigation measures but would not be considered to have a significant impact when compared to existing conditions.

Appendix K contains the peak intersection LOS calculation worksheets.

Roadway Segments

Table 8-24 displays the LOS analysis results for the study roadway segments after the implementation of the mitigation measures described above for the Future Reduced Land Use Scenario. As shown in the table, the roadway segment that would continue to operate at poor LOS (E or F) after implementation of the traffic mitigation measures are as follows:

- Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp – LOS E
- Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp – LOS F
- Mission Bay Drive between Grand Avenue and I-5 Ramps – LOS E

Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps would be considered to continue to have a significant impact when compared to existing conditions. Based on the feasibility of the traffic mitigation measures, none of the roadway segment improvements are recommended as part of the Balboa Avenue Specific Plan.

Table 8-17 Future Reduced Specific Plan with Recommended Mitigation Intersection Analysis Summary

Intersection		Peak Period	Future Reduced		After Mitigations		Recommended?	Description
			Delay (a)	LOS (b)	Delay (a)	LOS (b)		
5	Mission Bay Dr at Garnet Ave	AM	55.8	E	51.0	D	YES	Expand Garnet Avenue to three EB through lanes with the outside lane becoming a right-turn lane at the intersection and construct a second WB left-turn lane.
		PM	64.0	E	55.9	E		
7	Balboa Ave at Morena Blvd NB Ramps	AM	14.7	B	4.6	A	YES	Install a partial traffic signal at this intersection to control the EB and NB approaches.
		PM	65.5	F	7.2	A		
9	Clairemont Dr at Balboa Ave	AM	40.3	D	33.3	C	NO	Add a SB right-turn lane and second SB left-turn lane. Add a WB right-turn lane.
		PM	70.9	E	52.3	D		
22	Morena Blvd at Jutland Dr	AM	12.1	B	6.5 / 7.3	A / A	YES	Install a traffic signal or roundabout.
		PM	81.3	F	10.4 / 13.8	B / B		

Notes: **Bold** values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

Table 8-18 Future Reduced Specific Plan with Recommended Mitigation Roadway Segment Analysis Summary

Roadway Segment	Future ADT (a)	Future Reduced			After Mitigations			Recommended?
		Functional Classification	V/C Ratio (b)	LOS	Functional Classification	V/C Ratio (b)	LOS	
Garnet Avenue								
Mission Bay Drive to I-5 SB On-Ramp	42,100	5 Lane Major Arterial	0.936	E	6 Lane Major Arterial	0.842	D	NO
I-5 SB On-Ramp to I-5 NB Off-Ramp	59,200	5 Lane Major Arterial	1.316	F	8 Lane Major Arterial	0.987	E	NO
I-5 NB Off-Ramp to Morena Blvd SB Ramps	71,200	5 Lane Major Arterial	1.582	F	8 Lane Major Arterial	1.187	F	NO
Balboa Avenue								
East of Clairemont Drive	42,200	4 Lane Major Arterial	1.055	F	6 Lane Major Arterial	0.844	D	NO
Mission Bay Drive								
Bluffside Ave to Damon Ave	39,400	4 Lane Major Arterial	0.985	E	5 Lane Major Arterial	0.876	D	NO
Damon Ave to Garnet Ave	41,600	4 Lane Major Arterial	1.04	F	6 Lane Major Arterial	0.832	D	NO
Garnet Ave to Magnolia Ave	37,200	4 Lane Major Arterial	0.93	E	5 Lane Major Arterial	0.827	D	NO
Magnolia Ave to Bunker Hill St	37,700	4 Lane Major Arterial	0.943	E	5 Lane Major Arterial	0.838	D	NO
Bunker Hill St to Grand Ave	35,300	4 Lane Major Arterial	0.883	E	5 Lane Major Arterial	0.784	D	NO
Grand Ave to I-5 Ramps	56,300	5 Lane Major Arterial	1.251	F	8 Lane Major Arterial	0.938	E	NO
Clairemont Drive								
Denver St to Morena Blvd	40,500	4 Lane Major Arterial	1.013	F	6 Lane Major Arterial	0.810	D	NO

Notes: **Bold** values indicate roadway segments operating at LOS E or F. **Bold and shaded** values indicate an impact.

(a) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

(b) ADT volumes for the roadway segments were determined from SANDAG Modeling.

9 SUMMARY OF SCENARIOS

Table 9-1 displays the LOS analysis results for the study intersections for all future scenarios. **Table 9-2** displays the LOS analysis results for the volume-based roadway segments evaluation for all future scenarios. Intersections and roadway segments within the Specific Plan area were evaluated to determine cumulative impacts when compared against existing conditions. Impact criteria used in the evaluations are consistent with City of San Diego guidelines for determining significant impacts for a CEQA document.

INTERSECTIONS

As shown in Table 9-1, cumulative impacts were identified at the following study intersections under each of the Future Land Use Scenarios (Adopted, Preferred, and Reduced):

- **Garnet Avenue at Mission Bay Drive (Int 5)**
- **Balboa Avenue at Morena Boulevard Northbound Ramps (Int 7)**
- **Clairemont Drive at Balboa Avenue (Int 9)**
- **Morena Boulevard at Jutland Drive (Int 22)**

As shown in Table 9-1, additional cumulative impacts were identified at the following study intersection only under the Future Adopted and Future Preferred Land Use Scenario:

- **Olney Street at Garnet Avenue (Int 1)**

Traffic mitigation measures were determined for each location that was found to have an impact to return operation to better than existing conditions. Mitigation measures are described in Chapter 8. The mitigations were either recommended or not recommended, depending on the associated physical impacts to adjacent land uses, active transportation facilities, natural features, and other engineering and environmental considerations. Recommended mitigation measures under the Future Adopted, Preferred, or Reduced Land Use Scenarios include:

- **Garnet Avenue & Olney Street (Intersection 1):** Remove parking and restripe to include a northbound left-turn lane. (Future Adopted and Future Preferred Land Use Scenarios)
- **Mission Bay Drive & Garnet Avenue (Intersection 5):** Expand Garnet Avenue between Soledad Mountain Road and Mission Bay Drive to include three eastbound through lanes with the outside eastbound through lane becoming a right-turn lane at the intersection with Mission Bay Drive and construct a second westbound left-turn lane. (Future Preferred and Reduced Land Use Scenarios)
- **Balboa Avenue & Morena Boulevard NB Ramps (Intersection 7):** Install a partial traffic signal at this intersection to control the eastbound and northbound approaches. (All Scenarios)
- **Morena Boulevard & Jutland Drive (Intersection 22):** Install a traffic signal or roundabout at this intersection. (All Scenarios)

Table 9-1 Future Intersection Analysis Summary

Intersection		Traffic Control	Peak	Existing		Future Adopted			Future Preferred			Future Reduced		
				Delay (a)	LOS (b)	Delay (a)	LOS (b)	Impact?	Delay (a)	LOS (b)	Impact?	Delay (a)	LOS (b)	Impact?
1	Garnet Ave at Olney St	Signal	AM	15.4	B	36.3	D		36.2	D		24.8	C	
			PM	12.1	B	56.4	E	Yes	58.8	E	Yes	22.2	C	
2	Garnet Ave at Balboa Ave	Signal	AM	11.1	B	13.0	B		10.9	B		11.2	B	
			PM	15.0	B	26.0	C		14.7	B		14.5	B	
3	Garnet Ave at Soledad Mountain Rd	Signal	AM	18.6	B	18.4	B		16.6	B		16.5	B	
			PM	29.2	C	30.6	C		24.5	C		24.0	C	
4	Garnet Ave at Bond St	Signal	AM	0.5	A	0.6	A		0.4	A		0.4	A	
			PM	0.6	A	0.6	A		0.4	A		0.5	A	
5	Garnet Ave at Mission Bay Dr	Signal	AM	55.7	E	61.5	E	Yes	57.5	E		55.8	E	
			PM	58.0	E	70.5	E	Yes	66.3	E	Yes	64.0	E	Yes
6	Garnet Ave at Santa Fe St	One-Way Stop	AM	16.8	C	12.4	B		5.5	A		5.5	A	
			PM	151.9	F	12.6	B		9.3	A		9.3	A	
7	Balboa Ave at Morena Blvd NB Ramps	Signal (c)	AM	27.0	D	75.2	F	Yes	14.7	B		14.7	B	
			PM	50.7	F	113.1	F	Yes	57.9	F	Yes	65.5	F	Yes
8	Balboa Ave at Moraga Ave	Signal	AM	16.2	B	17.0	B		14.6	B		14.5	B	
			PM	16.3	B	17.7	B		15.2	B		15.1	B	
9	Balboa Ave at Clairemont Dr	Signal	AM	47.6	D	51.0	D		40.9	D		40.3	D	
			PM	59.2	E	84.6	F	Yes	72.1	E	Yes	70.9	E	Yes
10	Balboa Ave at Olney St	Signal	AM	12.4	B	14.9	B		15.3	B		15.3	B	
			PM	12.9	B	19.2	B		20.4	C		20.5	C	
11	Grand Ave at Olney St	Signal	AM	32.9	C	41.6	D		47.8	D		49.4	D	
			PM	27.2	C	35.5	D		37.9	D		40.6	D	

Notes: **Bold** values indicate intersections operations at LOS E or F.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.

(c) Intersection was analyzed as a one-way stop under Existing and Future Adopted Conditions.

(d) Intersection is assumed to be signalized in the Future Year scenarios based on planned development project in the area.

(e) Intersection was analyzed as a two-way stop under Existing Conditions.

(f) Intersection was analyzed as a free movement under Existing and Future Adopted Conditions.

Table 9-1 Future Intersection Analysis Summary (Cont.)

Intersection		Traffic Control	Peak	Existing		Future Adopted			Future Preferred			Future Reduced		
				Delay (a)	LOS (b)	Delay (a)	LOS (b)	Impact?	Delay (a)	LOS (b)	Impact?	Delay (a)	LOS (b)	Impact?
12	Grand Ave at Culver St	Signal	AM	10.2	B	10.4	B		10.7	B		10.7	B	
			PM	5.8	A	7.0	A		7.1	A		8.2	A	
13	Grand Ave at Lee St	Signal	AM	9.5	A	10.4	B		11.8	B		11.7	B	
			PM	5.2	A	5.6	A		5.8	A		7.3	A	
14	Grand Ave at Figueroa Blvd	Signal	AM	14.9	B	12.7	B		4.6	A		4.2	A	
			PM	3.0	A	3.2	A		13.8	B		13.1	B	
15	Grand Ave at Mission Bay Dr	Signal	AM	34.5	C	16.2	B		36.7	D		35.6	D	
			PM	32.3	C	36.5	D		39.8	D		37.9	D	
16	Mission Bay Dr at Bluffside Ave	Signal	AM	21.6	C	23.9	C		23.3	C		22.7	C	
			PM	20.4	C	26.7	C		32.8	C		30.6	C	
17	Mission Bay Dr at Damon Ave	Signal	AM	8.2	A	8.0	A		14.9	B		14.9	B	
			PM	14.3	B	22.8	C		20.7	C		20.5	C	
18	Mission Bay Dr at Magnolia Ave	Signal	AM	14.7	B	19.7	B		34.1	C		29.4	C	
			PM	16.1	B	19.9	B		36.9	D		31.5	C	
19	Mission Bay Dr at Bunker Hill St	Signal	AM	6.5	A	7.1	A		25.8	C		21.0	C	
			PM	8.2	A	11.9	B		22.9	C		19.9	B	
20	Mission Bay Dr at Rosewood St	Signal (d)	AM	41.7	E	5.6	A		4.3	A		3.4	A	
			PM	176.0	F	6.7	A		3.9	A		3.3	A	
21	Santa Fe St at Damon Ave	All-Way Stop	AM	7.8	A	8.1	A		8.7	A		8.7	A	
			PM	8.1	A	8.3	A		9.3	A		9.3	A	
22	Morena Blvd at Jutland Dr	All-Way Stop	AM	12.7	B	12.6	B		12.1	B		12.1	B	
			PM	55.2	F	92.7	F	Yes	81.5	F	Yes	81.3	F	Yes

Notes: **Bold** values indicate intersections operations at LOS E or F.

- (a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.
- (b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.
- (c) Intersection was analyzed as a one-way stop under Existing and Future Adopted Conditions.
- (d) Intersection is assumed to be signalized in the Future Year scenarios based on planned development project in the area.
- (e) Intersection was analyzed as a two-way stop under Existing Conditions.
- (f) Intersection was analyzed as a free movement under Existing and Future Adopted Conditions.

Table 9-1 Future Intersection Analysis Summary (Cont.)

Intersection		Traffic Control	Peak	Existing		Future Adopted			Future Preferred			Future Reduced		
				Delay (a)	LOS (b)	Delay (a)	LOS (b)	Impact?	Delay (a)	LOS (b)	Impact?	Delay (a)	LOS (b)	Impact?
23	Morena Blvd at Costco Dwy	Signal	AM	9.6	A	9.4	A		9.6	A		9.6	A	
			PM	11.0	B	11.0	B		11.9	B		11.9	B	
24	Morena Blvd at Avati Dr	Signal	AM	9.1	A	9.7	A		10.7	B		11.1	B	
			PM	8.9	A	9.0	A		8.9	A		9.0	A	
25	Morena Blvd at WB Balboa Ave Ramps	Signal	AM	3.3	A	4.1	A		7.1	A		7.1	A	
			PM	4.7	A	5.7	A		7.7	A		7.8	A	
26	Morena Blvd at EB Balboa Ave Ramps	Signal (e)	AM	96.7	F	21.8	C		21.7	C		21.9	C	
			PM	50.2	F	26.3	C		13.2	B		13.4	B	
27	Morena Blvd at Baker St	One-Way Stop	AM	35.1	E	31.2	D		23.8	C		23.9	C	
			PM	17.6	C	18.2	C		15.5	C		15.5	C	
28	Morena Blvd at Gesner St	Signal	AM	8.6	A	8.7	A		10.7	B		10.4	B	
			PM	7.5	A	7.5	A		7.4	A		7.5	A	
29	Balboa Ave at Morena Blvd SB Ramps	Signal (f)	AM	NA	NA	NA	NA		6.8	A		6.7	A	
			PM	NA	NA	NA	NA		12.0	B		12.3	B	

Notes: **Bold** values indicate intersections operations at LOS E or F.

- (a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.
- (b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 9.0.
- (c) Intersection was analyzed as a one-way stop under Existing and Future Adopted Conditions.
- (d) Intersection is assumed to be signalized in the Future Year scenarios based on planned development project in the area.
- (e) Intersection was analyzed as a two-way stop under Existing Conditions.
- (f) Intersection was analyzed as a free movement under Existing and Future Adopted Conditions.

ROADWAY SEGMENTS

As shown in Table 9-2, cumulative impacts were identified at the following study roadway segments under each of the Future Land Use Scenarios (Adopted, Preferred, and Reduced):

- **Garnet Avenue between Mission Bay Drive and I-5 SB On Ramp**
- **Garnet Avenue between I-5 SB On Ramp and I-5 NB Off Ramp**
- **Garnet Avenue between I-5 NB Off Ramp and Morena Boulevard SB Ramps**
- **Balboa Avenue east of Clairemont Drive**
- **Mission Bay Drive between Bluffside Avenue and Damon Avenue**
- **Mission Bay Drive between Damon Avenue and Garnet Avenue**
- **Clairemont Drive between Denver Street and Morena Boulevard**

As shown in Table 9-2, additional cumulative impacts were identified at the following roadway segments only under the Future Preferred and Reduced Land Use Scenario:

- **Mission Bay Drive between Garnet Avenue and Magnolia Avenue**
- **Mission Bay Drive between Magnolia Avenue and Bunker Hill Street**
- **Mission Bay Drive between Bunker Hill Street and Grand Avenue**
- **Mission Bay Drive between Grand Avenue and I-5 Ramps**

As shown in Table 9-2, additional cumulative impacts were identified at the following roadway segments only under the Future Adopted Land Use Scenario:

- **Garnet Avenue between Bond Street to Mission Bay Drive**
- **Balboa Avenue between Morena Boulevard NB Ramps and Moraga Avenue**
- **Balboa Avenue between Moraga Avenue and Clairemont Drive**

Traffic mitigation measures were determined for each location that was found to have an impact to return operation to better than existing conditions. Mitigation measures are described in Chapter 8. The mitigations were either recommended or not recommended, depending on the associated physical impacts to adjacent land uses, active transportation facilities, natural features, and other engineering and environmental considerations. No improvements to roadway segments required to mitigate impacts were recommended in this study.

Table 9-2 Future Volume-Based Roadway Segment Analysis Summary

Roadway Segment	Existing					Future Adopted						Future Preferred						Future Reduced					
	Functional Classification (a)	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	Functional Classification (a)	LOS E Capacity	ADT (d)	V/C Ratio (c)	LOS	Impact ?	Functional Classification (a)	LOS E Capacity	ADT (d)	V/C Ratio (c)	LOS	Impact ?	Functional Classification (a)	LOS E Capacity	ADT (d)	V/C Ratio (c)	LOS	Impact ?
Balboa Ave																							
Garnet Ave to Grand Ave	4 Lane Major Arterial	40,000	14,263	0.357	A	4 Lane Major Arterial	40,000	14,400	0.360	A		4 Lane Major Arterial	40,000	13,200	0.330	A		4 Lane Major Arterial	40,000	13,200	0.330	A	
Garnet Ave																							
Bond St to Mission Bay Dr	4 Lane Major Arterial	40,000	58,694	1.467	F	4 Lane Major Arterial	40,000	63,200	1.580	F	Yes	4 Lane Major Arterial	40,000	52,200	1.305	F		4 Lane Major Arterial	40,000	52,900	1.323	F	
Mission Bay Dr to I-5 SB On-Ramp	5 Lane Major Arterial	45,000	37,406	0.831	D	5 Lane Major Arterial	45,000	48,100	1.069	F	Yes	5 Lane Major Arterial	45,000	43,000	0.956	E	Yes	5 Lane Major Arterial	45,000	42,100	0.936	E	Yes
I-5 SB On-Ramp to I-5 NB Off-Ramp	5 Lane Major Arterial	45,000	48,857	1.086	F	5 Lane Major Arterial	45,000	66,600	1.480	F	Yes	5 Lane Major Arterial	45,000	60,500	1.344	F	Yes	5 Lane Major Arterial	45,000	59,200	1.316	F	Yes
I-5 NB Off-Ramp to Morena Blvd SB Ramps	5 Lane Major Arterial	45,000	52,073	1.157	F	5 Lane Major Arterial	45,000	77,500	1.722	F	Yes	5 Lane Major Arterial	45,000	71,500	1.589	F	Yes	5 Lane Major Arterial	45,000	71,200	1.582	F	Yes
Balboa Ave (CA-274)																							
Morena Boulevard SB Ramps to Morena Boulevard NB Ramps	4 Lane Major Arterial	40,000	49,079	1.227	F	5 Lane Major Arterial	45,000	49,400	1.098	F		5 Lane Major Arterial	45,000	45,700	1.016	F		5 Lane Major Arterial	45,000	45,300	1.007	F	
Morena Blvd NB Ramps to Moraga Ave	4 Lane Major Arterial	40,000	43,115	1.078	F	4 Lane Major Arterial	40,000	45,500	1.138	F	Yes	5 Lane Major Arterial	45,000	39,800	0.884	D		5 Lane Major Arterial	45,000	39,400	0.876	D	
Moraga Ave to Clairemont Dr	4 Lane Major Arterial	40,000	34,903	0.873	D	4 Lane Major Arterial	40,000	38,200	0.955	E	Yes	4 Lane Major Arterial	40,000	32,600	0.815	D		4 Lane Major Arterial	40,000	32,400	0.810	D	
East of Clairemont Dr	4 Lane Major Arterial	40,000	37,383	0.935	E	4 Lane Major Arterial	40,000	43,000	1.075	F	Yes	4 Lane Major Arterial	40,000	42,500	1.063	F	Yes	4 Lane Major Arterial	40,000	42,200	1.055	F	Yes
Grand Ave																							
Kendall St to Lamont St	4 Lane Major Arterial	40,000	51,778	1.294	F	4 Lane Major Arterial	40,000	24,500	0.613	C		4 Lane Major Arterial	40,000	24,000	0.600	C		4 Lane Major Arterial	40,000	23,600	0.590	C	
Lee St to Bond St (On Rose Creek Bridge)	4 Lane Major Arterial	40,000	37,915	0.948	E	4 Lane Major Arterial	40,000	35,700	0.893	E		4 Lane Major Arterial	40,000	37,200	0.930	E		4 Lane Major Arterial	40,000	37,600	0.940	E	
Figuerola Blvd to Mission Bay Dr	4 Lane Major Arterial	40,000	38,202	0.955	E	4 Lane Major Arterial	40,000	36,500	0.913	E		4 Lane Major Arterial	40,000	37,900	0.948	E		4 Lane Major Arterial	40,000	38,200	0.955	E	
Mission Bay Dr																							
Bluffs Ave to Damon Ave	4 Lane Major Arterial	40,000	35,580	0.890	E	4 Lane Major Arterial	40,000	39,600	0.990	E	Yes	4 Lane Major Arterial	40,000	39,000	0.975	E	Yes	4 Lane Major Arterial	40,000	39,400	0.985	E	Yes
Damon Ave to Garnet Ave	4 Lane Major Arterial	40,000	40,680	1.017	F	4 Lane Major Arterial	40,000	42,400	1.060	F	Yes	4 Lane Major Arterial	40,000	41,300	1.033	F	Yes	4 Lane Major Arterial	40,000	41,600	1.040	F	Yes
Garnet Ave to Magnolia Ave	4 Lane Major Arterial	40,000	29,702	0.743	C	4 Lane Major Arterial	40,000	33,800	0.845	D		4 Lane Major Arterial	40,000	38,300	0.958	E	Yes	4 Lane Major Arterial	40,000	37,200	0.930	E	Yes
Magnolia Ave to Bunker Hill St	4 Lane Major Arterial	40,000	29,821	0.746	C	4 Lane Major Arterial	40,000	34,800	0.870	D		4 Lane Major Arterial	40,000	38,700	0.968	E	Yes	4 Lane Major Arterial	40,000	37,700	0.943	E	Yes
Bunker Hill St to Grand Ave	4 Lane Major Arterial	40,000	29,002	0.725	C	4 Lane Major Arterial	40,000	34,100	0.853	D		4 Lane Major Arterial	40,000	35,900	0.898	E	Yes	4 Lane Major Arterial	40,000	35,300	0.883	E	Yes
Grand Avenue to I-5 Ramps	5 Lane Major Arterial	45,000	55,051	1.223	F	5 Lane Major Arterial	45,000	52,400	1.164	F		5 Lane Major Arterial	45,000	56,600	1.258	F	Yes	5 Lane Major Arterial	45,000	56,300	1.251	F	Yes

Notes: **Bold** values indicate roadway segments operating at LOS E or F.

(a) Existing road classifications are based on field work conducted in May 2016.

(b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by National Data and Surveying Services (NDS) and measured in May and June of 2016.

(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

(d) ADT volumes for the roadway segments were determined from SANDAG Modeling.

(e) Damon Avenue is classified as a local street but functions as a collector within the community.

Table 9-2 Future Volume-Based Roadway Segment Analysis Summary (Cont.)

Roadway Segment	Existing					Future Adopted						Future Preferred						Future Reduced					
	Functional Classification (a)	LOS E Capacity	ADT (b)	V/C Ratio (c)	LOS	Functional Classification (a)	LOS E Capacity	ADT (d)	V/C Ratio (c)	LOS	Impact ?	Functional Classification (a)	LOS E Capacity	ADT (d)	V/C Ratio (c)	LOS	Impact ?	Functional Classification (a)	LOS E Capacity	ADT (d)	V/C Ratio (c)	LOS	Impact ?
Morena Boulevard																							
Jutland Dr to Avati Dr	4 Lane Major Arterial	40,000	11,554	0.289	A	4 Lane Major Arterial	40,000	17,200	0.430	B		4 Lane Major Arterial	40,000	17,200	0.430	B		4 Lane Major Arterial	40,000	17,200	0.430	B	
Avati Dr to Balboa Ave Ramps	4 Lane Major Arterial	40,000	20,136	0.503	B	4 Lane Major Arterial	40,000	22,100	0.553	C		4 Lane Major Arterial	40,000	21,800	0.545	C		4 Lane Major Arterial	40,000	21,900	0.548	C	
Balboa Ave Ramps to Ticonderoga St	3 Lane Major Arterial	30,000	15,823	0.527	C	4 Lane Major Arterial	40,000	16,900	0.423	B		3 Lane Collector (w/ two-way left-turn lane)	22,500	13,900	0.618	C		3 Lane Collector (w/ two-way left-turn lane)	22,500	13,900	0.618	C	
Gesner St to Clairemont Dr	4 Lane Major Arterial	40,000	15,584	0.390	B	4 Lane Major Arterial	40,000	16,400	0.41	B		3 Lane Collector (w/ two-way left-turn lane)	22,500	14,600	0.649	C		3 Lane Collector (w/ two-way left-turn lane)	22,500	14,600	0.649	C	
Clairemont Drive																							
Chippewa Court to Balboa Avenue	4 Lane Major Arterial	40,000	21,259	0.531	C	4 Lane Major Arterial	40,000	25,800	0.645	C		4 Lane Major Arterial	40,000	25,300	0.633	C		4 Lane Major Arterial	40,000	25,200	0.630	C	
Balboa Avenue to Ute Drive	4 Lane Major Arterial	40,000	19,325	0.483	B	4 Lane Major Arterial	40,000	26,700	0.668	C		4 Lane Major Arterial	40,000	22,900	0.573	C		4 Lane Major Arterial	40,000	22,700	0.568	C	
Denver Street to Morena Boulevard	4 Lane Major Arterial	40,000	31,162	0.779	D	4 Lane Major Arterial	40,000	39,200	0.980	E	Yes	4 Lane Major Arterial	40,000	41,200	1.030	F	Yes	4 Lane Major Arterial	40,000	40,500	1.013	F	Yes
Damon Ave (e)																							
Mission Bay Drive to Santa Fe Street	2 Lane Collector (w/o two-way left-turn lane)	8,000	4,415	0.552	C	2 Lane Collector (w/o two-way left-turn lane)	8,000	4,400	0.550	C		2 Lane Collector (w/o two-way left-turn lane)	8,000	5,900	0.738	D		2 Lane Collector (w/o two-way left-turn lane)	8,000	5,900	0.738	D	
Santa Fe St																							
Damon Avenue to Balboa Avenue	2 Lane Collector (w/o two-way left-turn lane)	8,000	2,431	0.304	A	2 Lane Collector (w/o two-way left-turn lane)	8,000	4,900	0.613	C		2 Lane Collector (w/o two-way left-turn lane)	8,000	5,600	0.700	D		2 Lane Collector (w/o two-way left-turn lane)	8,000	5,600	0.700	D	
Soledad Mountain Rd																							
Beryl Street to Garnet Avenue	4 Lane Major Arterial	40,000	27,235	0.681	C	4 Lane Major Arterial	40,000	28,700	0.718	C		4 Lane Major Arterial	40,000	27,900	0.698	C		4 Lane Major Arterial	40,000	26,800	0.670	C	
N Mission Bay Dr																							
De Anza Road to Mission Bay Drive	2 Lane Collector (w/o two-way left-turn lane)	8,000	2,456	0.307	A	2 Lane Collector (w/o two-way left-turn lane)	8,000	2,500	0.313	B		2 Lane Collector (w/o two-way left-turn lane)	8,000	2,500	0.313	B		2 Lane Collector (w/o two-way left-turn lane)	8,000	2,800	0.350	B	

Notes: **Bold** values indicate roadway segments operating at LOS E or F.

(a) Existing road classifications are based on field work conducted in May 2016.

(b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by National Data and Surveying Services (NDS) and measured in May and June of 2016.

(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

(d) ADT volumes for the roadway segments were determined from SANDAG Modeling.

(e) Damon Avenue is classified as a local street but functions as a collector with in the community.

FREEWAY SEGMENTS

As shown in **Table 9-3**, cumulative impacts were identified along freeway segments under each of the Future Land Use Scenarios (Adopted, Preferred, and Reduced). All freeway segments operate at LOS E in the northbound direction during the AM peak period except I-5 from Mission Bay Drive to Clairemont Drive; and all freeway segments operate at LOS E in the southbound direction during the PM peak period.

No mitigation measures are identified for impacts to freeways because freeway improvements are not within the authority of the City. SANDAG San Diego Forward 2050 Revenue Constrained Network includes operational improvements and construction of managed lanes along I-5 between SR-52 and Clairemont Drive. This project is expected to be constructed by the year 2050. The improvements identified in SANDAG's RTP would improve operations along the freeway segments and ramps; however, to what extent is still undetermined, as these are future improvements that must be defined more over time. Furthermore, implementation of freeway improvements in a timely manner is beyond the full control of the City since Caltrans has approval authority over freeway improvements. The City will continue to coordinate with Caltrans and SANDAG on future improvements, as future project-level developments proceed, to develop potential "fair share" multi-modal mitigation strategies for freeway impacts, as appropriate.

FREEWAY RAMP METERS

As shown in **Table 9-4**, a cumulative impact was identified at the following study freeway ramp under each of the Future Land Use Scenarios (Adopted, Preferred, and Reduced):

- **I-5 SB and Mission Bay Drive – PM peak period**

As shown in **Table 9-4**, an additional cumulative impact was identified at the following freeway ramp only under the Future Preferred and Reduced Land Use Scenarios:

- **I-5 NB and Mission Bay Drive – AM peak period**

The City of San Diego shall coordinate with Caltrans to address ramp capacity at impacted on-ramp locations. Improvements could include additional lanes, interchange reconfigurations, Transportation Demand Measures (TDM); however, specific capacity improvements are still undetermined, as these are future improvements that must be defined more over time. Furthermore, implementation of freeway improvements in a timely manner is beyond the full control of the City since Caltrans has approval authority over freeway improvements. Additionally, the Preferred and Reduced Plans include a variety of transit, pedestrian and bicycle facilities that may help to reduce single-occupancy vehicle (SOV) travel which can help improve ramp capacity.

Table 9-3 Future Freeway Segment Analysis Summary

Freeway Segment		Dir	Number of Lanes	Existing Conditions				Adopted				Impact?	Future Preferred				Impact?	Future Reduced				Impact?
				Speed (mph) (a)		LOS (b)		Speed (mph) (a)		LOS (b)			Speed (mph) (a)		LOS (b)							
				AM	PM	AM	PM	AM	PM	AM	PM		AM	PM	AM	PM		AM	PM			
I-5	SR-52 to Mission Bay Dr	NB	5	61.1	68.0	D	C	56.6	68.0	E	C	YES	55.3	68.0	E	C	YES	55.6	68.0	E	C	YES
		SB	5	68.0	62.4	C	D	68.0	58.3	C	E	YES	68.0	57.1	C	E	YES	68.0	57.4	C	E	YES
	Mission Bay Dr to Garnet Ave/ Balboa Ave	NB	4	64.3	68.0	D	C	57.5	68.0	E	C	YES	56.8	68.0	E	C	YES	56.9	68.0	E	C	YES
		SB	4	68.0	65.2	C	D	68.0	59.1	C	E	YES	68.0	58.4	C	E	YES	68.0	58.6	C	E	YES
	Garnet Ave/ Balboa Ave to Mission Bay Dr	NB	4	66.5	68.0	D	C	59.8	64.2	E	D	YES	59.9	64.3	E	D	YES	60.1	64.4	E	D	YES
		SB	4	68.0	65.0	C	D	67.7	56.5	C	E	YES	67.7	56.7	C	E	YES	67.8	56.9	C	E	YES
	Mission Bay Dr to Clairemont Dr	NB	5	66.4	68.0	D	C	62.7	66.1	D	D	NO	62.3	65.9	D	D	NO	62.5	66.0	D	D	NO
		SB	5	68.0	64.8	C	D	68.0	60.1	C	E	YES	68.0	59.6	C	E	YES	68.0	59.9	C	E	YES

Notes: Bold values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.
(a) The speed was calculated from a base free-flow speed (BFFS) of 75.4 mph (per equation 11-1 in the 2010 HCM) using Exhibit 11-3 in the 2010 HCM.
(b) The LOS for the respective freeway segments were based on the methodologies contained in Chapter 11 of the 2010 Highway Capacity Manual.

Table 9-4 Future Freeway Ramp Meter Analysis Summary

On Ramp	Peak Hour	Number of Lanes		Meter Rate (veh/hr) (a)	Existing Conditions			Future Adopted			Impact?	Future Preferred			Impact?	Future Reduced			Impact?
					Excess Demand (veh/hr)	Delay (min)	Queue (ft) (b)	Excess Demand (veh/hr)	Delay (min)	Queue (ft) (b)		Excess Demand (veh/hr)	Delay (min)	Queue (ft) (b)					
		GP	HOV																
I-5 SB & Mission Bay Drive	AM	2	1	n/a															
	PM			475	419	53	10,475	428	54	10,700	YES	476	60	11,900	YES	475	60	11,875	YES
I-5 SB & Westbound Balboa Ave	AM	2	0	n/a															
	PM			542	0	0	0	0	0	0	NO	0	0	0	NO	0	0	0	NO
I-5 NB & Mission Bay Drive	AM	2	0	811	99	7	2,475	176	13	4,400	NO	230	17	5,750	YES	217	16	5,425	YES
	PM			n/a															

Notes: Bold values indicate intersections operations at LOS E or F. **Bold and shaded** values indicate an impact.
(a) Meter Rate is the peak hour capacity expected to be processed through the ramp meter. Values were obtained from Caltrans. Most Conservative rate (Rate 15) was used.
(b) Assumes an average vehicle length of 25 feet.

APPENDIX A

TRAFFIC COUNT AND FREEWAY DATA

VOLUME

Garnet Avenue Bet. Mission Bay Drive & I-5 SB On-Ramp

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_001

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						18,751	18,655	37,406
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			36	39	75		12:00			292	306	598		
00:15			30	30	60		12:15			325	323	648		
00:30			34	21	55		12:30			343	343	686		
00:45			26	126	12	102	12:45			342	1302	313	1285	
01:00			25		20	45	13:00			323		340	663	
01:15			18		21	39	13:15			333		304	637	
01:30			28		12	40	13:30			312		280	592	
01:45			21	92	16	69	13:45			321	1289	299	1223	
02:00			12		13	25	14:00			313		285	598	
02:15			5		11	16	14:15			389		361	750	
02:30			14		12	26	14:30			342		386	728	
02:45			18	49	17	53	14:45			358	1402	369	1401	
03:00			17		6	23	15:00			324		366	690	
03:15			9		8	17	15:15			317		350	667	
03:30			14		4	18	15:30			334		355	689	
03:45			16	56	9	27	15:45			369	1344	371	1442	
04:00			16		14	30	16:00			334		352	686	
04:15			24		14	38	16:15			355		371	726	
04:30			22		12	34	16:30			356		326	682	
04:45			25	87	22	62	16:45			340	1385	336	1385	
05:00			30		27	57	17:00			343		343	686	
05:15			42		47	89	17:15			348		362	710	
05:30			65		57	122	17:30			342		341	683	
05:45			84	221	90	221	17:45			270	1303	336	1382	
06:00			90		74	164	18:00			316		360	676	
06:15			108		143	251	18:15			300		307	607	
06:30			134		202	336	18:30			285		262	547	
06:45			173	505	223	642	18:45			246	1147	304	1233	
07:00			191		252	443	19:00			247		219	466	
07:15			297		291	588	19:15			255		184	439	
07:30			331		282	613	19:30			232		222	454	
07:45			333	1152	270	1095	19:45			184	918	190	815	
08:00			331		308	639	20:00			177		192	369	
08:15			338		277	615	20:15			152		171	323	
08:30			326		261	587	20:30			167		184	351	
08:45			333	1328	268	1114	20:45			130	626	140	687	
09:00			293		294	587	21:00			152		169	321	
09:15			276		269	545	21:15			148		161	309	
09:30			264		252	516	21:30			118		129	247	
09:45			304	1137	277	1092	21:45			118	536	96	555	
10:00			264		252	516	22:00			99		83	182	
10:15			243		274	517	22:15			84		97	181	
10:30			272		259	531	22:30			60		70	130	
10:45			273	1052	270	1055	22:45			82	325	65	315	
11:00			277		274	551	23:00			67		57	124	
11:15			279		297	576	23:15			54		53	107	
11:30			302		307	609	23:30			48		41	89	
11:45			305	1163	332	1210	23:45			37	206	39	190	
TOTALS	6968				6742	13710	TOTALS	11783				11913	23696	
SPLIT %	50.8%				49.2%	36.7%	SPLIT %	49.7%				50.3%	63.3%	

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	18,751					18,655	37,406	
AM Peak Hour			07:30	11:45	11:45		PM Peak Hour			15:45	14:15	14:15		
AM Pk Volume			1333	1304	2569		PM Pk Volume			1414	1482	2895		
Pk Hr Factor			0.986	0.950	0.936		Pk Hr Factor			0.958	0.960	0.965		
7 - 9 Volume	0	0	2480	2209	4689		4 - 6 Volume	0	0	2688	2767	5455		
7 - 9 Peak Hour			07:30	07:15	07:30		4 - 6 Peak Hour			16:15	16:00	16:00		
7 - 9 Pk Volume	0	0	1333	1151	2470		4 - 6 Pk Volume	0	0	1394	1385	2770		
Pk Hr Factor	0.000	0.000	0.986	0.934	0.966		Pk Hr Factor	0.000	0.000	0.979	0.933	0.954		

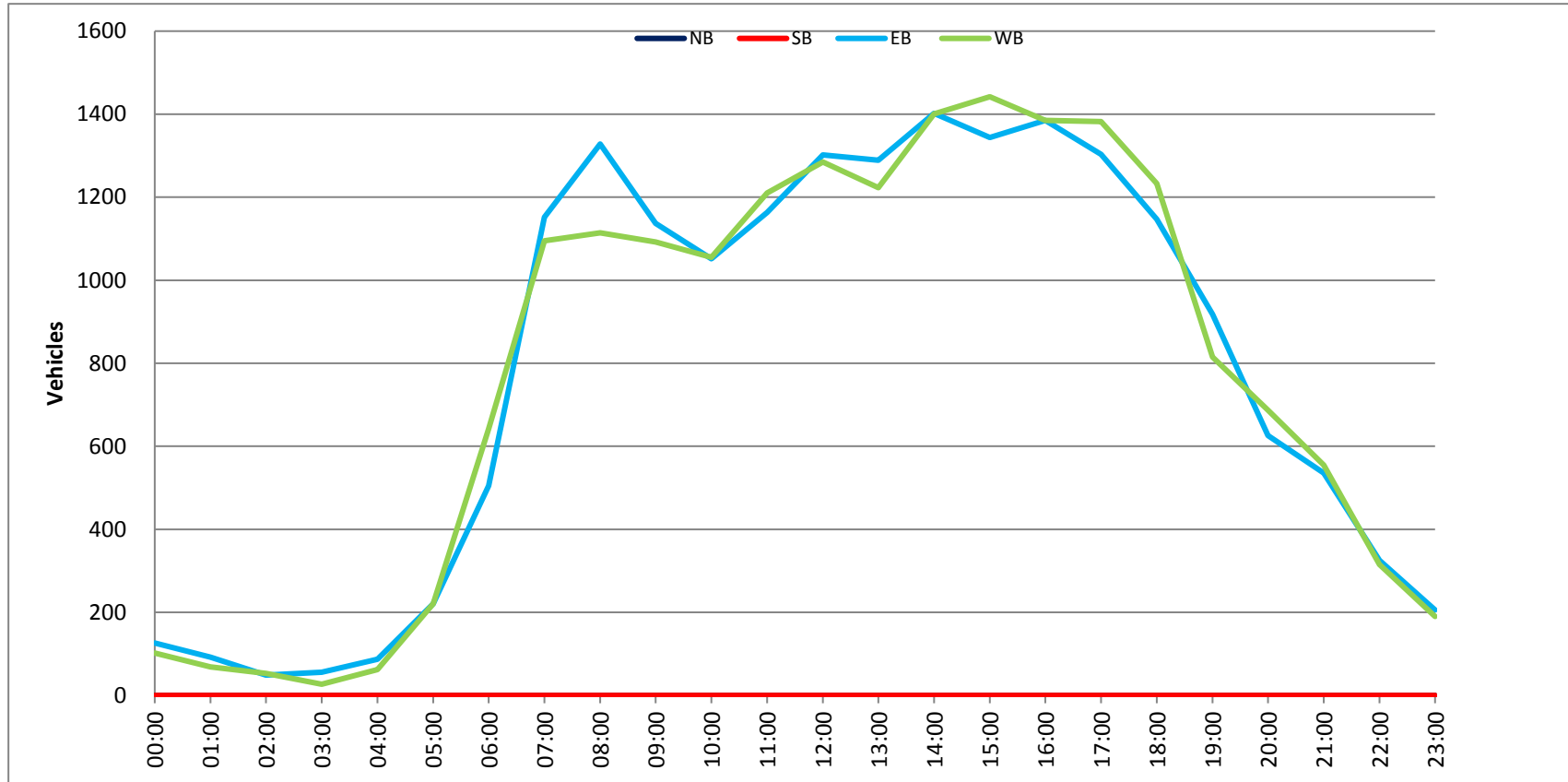
Prepared by NDS/ATD

Project #: CA16_4124_001

City: San Diego

Location: Garnet Avenue Bet. Mission Bay Drive & I-5

Date: 5/10/2016



VOLUME

Garnet Avenue Bet. I-5 SB On-Ramp & I-5 NB Off-Ramp

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_002

DAILY TOTALS					NB	SB	EBWB					Total	
					0	0						48,857	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			43	33	76		12:00			353	469	822	
00:15			41	29	70		12:15			388	502	890	
00:30			38	21	59		12:30			390	512	902	
00:45			28	150	20	103	12:45			396	1527	478	1961
01:00			29		15	44	13:00			390		497	887
01:15			21		22	43	13:15			383		462	845
01:30			33		19	52	13:30			355		438	793
01:45			25	108	18	74	13:45			348	1476	439	1836
02:00			13		25	38	14:00			368		440	808
02:15			5		10	15	14:15			442		482	924
02:30			16		15	31	14:30			406		513	919
02:45			22	56	14	64	14:45			409	1625	467	1902
03:00			18		5	23	15:00			355		558	913
03:15			12		15	27	15:15			367		533	900
03:30			12		20	32	15:30			375		528	903
03:45			15	57	18	58	15:45			415	1512	486	2105
04:00			12		17	29	16:00			382		519	901
04:15			19		27	46	16:15			398		487	885
04:30			22		34	56	16:30			402		494	896
04:45			21	74	45	123	16:45			379	1561	478	1978
05:00			25		61	86	17:00			382		590	972
05:15			46		91	137	17:15			393		492	885
05:30			57		110	167	17:30			403		480	883
05:45			81	209	149	411	17:45			317	1495	509	2071
06:00			98		152	250	18:00			355		451	806
06:15			121		228	349	18:15			337		422	759
06:30			149		343	492	18:30			338		418	756
06:45			203	571	351	1074	18:45			274	1304	437	1728
07:00			210		377	587	19:00			306		339	645
07:15			328		453	781	19:15			298		259	557
07:30			376		485	861	19:30			273		293	566
07:45			393	1307	477	1792	19:45			218	1095	247	1138
08:00			366		511	877	20:00			218		275	493
08:15			382		470	852	20:15			188		225	413
08:30			359		436	795	20:30			197		241	438
08:45			364	1471	396	1813	20:45			160	763	214	955
09:00			307		471	778	21:00			194		208	402
09:15			307		372	679	21:15			171		197	368
09:30			293		406	699	21:30			144		164	308
09:45			355	1262	410	1659	21:45			143	652	133	702
10:00			299		367	666	22:00			117		114	231
10:15			278		401	679	22:15			103		133	236
10:30			306		366	672	22:30			77		91	168
10:45			313	1196	405	1539	22:45			100	397	84	422
11:00			340		413	753	23:00			81		68	149
11:15			320		386	706	23:15			66		19	85
11:30			359		394	753	23:30			59		62	121
11:45			345	1364	471	1664	23:45			47	253	51	200
TOTALS	782510374				18199		TOTALS	1366016998				30658	
SPLIT %	43.0%57.0%				37.2%		SPLIT %	44.6%55.4%				62.8%	

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	21,485					27,372	48,857	
AM Peak Hour			07:30	11:45	07:30		PM Peak Hour			14:00	15:00	14:15		
AM Pk Volume			1517	1954	3460		PM Pk Volume			1625	2105	3632		
Pk Hr Factor			0.965	0.954	0.986		Pk Hr Factor			0.919	0.943	0.983		
7 - 9 Volume	0	0	2778	3605	6383		4 - 6 Volume	0	0	3056	4049	7105		
7 - 9 Peak Hour			07:30	07:30	07:30		4 - 6 Peak Hour			16:00	17:00	16:15		
7 - 9 Pk Volume	0	0	1517	1943	3460		4 - 6 Pk Volume	0	0	1561	2071	3610		
Pk Hr Factor	0.000	0.000	0.965	0.951	0.986		Pk Hr Factor	0.000	0.000	0.971	0.878	0.928		

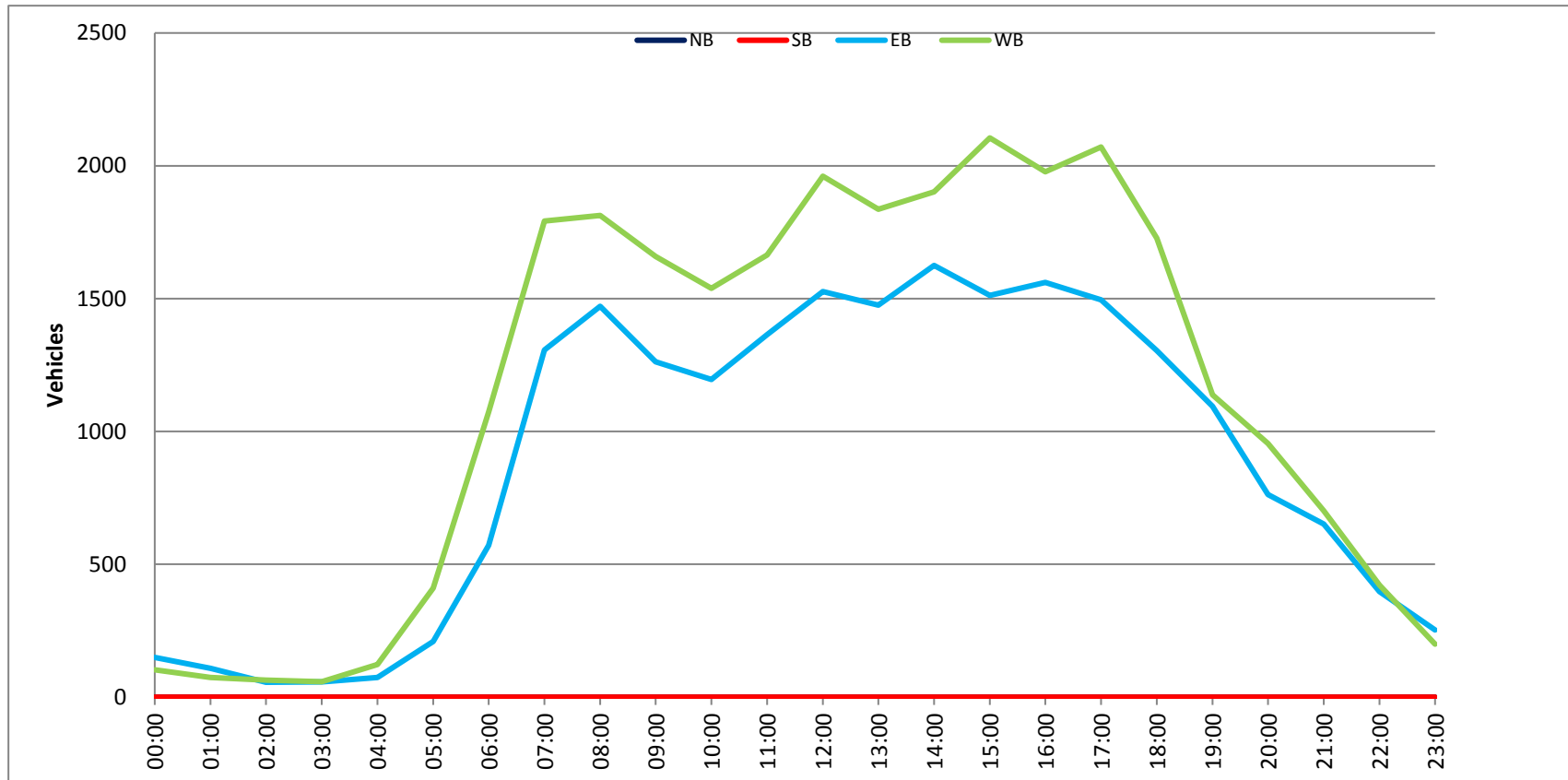
Prepared by NDS/ATD

Project #: CA16_4124_002

City: San Diego

Location: Garnet Avenue Bet. I-5 SB On-Ramp & I-5

Date: 5/10/2016



VOLUME

Balboa Avenue Bet. I-5 NB Off-Ramp & Morena Blvd SB On-Ramp

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_003

DAILY TOTALS					NB	SB	EBWB					Total	
					0	0						52,073	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			54	53	107		12:00			401	468	869	
00:15			48	33	81		12:15			420	466	886	
00:30			41	25	66		12:30			411	511	922	
00:45			33	176	18	129	12:45			430	1662	482	1927
					51	305						912	3589
01:00			33	23	56		13:00			447	480	927	
01:15			28	28	56		13:15			430	474	904	
01:30			34	21	55		13:30			417	425	842	
01:45			31	126	16	88	13:45			413	1707	453	1832
					47	214						866	3539
02:00			23	16	39		14:00			426	430	856	
02:15			29	11	40		14:15			503	487	990	
02:30			20	15	35		14:30			460	510	970	
02:45			20	92	22	64	14:45			456	1845	450	1877
					42	156						906	3722
03:00			16	7	23		15:00			442	544	986	
03:15			15	12	27		15:15			448	513	961	
03:30			12	13	25		15:30			447	498	945	
03:45			20	63	19	51	15:45			488	1825	474	2029
					39	114						962	3854
04:00			15	14	29		16:00			482	498	980	
04:15			18	27	45		16:15			518	469	987	
04:30			22	33	55		16:30			491	475	966	
04:45			30	85	47	121	16:45			488	1979	461	1903
					77	206						949	3882
05:00			44	63	107		17:00			498	596	1094	
05:15			48	95	143		17:15			503	471	974	
05:30			75	108	183		17:30			513	487	1000	
05:45			125	292	149	415	17:45			422	1936	536	2090
					274	707						958	4026
06:00			116	168	284		18:00			405	458	863	
06:15			165	225	390		18:15			411	406	817	
06:30			168	336	504		18:30			395	412	807	
06:45			216	665	350	1079	18:45			350	1561	443	1719
					566	1744						793	3280
07:00			228	376	604		19:00			338	329	667	
07:15			297	469	766		19:15			345	259	604	
07:30			329	518	847		19:30			300	294	594	
07:45			345	1199	493	1856	19:45			259	1242	251	1133
					838	3055						510	2375
08:00			343	537	880		20:00			283	280	563	
08:15			339	487	826		20:15			223	226	449	
08:30			354	463	817		20:30			229	242	471	
08:45			376	1412	398	1885	20:45			212	947	214	962
					774	3297						426	1909
09:00			332	470	802		21:00			207	206	413	
09:15			335	367	702		21:15			206	199	405	
09:30			330	410	740		21:30			181	174	355	
09:45			392	1389	393	1640	21:45			185	779	139	718
					785	3029						324	1497
10:00			353	379	732		22:00			146	120	266	
10:15			305	394	699		22:15			127	136	263	
10:30			343	369	712		22:30			96	108	204	
10:45			347	1348	406	1548	22:45			117	486	84	448
					753	2896						201	934
11:00			368	396	764		23:00			93	74	167	
11:15			331	386	717		23:15			84	70	154	
11:30			421	401	822		23:30			68	54	122	
11:45			409	1529	471	1654	23:45			70	315	47	245
					880	3183						117	560
TOTALS			8376	10530	18906		TOTALS			16284	16883	33167	
SPLIT %			44.3%	55.7%	36.3%		SPLIT %			49.1%	50.9%	63.7%	

DAILY TOTALS					NB	SB	EB					WB	Total				
					0	0	24,660					27,413	52,073				
AM Peak Hour			11:30	07:30	11:45		PM Peak Hour			16:45	17:00	17:00					
AM Pk Volume			1651	2035	3557		PM Pk Volume			2002	2090	4026					
Pk Hr Factor			0.980	0.947	0.964		Pk Hr Factor			0.976	0.877	0.920					
7 - 9 Volume	0	0	2611	3741	6352		4 - 6 Volume	0	0	3915	3993	7908					
7 - 9 Peak Hour			08:00	07:30	07:30		4 - 6 Peak Hour			16:45	17:00	17:00					
7 - 9 Pk Volume	0	0	1412	2035	3391		4 - 6 Pk Volume	0	0	2002	2090	4026					
Pk Hr Factor	0.000	0.000	0.939	0.947	0.963		Pk Hr Factor	0.000	0.000	0.976	0.877	0.920					

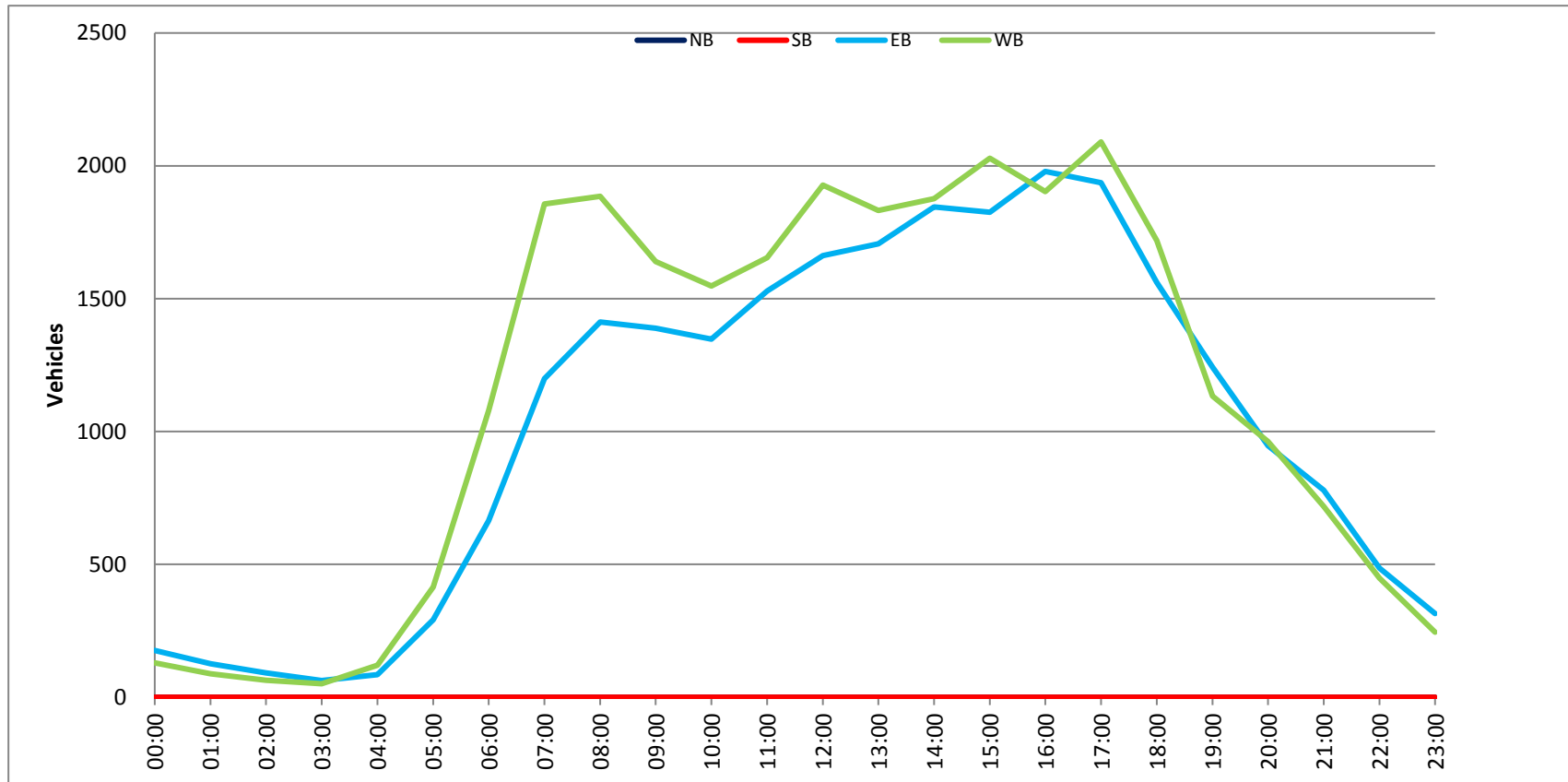
Prepared by NDS/ATD

Project #: CA16_4124_003

City: San Diego

Location: Balboa Avenue Bet. I-5 NB Off-Ramp &

Date: 5/10/2016



VOLUME

Balboa Avenue Bet. Morena Blvd SB Ramps & Morena Blvd NB On-Ramps

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_004

DAILY TOTALS					NB	SB	EB					WB	Total		
					0	0						24,833	24,246	49,079	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00			54	54	108		12:00			407	400	807			
00:15			47	34	81		12:15			422	356	778			
00:30			38	26	64		12:30			396	378	774			
00:45			32	171	20	134	12:45			445	1670	408	1542	853	3212
01:00			30	24	54		13:00			445	383	828			
01:15			25	37	62		13:15			462	381	843			
01:30			34	26	60		13:30			421	353	774			
01:45			30	119	16	103	13:45			426	1754	377	1494	803	3248
02:00			25	15	40		14:00			441	364	805			
02:15			31	9	40		14:15			484	398	882			
02:30			22	12	34		14:30			469	400	869			
02:45			22	100	17	53	14:45			459	1853	378	1540	837	3393
03:00			16	6	22		15:00			442	419	861			
03:15			16	11	27		15:15			438	410	848			
03:30			11	12	23		15:30			432	406	838			
03:45			30	73	18	47	15:45			468	1780	392	1627	860	3407
04:00			21	12	33		16:00			459	404	863			
04:15			20	24	44		16:15			492	426	918			
04:30			24	29	53		16:30			454	446	900			
04:45			35	100	39	104	16:45			485	1890	411	1687	896	3577
05:00			49	53	102		17:00			477	488	965			
05:15			62	84	146		17:15			494	435	929			
05:30			94	106	200		17:30			500	480	980			
05:45			159	364	117	360	17:45			416	1887	483	1886	899	3773
06:00			142	149	291		18:00			408	406	814			
06:15			191	185	376		18:15			395	367	762			
06:30			193	283	476		18:30			398	333	731			
06:45			229	755	306	923	18:45			342	1543	369	1475	711	3018
07:00			249	329	578		19:00			333	311	644			
07:15			303	448	751		19:15			341	280	621			
07:30			336	477	813		19:30			292	334	626			
07:45			362	1250	461	1715	19:45			261	1227	276	1201	537	2428
08:00			349	458	807		20:00			268	305	573			
08:15			346	441	787		20:15			224	243	467			
08:30			354	428	782		20:30			224	255	479			
08:45			393	1442	389	1716	20:45			208	924	224	1027	432	1951
09:00			349	427	776		21:00			208	219	427			
09:15			337	344	681		21:15			200	211	411			
09:30			335	389	724		21:30			178	171	349			
09:45			410	1431	373	1533	21:45			178	764	145	746	323	1510
10:00			358	313	671		22:00			143	121	264			
10:15			318	328	646		22:15			126	135	261			
10:30			356	298	654		22:30			100	90	190			
10:45			361	1393	329	1268	22:45			115	484	87	433	202	917
11:00			364	311	675		23:00			93	77	170			
11:15			344	330	674		23:15			77	71	148			
11:30			422	349	771		23:30			64	57	121			
11:45			422	1552	388	1378	23:45			73	307	49	254	122	561
TOTALS	8750				9334	18084	TOTALS	16083				14912	30995		
SPLIT %	48.4%				51.6%	36.8%	SPLIT %	51.9%				48.1%	63.2%		

DAILY TOTALS					NB	SB	EB					WB	Total				
					0	0	24,833					24,246	49,079				
AM Peak Hour			11:30	07:15	07:30		PM Peak Hour			16:45	17:00	17:00					
AM Pk Volume			1673	1844	3230		PM Pk Volume			1956	1886	3773					
Pk Hr Factor			0.991	0.966	0.981		Pk Hr Factor			0.978	0.966	0.963					
7 - 9 Volume	0	0	2692	3431	6123		4 - 6 Volume	0	0	3777	3573	7350					
7 - 9 Peak Hour			08:00	07:15	07:30		4 - 6 Peak Hour			16:45	17:00	17:00					
7 - 9 Pk Volume	0	0	1442	1844	3230		4 - 6 Pk Volume	0	0	1956	1886	3773					
Pk Hr Factor	0.000	0.000	0.917	0.966	0.981		Pk Hr Factor	0.000	0.000	0.978	0.966	0.963					

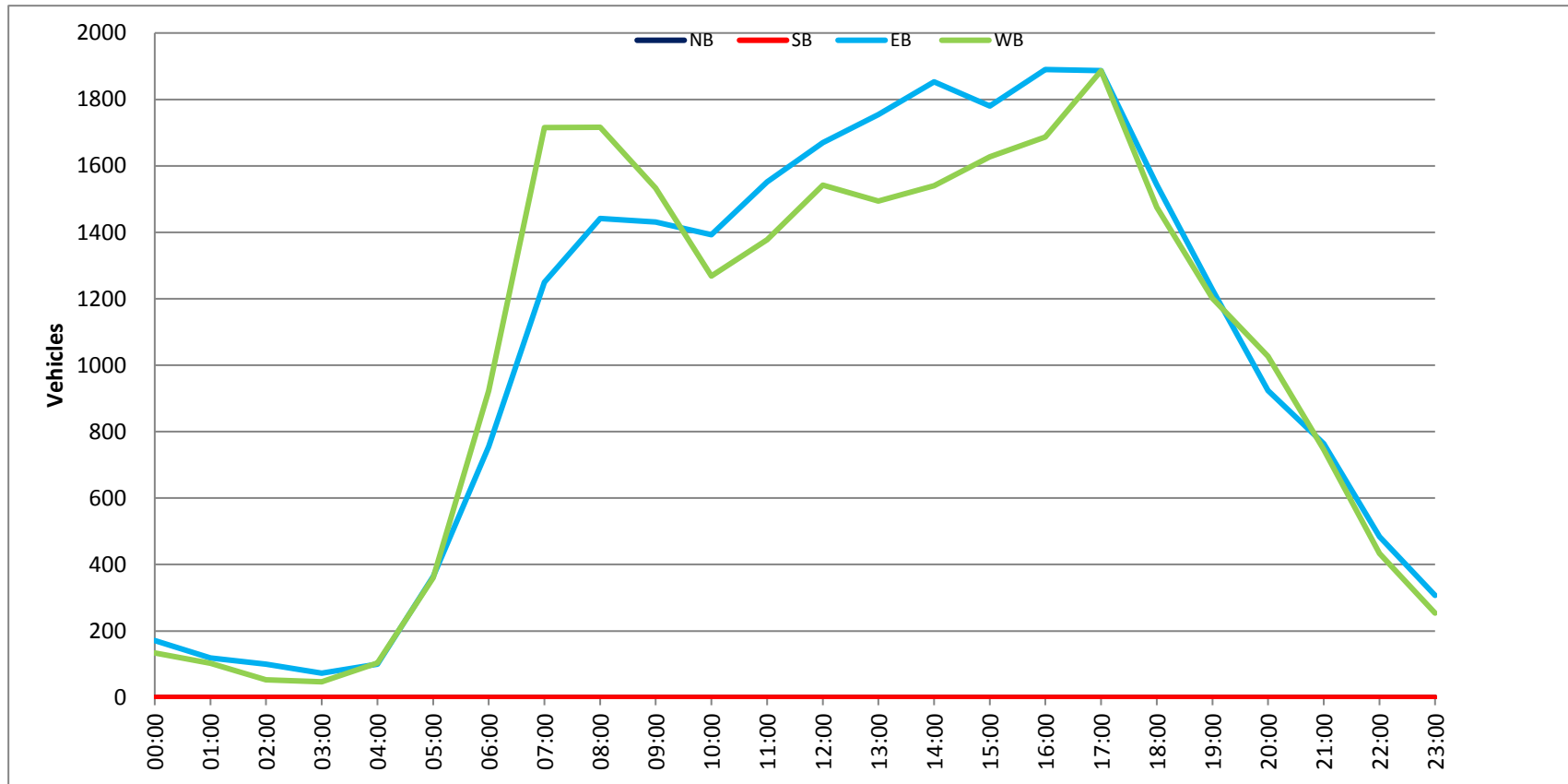
Prepared by NDS/ATD

Project #: CA16_4124_004

City: San Diego

Location: Balboa Avenue Bet. Morena Blvd SB Ramps

Date: 5/10/2016



VOLUME

Balboa Avenue Bet. Morena Blvd & Moraga Ave

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_005

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						21,702	21,413	43,115
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			59	53	112		12:00			335	341	676		
00:15			54	34	88		12:15			329	314	643		
00:30			36	26	62		12:30			345	351	696		
00:45			31	180	20	133	12:45			351	1360	342	1348	
01:00			27	24	51		13:00			350	324	674		
01:15			32	33	65		13:15			352	321	673		
01:30			30	23	53		13:30			354	300	654		
01:45			28	117	16	96	13:45			313	1369	327	1272	
02:00			25	23	48		14:00			321	302	623		
02:15			29	7	36		14:15			378	330	708		
02:30			18	11	29		14:30			391	354	745		
02:45			19	91	15	56	14:45			397	1487	326	1312	
03:00			15	6	21		15:00			344	362	706		
03:15			14	10	24		15:15			391	368	759		
03:30			7	12	19		15:30			389	362	751		
03:45			10	46	17	45	15:45			406	1530	350	1442	
04:00			15	11	26		16:00			395	354	749		
04:15			15	21	36		16:15			430	386	816		
04:30			22	28	50		16:30			383	401	784		
04:45			20	72	32	92	16:45			442	1650	373	1514	
05:00			33	49	82		17:00			445	447	892		
05:15			40	75	115		17:15			438	400	838		
05:30			56	94	150		17:30			412	438	850		
05:45			81	210	104	322	17:45			369	1664	419	1704	
06:00			87	125	212		18:00			373	365	738		
06:15			124	161	285		18:15			359	329	688		
06:30			127	237	364		18:30			332	297	629		
06:45			190	528	245	768	18:45			310	1374	326	1317	
07:00			232	270	502		19:00			295	283	578		
07:15			303	373	676		19:15			355	285	640		
07:30			332	379	711		19:30			319	332	651		
07:45			350	1217	393	1415	19:45			306	1275	268	1168	
08:00			334	357	691		20:00			300	303	603		
08:15			338	357	695		20:15			273	243	516		
08:30			345	336	681		20:30			262	250	512		
08:45			359	1376	331	1381	20:45			234	1069	223	1019	
09:00			304	352	656		21:00			224	219	443		
09:15			278	298	576		21:15			222	210	432		
09:30			273	325	598		21:30			196	168	364		
09:45			277	1132	332	1307	21:45			176	818	143	740	
10:00			259	269	528		22:00			156	122	278		
10:15			255	285	540		22:15			136	134	270		
10:30			270	254	524		22:30			111	90	201		
10:45			290	1074	290	1098	22:45			112	515	87	433	
11:00			293	260	553		23:00			100	77	177		
11:15			275	298	573		23:15			84	71	155		
11:30			323	282	605		23:30			70	57	127		
11:45			333	1224	338	1178	23:45			70	324	48	253	
TOTALS	7267				7891	15158	TOTALS	14435				13522	27957	
SPLIT %	47.9%				52.1%	35.2%	SPLIT %	51.6%				48.4%	64.8%	

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	21,702					21,413	43,115	
AM Peak Hour			08:00	07:15	07:30		PM Peak Hour			16:45	17:00	16:45		
AM Pk Volume			1376	1502	2840		PM Pk Volume			1737	1704	3395		
Pk Hr Factor			0.958	0.955	0.956		Pk Hr Factor			0.976	0.953	0.952		
7 - 9 Volume	0	0	2593	2796	5389		4 - 6 Volume	0	0	3314	3218	6532		
7 - 9 Peak Hour			08:00	07:15	07:30		4 - 6 Peak Hour			16:45	17:00	16:45		
7 - 9 Pk Volume	0	0	1376	1502	2840		4 - 6 Pk Volume	0	0	1737	1704	3395		
Pk Hr Factor	0.000	0.000	0.958	0.955	0.956		Pk Hr Factor	0.000	0.000	0.976	0.953	0.952		

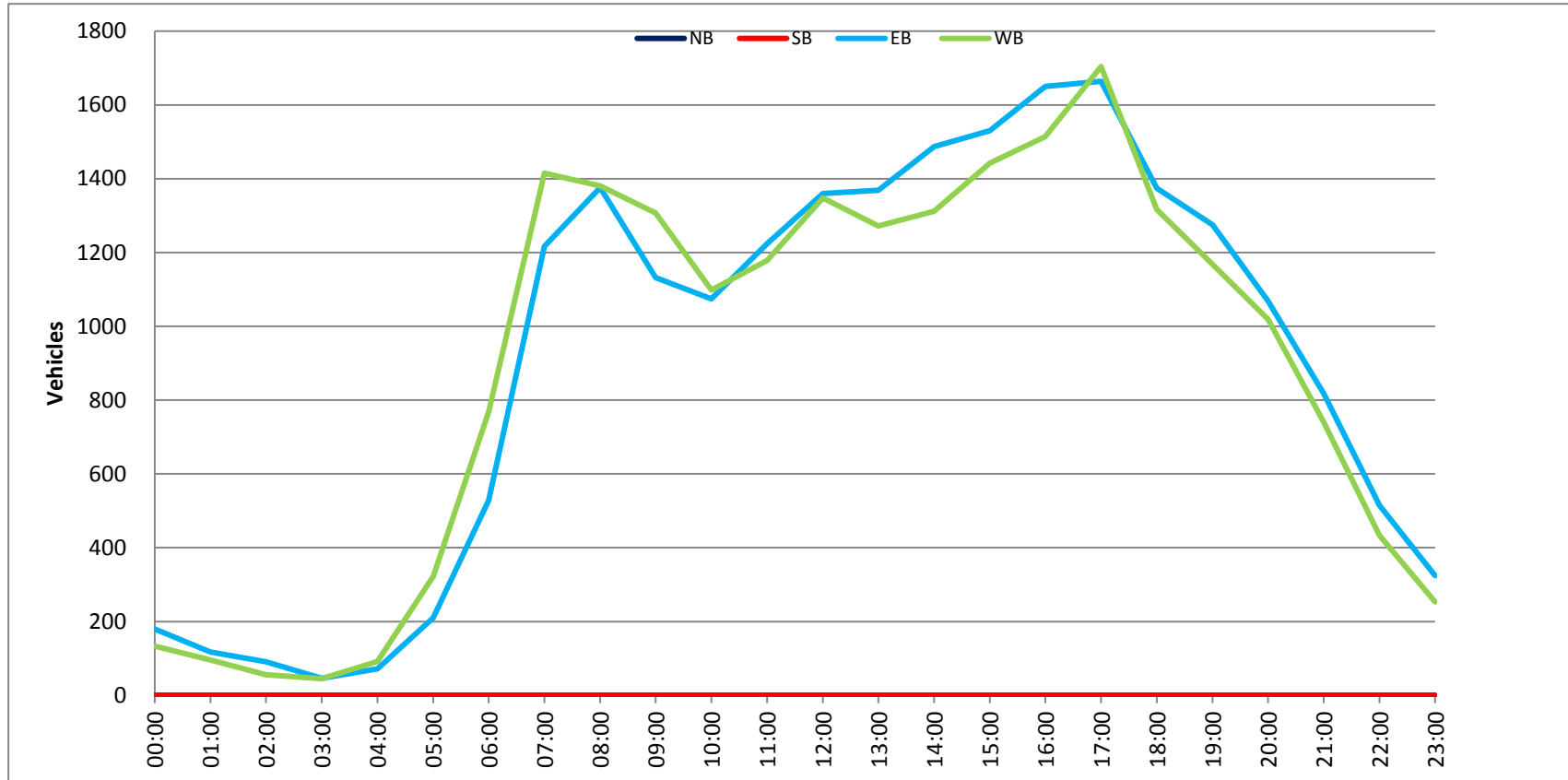
Prepared by NDS/ATD

Project #: CA16_4124_005

City: San Diego

Location: Balboa Avenue Bet. Morena Blvd & Moraga

Date: 5/10/2016



VOLUME

Mission Bay Drive Bet. Garnet Ave & Magnolia Ave

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_006

DAILY TOTALS					NB	SB	EBWB					Total	
					15,931	13,771						0	0
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	42	35			77		12:00	230	212			442	
00:15	41	25			66		12:15	257	241			498	
00:30	29	19			48		12:30	226	245			471	
00:45	16	128	20	99	36	227	12:45	245	958	216	914	461	1872
01:00	30	25			55		13:00	244	209			453	
01:15	9	18			27		13:15	242	234			476	
01:30	24	14			38		13:30	258	213			471	
01:45	18	81	22	79	40	160	13:45	258	1002	226	882	484	1884
02:00	9	18			27		14:00	245	227			472	
02:15	18	8			26		14:15	273	219			492	
02:30	18	13			31		14:30	265	242			507	
02:45	12	57	15	54	27	111	14:45	251	1034	244	932	495	1966
03:00	12	8			20		15:00	249	279			528	
03:15	15	9			24		15:15	258	257			515	
03:30	15	8			23		15:30	236	255			491	
03:45	14	56	6	31	20	87	15:45	258	1001	258	1049	516	2050
04:00	15	15			30		16:00	290	226			516	
04:15	20	22			42		16:15	290	244			534	
04:30	23	17			40		16:30	268	211			479	
04:45	41	99	39	93	80	192	16:45	274	1122	237	918	511	2040
05:00	42	33			75		17:00	309	222			531	
05:15	52	38			90		17:15	287	236			523	
05:30	93	39			132		17:30	274	265			539	
05:45	130	317	87	197	217	514	17:45	279	1149	258	981	537	2130
06:00	144	90			234		18:00	256	262			518	
06:15	200	125			325		18:15	225	242			467	
06:30	239	116			355		18:30	243	260			503	
06:45	255	838	125	456	380	1294	18:45	227	951	247	1011	474	1962
07:00	251	179			430		19:00	187	181			368	
07:15	250	224			474		19:15	202	172			374	
07:30	220	172			392		19:30	181	165			346	
07:45	225	946	201	776	426	1722	19:45	185	755	185	703	370	1458
08:00	260	168			428		20:00	150	179			329	
08:15	233	213			446		20:15	149	157			306	
08:30	242	202			444		20:30	146	152			298	
08:45	265	1000	208	791	473	1791	20:45	155	600	130	618	285	1218
09:00	247	172			419		21:00	149	127			276	
09:15	219	186			405		21:15	137	124			261	
09:30	247	171			418		21:30	125	111			236	
09:45	239	952	210	739	449	1691	21:45	110	521	81	443	191	964
10:00	196	188			384		22:00	112	87			199	
10:15	212	166			378		22:15	91	82			173	
10:30	246	194			440		22:30	76	62			138	
10:45	230	884	179	727	409	1611	22:45	85	364	56	287	141	651
11:00	203	180			383		23:00	66	70			136	
11:15	220	187			407		23:15	65	41			106	
11:30	223	220			443		23:30	50	48			98	
11:45	248	894	218	805	466	1699	23:45	41	222	27	186	68	408
TOTALS	6252	4847			11099		TOTALS	9679	8924			18603	
SPLIT %	56.3%	43.7%			37.4%		SPLIT %	52.0%	48.0%			62.6%	

DAILY TOTALS					NB	SB					EB	WB	Total	
					15,931	13,771					0	0	29,702	

AM Peak Hour	08:00	11:45			11:45		PM Peak Hour	17:00	15:00			17:00	
AM Pk Volume	1000	916			1877		PM Pk Volume	1149	1049			2130	
Pk Hr Factor	0.943	0.935			0.942		Pk Hr Factor	0.930	0.940			0.988	
7 - 9 Volume	1946	1567	0	0	3513		4 - 6 Volume	2271	1899	0	0	4170	
7 - 9 Peak Hour	08:00	08:00			08:00		4 - 6 Peak Hour	17:00	17:00			17:00	
7 - 9 Pk Volume	1000	791	0	0	1791		4 - 6 Pk Volume	1149	981	0	0	2130	
Pk Hr Factor	0.943	0.928	0.000	0.000	0.947		Pk Hr Factor	0.930	0.925	0.000	0.000	0.988	

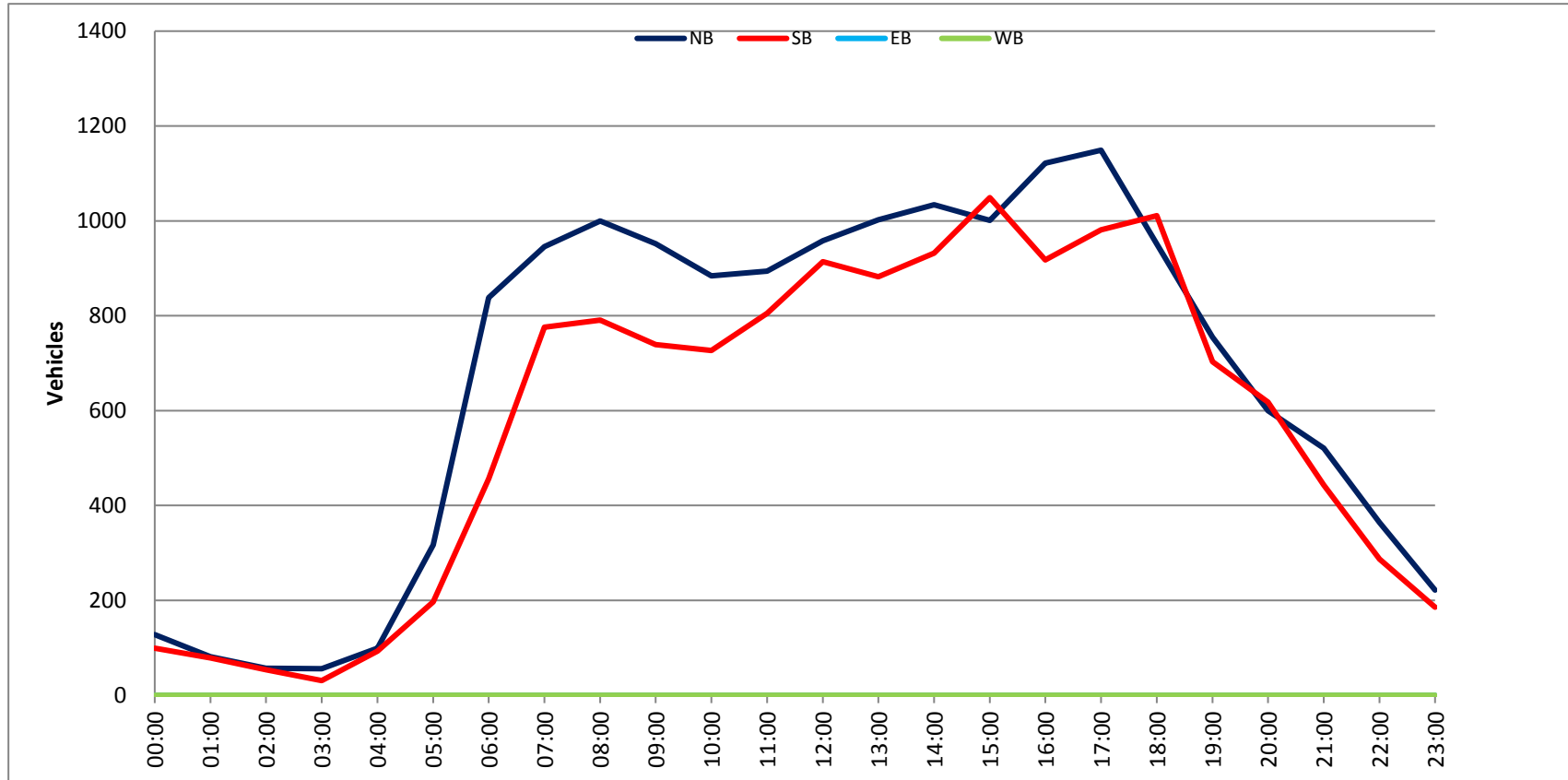
Prepared by NDS/ATD

Project #: CA16_4124_006

City: San Diego

Location: Mission Bay Drive Bet. Garnet Ave &

Date: 5/10/2016



VOLUME

Mission Bay Drive Bet. Magnolia Ave & Bunker Hill St

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_007

DAILY TOTALS				NB	SB	EB				WB	Total
				16,083	13,738	0				0	29,821

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	38	35			73	12:00	243	214			457
00:15	39	23			62	12:15	247	237			484
00:30	29	19			48	12:30	221	239			460
00:45	13	119	17	94	30	12:45	255	966	210	900	465
01:00	30	24			54	13:00	237	190			427
01:15	11	18			29	13:15	240	244			484
01:30	9	21			30	13:30	261	227			488
01:45	17	67	17	80	34	13:45	254	992	235	896	489
02:00	9	19			28	14:00	242	229			471
02:15	20	8			28	14:15	289	220			509
02:30	19	15			34	14:30	284	251			535
02:45	12	60	17	59	29	14:45	252	1067	266	966	518
03:00	10	8			18	15:00	258	281			539
03:15	16	10			26	15:15	271	270			541
03:30	17	10			27	15:30	220	242			462
03:45	11	54	3	31	14	15:45	271	1020	250	1043	521
04:00	16	15			31	16:00	282	215			497
04:15	16	18			34	16:15	294	258			552
04:30	22	14			36	16:30	265	199			464
04:45	41	95	38	85	79	16:45	321	1162	230	902	551
05:00	39	33			72	17:00	306	207			513
05:15	53	35			88	17:15	293	241			534
05:30	83	38			121	17:30	275	267			542
05:45	133	308	92	198	225	17:45	285	1159	248	963	533
06:00	144	82			226	18:00	285	264			549
06:15	200	122			322	18:15	230	238			468
06:30	237	115			352	18:30	265	259			524
06:45	290	871	126	445	416	18:45	220	1000	231	992	451
07:00	283	178			461	19:00	189	200			389
07:15	224	213			437	19:15	203	175			378
07:30	195	185			380	19:30	194	151			345
07:45	230	932	194	770	424	19:45	185	771	170	696	355
08:00	265	163			428	20:00	157	176			333
08:15	223	216			439	20:15	153	161			314
08:30	235	212			447	20:30	141	144			285
08:45	270	993	214	805	484	20:45	148	599	130	611	278
09:00	270	178			448	21:00	151	122			273
09:15	218	187			405	21:15	141	118			259
09:30	238	169			407	21:30	129	114			243
09:45	240	966	202	736	442	21:45	102	523	78	432	180
10:00	202	191			393	22:00	109	76			185
10:15	204	165			369	22:15	93	85			178
10:30	234	205			439	22:30	71	66			137
10:45	229	869	184	745	413	22:45	89	362	58	285	147
11:00	195	170			365	23:00	67	70			137
11:15	225	198			423	23:15	60	42			102
11:30	240	232			472	23:30	44	43			87
11:45	255	915	222	822	477	23:45	42	213	27	182	69
TOTALS	6249	4870			11119	TOTALS	9834	8868			18702
SPLIT %	56.2%	43.8%			37.3%	SPLIT %	52.6%	47.4%			62.7%

DAILY TOTALS				NB	SB	EB				WB	Total
				16,083	13,738	0				0	29,821

AM Peak Hour	06:30	11:45			11:30	PM Peak Hour	16:45	14:30			17:15
AM Pk Volume	1034	912			1890	PM Pk Volume	1195	1068			2158
Pk Hr Factor	0.891	0.954			0.976	Pk Hr Factor	0.931	0.950			0.983
7 - 9 Volume	1925	1575	0	0	3500	4 - 6 Volume	2321	1865	0	0	4186
7 - 9 Peak Hour	08:00	08:00			08:00	4 - 6 Peak Hour	16:45	17:00			16:45
7 - 9 Pk Volume	993	805	0	0	1798	4 - 6 Pk Volume	1195	963	0	0	2140
Pk Hr Factor	0.919	0.932	0.000	0.000	0.929	Pk Hr Factor	0.931	0.902	0.000	0.000	0.971

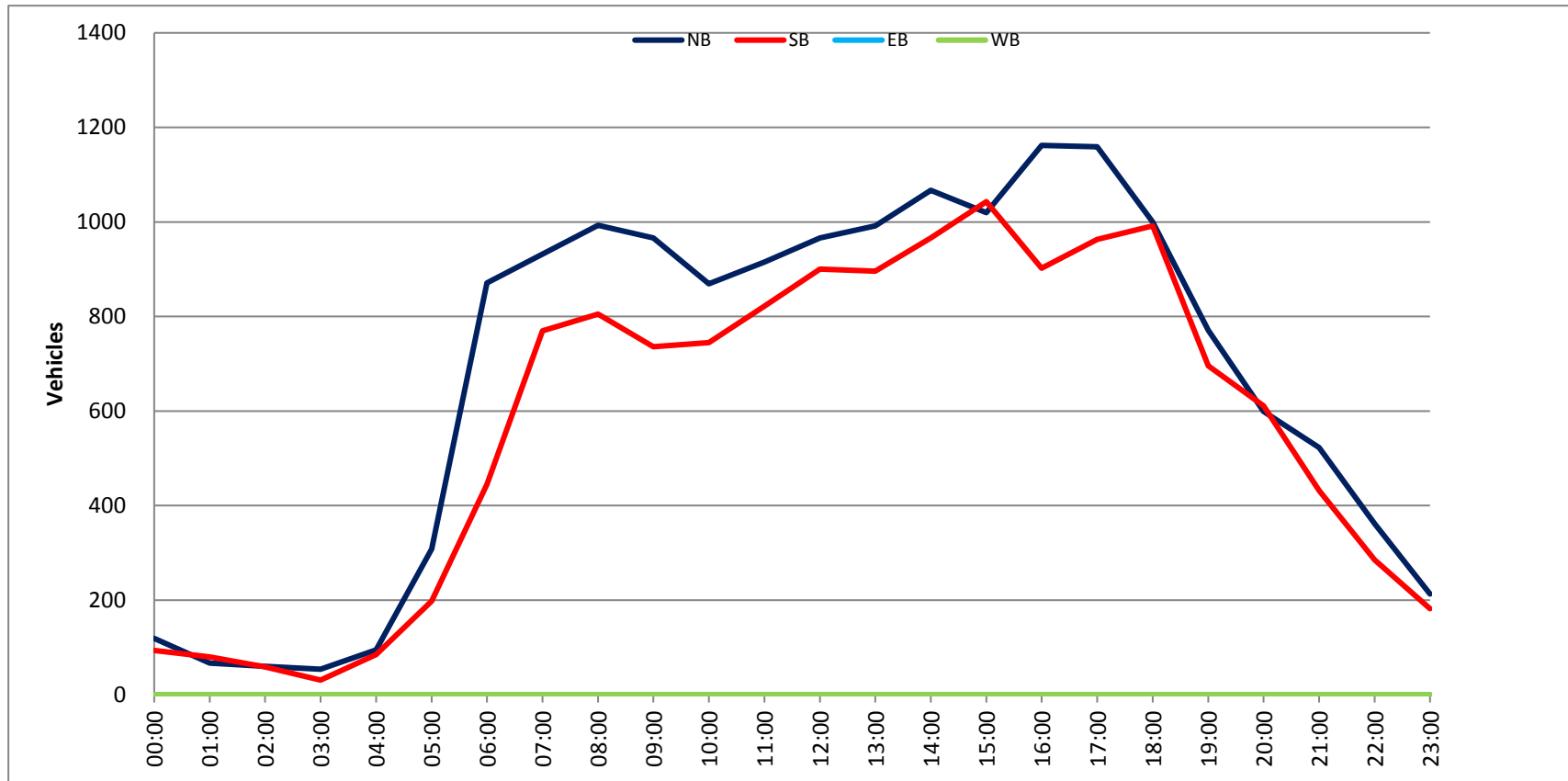
Prepared by NDS/ATD

Project #: CA16_4124_007

City: San Diego

Location: Mission Bay Drive Bet. Magnolia Ave &

Date: 5/10/2016



VOLUME

Garnet Avenue Bet. Bond Street & Mission Bay Dr

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_008

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						28,722	29,972	58,694
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			56	78	134		12:00			435	499	934		
00:15			68	60	128		12:15			479	469	948		
00:30			49	60	109		12:30			557	511	1068		
00:45			38	211	36	234	12:45			468	1939	449	1928	
					74	445						917	3867	
01:00			41	49	90		13:00			480	470	950		
01:15			43	29	72		13:15			513	465	978		
01:30			36	31	67		13:30			423	453	876		
01:45			40	160	35	144	13:45			475	1891	490	1878	
					75	304						965	3769	
02:00			25	23	48		14:00			448	421	869		
02:15			29	21	50		14:15			502	490	992		
02:30			21	20	41		14:30			480	477	957		
02:45			21	96	17	81	14:45			500	1930	521	1909	
					38	177						1021	3839	
03:00			27	22	49		15:00			465	533	998		
03:15			22	22	44		15:15			491	532	1023		
03:30			24	10	34		15:30			430	547	977		
03:45			27	100	24	78	15:45			447	1833	535	2147	
					51	178						982	3980	
04:00			28	16	44		16:00			436	538	974		
04:15			39	25	64		16:15			408	560	968		
04:30			46	32	78		16:30			411	521	932		
04:45			50	163	35	108	16:45			432	1687	534	2153	
					85	271						966	3840	
05:00			73	28	101		17:00			386	578	964		
05:15			104	67	171		17:15			387	566	953		
05:30			169	76	245		17:30			463	541	1004		
05:45			214	560	125	296	17:45			428	1664	559	2244	
					339	856						987	3908	
06:00			250	123	373		18:00			399	561	960		
06:15			301	242	543		18:15			406	558	964		
06:30			381	280	661		18:30			407	551	958		
06:45			357	1289	323	968	18:45			405	1617	562	2232	
					680	2257						967	3849	
07:00			446	389	835		19:00			357	462	819		
07:15			534	398	932		19:15			361	477	838		
07:30			484	338	822		19:30			344	420	764		
07:45			532	1996	367	1492	19:45			301	1363	417	1776	
					899	3488						718	3139	
08:00			474	397	871		20:00			296	372	668		
08:15			514	400	914		20:15			296	374	670		
08:30			552	404	956		20:30			261	393	654		
08:45			469	2009	398	1599	20:45			239	1092	308	1447	
					867	3608						547	2539	
09:00			420	395	815		21:00			256	356	612		
09:15			471	419	890		21:15			277	325	602		
09:30			389	355	744		21:30			214	273	487		
09:45			504	1784	451	1620	21:45			180	927	251	1205	
					955	3404						431	2132	
10:00			413	363	776		22:00			199	199	398		
10:15			370	385	755		22:15			155	209	364		
10:30			446	378	824		22:30			124	168	292		
10:45			422	1651	394	1520	22:45			149	627	166	742	
					816	3171						315	1369	
11:00			427	387	814		23:00			131	117	248		
11:15			434	444	878		23:15			90	108	198		
11:30			462	449	911		23:30			87	90	177		
11:45			420	1743	493	1773	23:45			82	390	83	398	
					913	3516						165	788	
TOTALS	11762				9913	21675	TOTALS	16960				20059	37019	
SPLIT %	54.3%				45.7%	36.9%	SPLIT %	45.8%				54.2%	63.1%	

DAILY TOTALS			NB	SB	EB			WB	Total		
			0	0				28,722			29,972
AM Peak Hour			07:45	11:45	11:45	PM Peak Hour			12:30	17:00	14:45
AM Pk Volume			2072	1972	3863	PM Pk Volume			2018	2244	4019
Pk Hr Factor			0.938	0.965	0.904	Pk Hr Factor			0.906	0.971	0.982
7 - 9 Volume	0	0	4005	3091	7096	4 - 6 Volume	0	0	3351	4397	7748
7 - 9 Peak Hour			07:45	08:00	07:45	4 - 6 Peak Hour			16:00	17:00	17:00
7 - 9 Pk Volume	0	0	2072	1599	3640	4 - 6 Pk Volume	0	0	1687	2244	3908
Pk Hr Factor	0.000	0.000	0.938	0.989	0.952	Pk Hr Factor	0.000	0.000	0.967	0.971	0.973

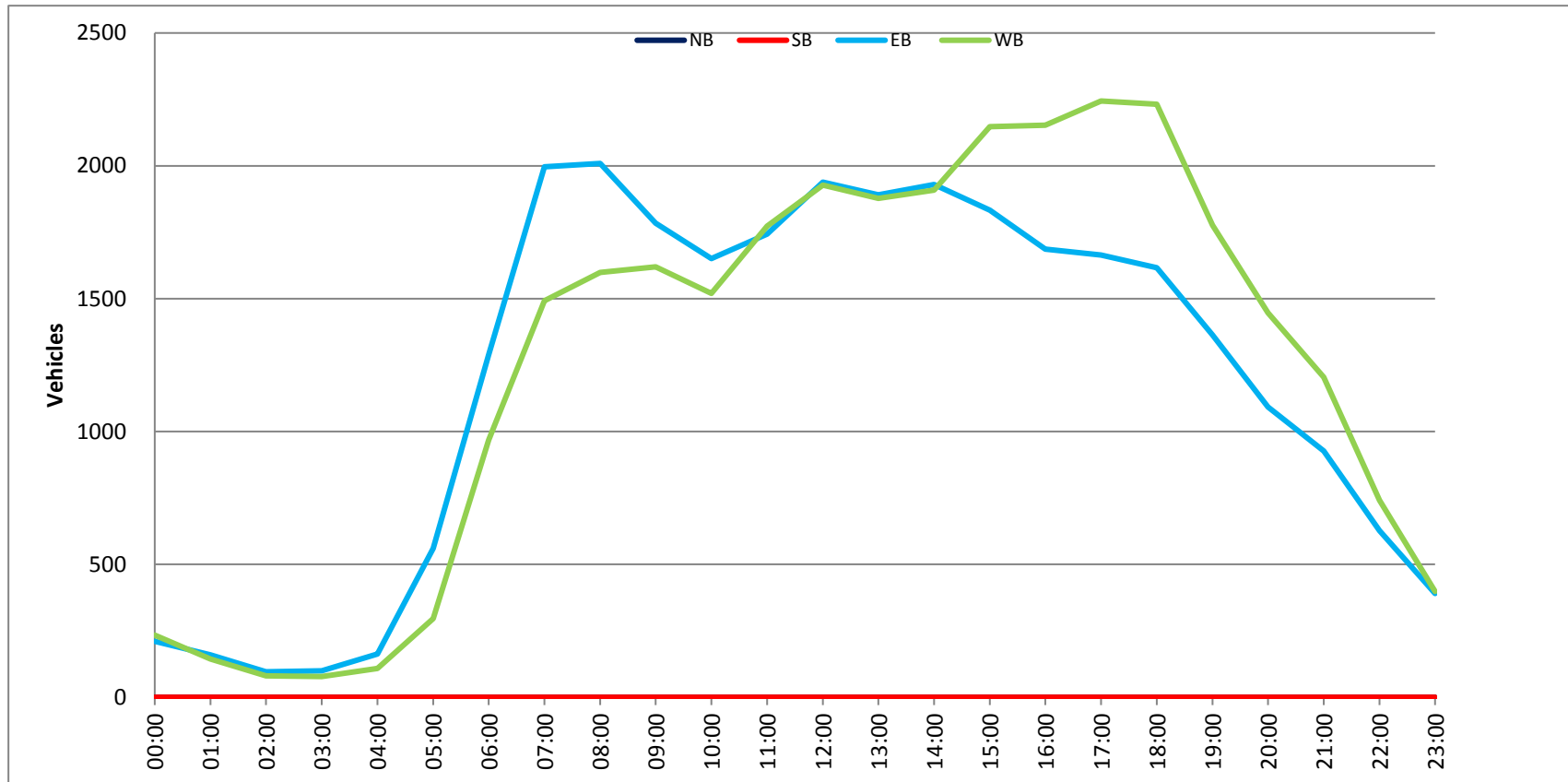
Prepared by NDS/ATD

Project #: CA16_4124_008

City: San Diego

Location: Garnet Avenue Bet. Bond Street & Mission

Date: 5/10/2016



VOLUME

Grand Ave Bet. Figueroa Blvd & Mission Bay Dr

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_009

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						19,983	18,219	38,202
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			66	61	127		12:00			257	282	539		
00:15			54	48	102		12:15			234	235	469		
00:30			57	59	116		12:30			269	229	498		
00:45			39	216	38	206	12:45			250	1010	240	986	
					77	422						490	1996	
01:00			36	32	68		13:00			233	240	473		
01:15			35	30	65		13:15			236	253	489		
01:30			38	25	63		13:30			248	276	524		
01:45			39	148	25	112	13:45			268	985	301	1070	
					64	260						569	2055	
02:00			46	27	73		14:00			241	271	512		
02:15			30	34	64		14:15			374	316	690		
02:30			16	12	28		14:30			332	294	626		
02:45			12	104	11	84	14:45			310	1257	294	1175	
					23	188						604	2432	
03:00			15	15	30		15:00			296	310	606		
03:15			24	11	35		15:15			326	317	643		
03:30			16	19	35		15:30			371	329	700		
03:45			10	65	20	65	15:45			326	1319	319	1275	
					30	130						645	2594	
04:00			15	11	26		16:00			345	341	686		
04:15			23	12	35		16:15			320	358	678		
04:30			35	30	65		16:30			337	338	675		
04:45			37	110	41	94	16:45			311	1313	375	1412	
					78	204						686	2725	
05:00			51	33	84		17:00			308	401	709		
05:15			77	29	106		17:15			366	424	790		
05:30			108	46	154		17:30			354	409	763		
05:45			106	342	84	192	17:45			298	1326	397	1631	
					190	534						695	2957	
06:00			157	85	242		18:00			309	348	657		
06:15			188	109	297		18:15			239	378	617		
06:30			268	133	401		18:30			267	367	634		
06:45			309	922	166	493	18:45			253	1068	348	1441	
					475	1415						601	2509	
07:00			359	203	562		19:00			248	294	542		
07:15			396	197	593		19:15			235	277	512		
07:30			495	174	669		19:30			245	239	484		
07:45			485	1735	155	729	19:45			246	974	245	1055	
					640	2464						491	2029	
08:00			405	133	538		20:00			225	231	456		
08:15			454	136	590		20:15			198	216	414		
08:30			421	173	594		20:30			180	224	404		
08:45			357	1637	175	617	20:45			178	781	217	888	
					532	2254						395	1669	
09:00			323	207	530		21:00			175	244	419		
09:15			296	196	492		21:15			173	207	380		
09:30			240	198	438		21:30			166	241	407		
09:45			249	1108	235	836	21:45			161	675	266	958	
					484	1944						427	1633	
10:00			254	188	442		22:00			152	225	377		
10:15			263	207	470		22:15			133	207	340		
10:30			241	191	432		22:30			152	161	313		
10:45			219	977	240	826	22:45			142	579	174	767	
					459	1803						316	1346	
11:00			215	201	416		23:00			122	121	243		
11:15			235	237	472		23:15			105	116	221		
11:30			277	209	486		23:30			81	108	189		
11:45			223	950	233	880	23:45			74	382	82	427	
					456	1830						156	809	
TOTALS	8314				5134	13448	TOTALS	11669				13085	24754	
SPLIT %	61.8%				38.2%	35.2%	SPLIT %	47.1%				52.9%	64.8%	

DAILY TOTALS			NB	SB	EB			WB			Total			
			0	0							19,983	18,219	38,202	
AM Peak Hour			07:30	11:45	07:00	PM Peak Hour			15:15	17:00	17:00			
AM Pk Volume			1839	979	2464	PM Pk Volume			1368	1631	2957			
Pk Hr Factor			0.929	0.868	0.921	Pk Hr Factor			0.922	0.962	0.936			
7 - 9 Volume	0	0	3372	1346	4718	4 - 6 Volume		0	0	2639	3043	5682		
7 - 9 Peak Hour			07:30	07:00	07:00	4 - 6 Peak Hour				16:45	17:00	17:00		
7 - 9 Pk Volume			0	0	1839	729	2464	4 - 6 Pk Volume		0	0	1339	1631	2957
Pk Hr Factor			0.000	0.000	0.929	0.898	0.921	Pk Hr Factor		0.000	0.000	0.915	0.962	0.936

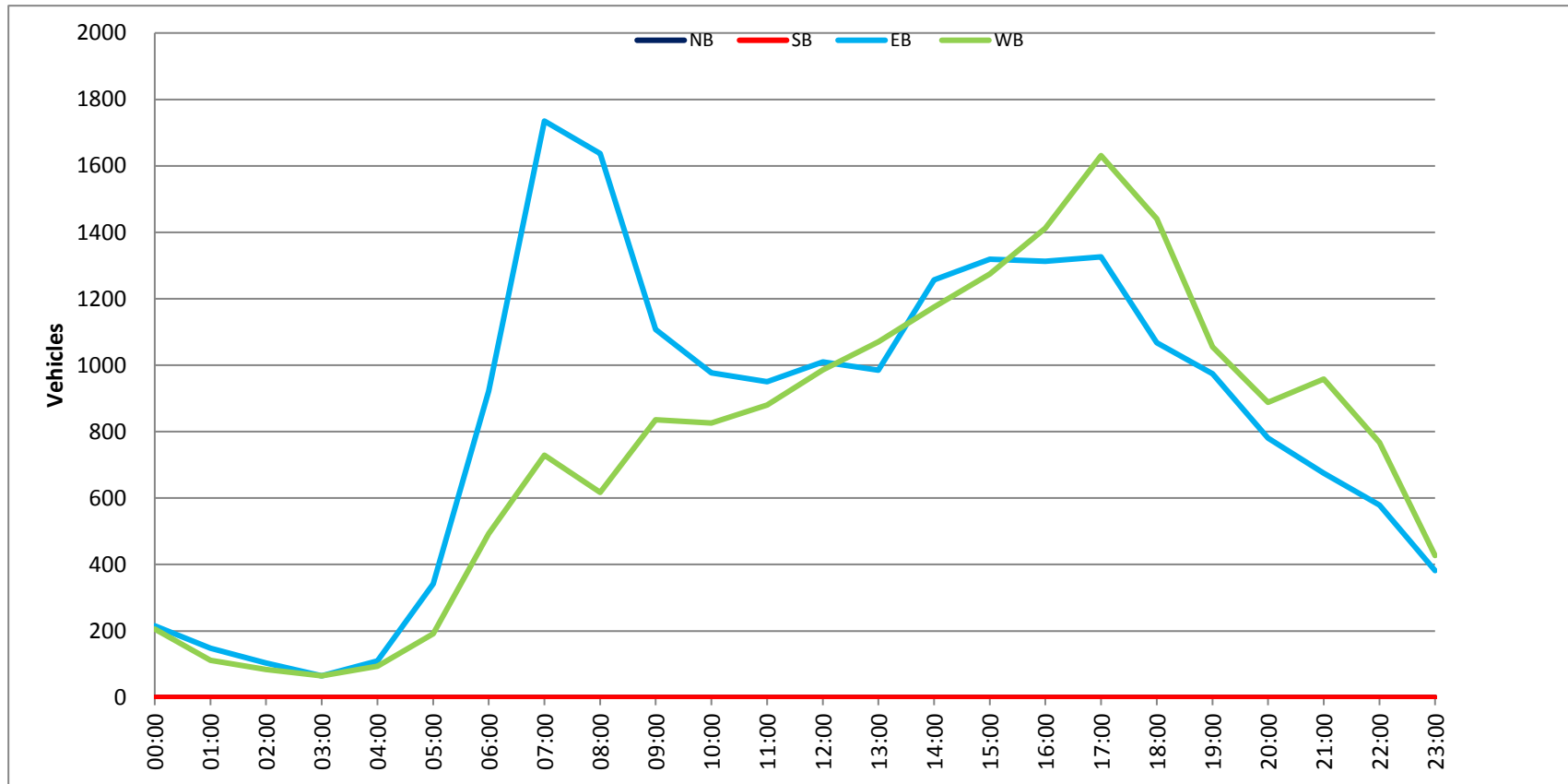
Prepared by NDS/ATD

Project #: CA16_4124_009

City: San Diego

Location: Grand Ave Bet. Figueroa Blvd & Mission Bay

Date: 5/10/2016



VOLUME

Mission Bay Dr Bet. Bunker Hill St & Grand Ave

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_010

DAILY TOTALS					NB	SB	EBWB					Total	
					15,626	13,376						0	0
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	36	30			66		12:00	224	203			427	
00:15	32	21			53		12:15	229	218			447	
00:30	28	24			52		12:30	209	227			436	
00:45	17	113	18	93	35	206	12:45	236	898	206	854	442	1752
01:00	26	24			50		13:00	239	176			415	
01:15	13	20			33		13:15	231	237			468	
01:30	22	13			35		13:30	252	212			464	
01:45	21	82	14	71	35	153	13:45	265	987	223	848	488	1835
02:00	9	19			28		14:00	253	213			466	
02:15	19	8			27		14:15	298	203			501	
02:30	18	13			31		14:30	258	230			488	
02:45	14	60	18	58	32	118	14:45	250	1059	257	903	507	1962
03:00	10	5			15		15:00	247	257			504	
03:15	12	9			21		15:15	234	248			482	
03:30	20	9			29		15:30	208	225			433	
03:45	15	57	8	31	23	88	15:45	259	948	257	987	516	1935
04:00	15	14			29		16:00	273	216			489	
04:15	17	15			32		16:15	257	232			489	
04:30	27	17			44		16:30	272	236			508	
04:45	35	94	42	88	77	182	16:45	281	1083	226	910	507	1993
05:00	46	34			80		17:00	276	219			495	
05:15	52	38			90		17:15	279	221			500	
05:30	86	38			124		17:30	282	278			560	
05:45	138	322	99	209	237	531	17:45	265	1102	251	969	516	2071
06:00	157	84			241		18:00	274	264			538	
06:15	197	113			310		18:15	213	256			469	
06:30	244	110			354		18:30	229	251			480	
06:45	274	872	133	440	407	1312	18:45	218	934	237	1008	455	1942
07:00	254	161			415		19:00	190	196			386	
07:15	205	217			422		19:15	176	177			353	
07:30	194	179			373		19:30	190	146			336	
07:45	255	908	188	745	443	1653	19:45	182	738	173	692	355	1430
08:00	266	154			420		20:00	144	167			311	
08:15	231	188			419		20:15	160	156			316	
08:30	252	183			435		20:30	143	151			294	
08:45	281	1030	211	736	492	1766	20:45	138	585	129	603	267	1188
09:00	264	162			426		21:00	142	124			266	
09:15	198	185			383		21:15	139	115			254	
09:30	240	159			399		21:30	125	102			227	
09:45	226	928	197	703	423	1631	21:45	106	512	80	421	186	933
10:00	207	166			373		22:00	94	76			170	
10:15	204	168			372		22:15	94	82			176	
10:30	225	201			426		22:30	72	70			142	
10:45	225	861	181	716	406	1577	22:45	75	335	55	283	130	618
11:00	191	172			363		23:00	67	67			134	
11:15	218	202			420		23:15	57	43			100	
11:30	236	234			470		23:30	43	43			86	
11:45	258	903	216	824	474	1727	23:45	48	215	31	184	79	399
TOTALS	6230	4714			10944		TOTALS	9396	8662			18058	
SPLIT %	56.9%	43.1%			37.7%		SPLIT %	52.0%	48.0%			62.3%	

DAILY TOTALS					NB	SB					EB	WB	Total	
					15,626	13,376					0	0	29,002	

AM Peak Hour	08:00	11:30			11:30		PM Peak Hour	16:45	17:30			17:15	
AM Pk Volume	1030	871			1818		PM Pk Volume	1118	1049			2114	
Pk Hr Factor	0.916	0.931			0.959		Pk Hr Factor	0.991	0.943			0.944	
7 - 9 Volume	1938	1481	0	0	3419		4 - 6 Volume	2185	1879	0	0	4064	
7 - 9 Peak Hour	08:00	07:00			08:00		4 - 6 Peak Hour	16:45	17:00			17:00	
7 - 9 Pk Volume	1030	745	0	0	1766		4 - 6 Pk Volume	1118	969	0	0	2071	
Pk Hr Factor	0.916	0.858	0.000	0.000	0.897		Pk Hr Factor	0.991	0.871	0.000	0.000	0.925	

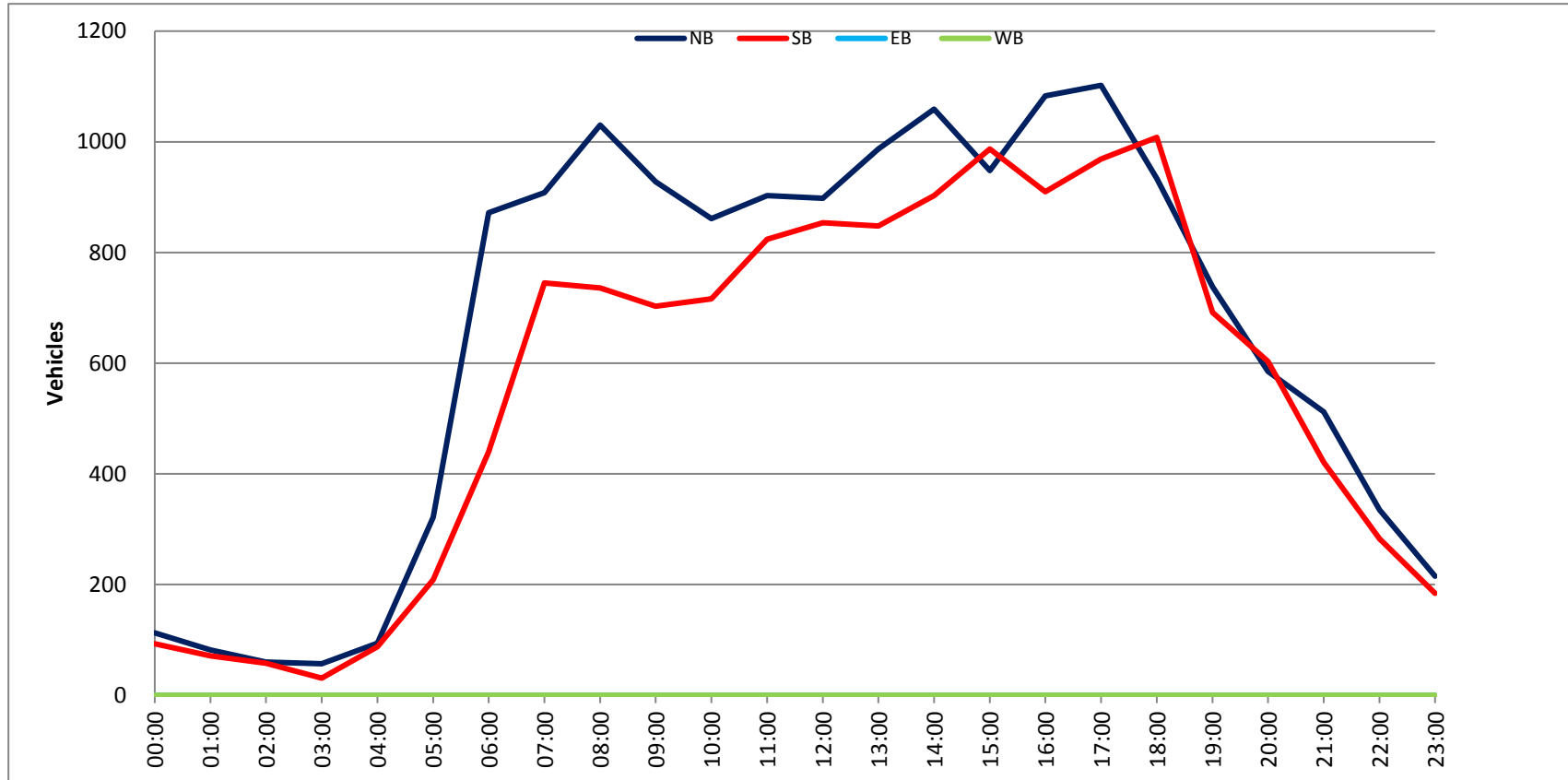
Prepared by NDS/ATD

Project #: CA16_4124_010

City: San Diego

Location: Mission Bay Dr Bet. Bunker Hill St & Grand

Date: 5/10/2016



VOLUME

Mission Bay Dr Bet. Garnet Ave & Damon Ave

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_011

DAILY TOTALS					NB	SB	EB				WB	Total
					21,340	19,340	0				0	40,680
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL
00:00	50	51			101		12:00	297	373			670
00:15	57	43			100		12:15	334	336			670
00:30	49	46			95		12:30	369	315			684
00:45	26	182	33	173	59	355	12:45	347	1347	357	1381	704 2728
01:00	42	30			72		13:00	354	277			631
01:15	40	27			67		13:15	337	330			667
01:30	25	21			46		13:30	322	313			635
01:45	41	148	23	101	64	249	13:45	318	1331	311	1231	629 2562
02:00	37	19			56		14:00	332	298			630
02:15	25	18			43		14:15	333	330			663
02:30	37	25			62		14:30	357	354			711
02:45	27	126	13	75	40	201	14:45	342	1364	360	1342	702 2706
03:00	18	20			38		15:00	310	378			688
03:15	21	12			33		15:15	294	345			639
03:30	16	13			29		15:30	304	372			676
03:45	22	77	14	59	36	136	15:45	276	1184	367	1462	643 2646
04:00	21	18			39		16:00	268	322			590
04:15	39	23			62		16:15	304	357			661
04:30	41	35			76		16:30	266	319			585
04:45	51	152	29	105	80	257	16:45	301	1139	319	1317	620 2456
05:00	74	21			95		17:00	296	318			614
05:15	106	33			139		17:15	267	318			585
05:30	213	64			277		17:30	300	356			656
05:45	222	615	90	208	312	823	17:45	291	1154	304	1296	595 2450
06:00	242	90			332		18:00	275	357			632
06:15	301	132			433		18:15	281	382			663
06:30	440	121			561		18:30	250	398			648
06:45	447	1430	160	503	607	1933	18:45	241	1047	363	1500	604 2547
07:00	447	179			626		19:00	242	377			619
07:15	397	167			564		19:15	220	375			595
07:30	221	187			408		19:30	226	310			536
07:45	238	1303	207	740	445	2043	19:45	189	877	280	1342	469 2219
08:00	300	217			517		20:00	170	274			444
08:15	392	229			621		20:15	171	231			402
08:30	421	223			644		20:30	160	279			439
08:45	356	1469	218	887	574	2356	20:45	171	672	205	989	376 1661
09:00	380	236			616		21:00	169	234			403
09:15	400	237			637		21:15	182	212			394
09:30	365	222			587		21:30	141	187			328
09:45	372	1517	262	957	634	2474	21:45	111	603	175	808	286 1411
10:00	345	253			598		22:00	120	140			260
10:15	370	236			606		22:15	101	118			219
10:30	395	242			637		22:30	87	104			191
10:45	380	1490	241	972	621	2462	22:45	75	383	94	456	169 839
11:00	368	257			625		23:00	71	73			144
11:15	369	303			672		23:15	67	62			129
11:30	373	309			682		23:30	64	57			121
11:45	369	1479	328	1197	697	2676	23:45	49	251	47	239	96 490
TOTALS	9988	5977			15965		TOTALS	11352	13363			24715
SPLIT %	62.6%	37.4%			39.2%		SPLIT %	45.9%	54.1%			60.8%

DAILY TOTALS					NB	SB	EB				WB	Total
					21,340	19,340	0				0	40,680

AM Peak Hour	06:30	11:45			11:15		PM Peak Hour	12:30	18:15			14:15
AM Pk Volume	1731	1352			2721		PM Pk Volume	1407	1520			2764
Pk Hr Factor	0.968	0.906			0.976		Pk Hr Factor	0.953	0.955			0.972
7 - 9 Volume	2772	1627	0	0	4399		4 - 6 Volume	2293	2613	0	0	4906
7 - 9 Peak Hour	08:00	08:00			08:00		4 - 6 Peak Hour	16:15	16:00			16:15
7 - 9 Pk Volume	1469	887	0	0	2356		4 - 6 Pk Volume	1167	1317	0	0	2480
Pk Hr Factor	0.872	0.968	0.000	0.000	0.915		Pk Hr Factor	0.960	0.922	0.000	0.000	0.938

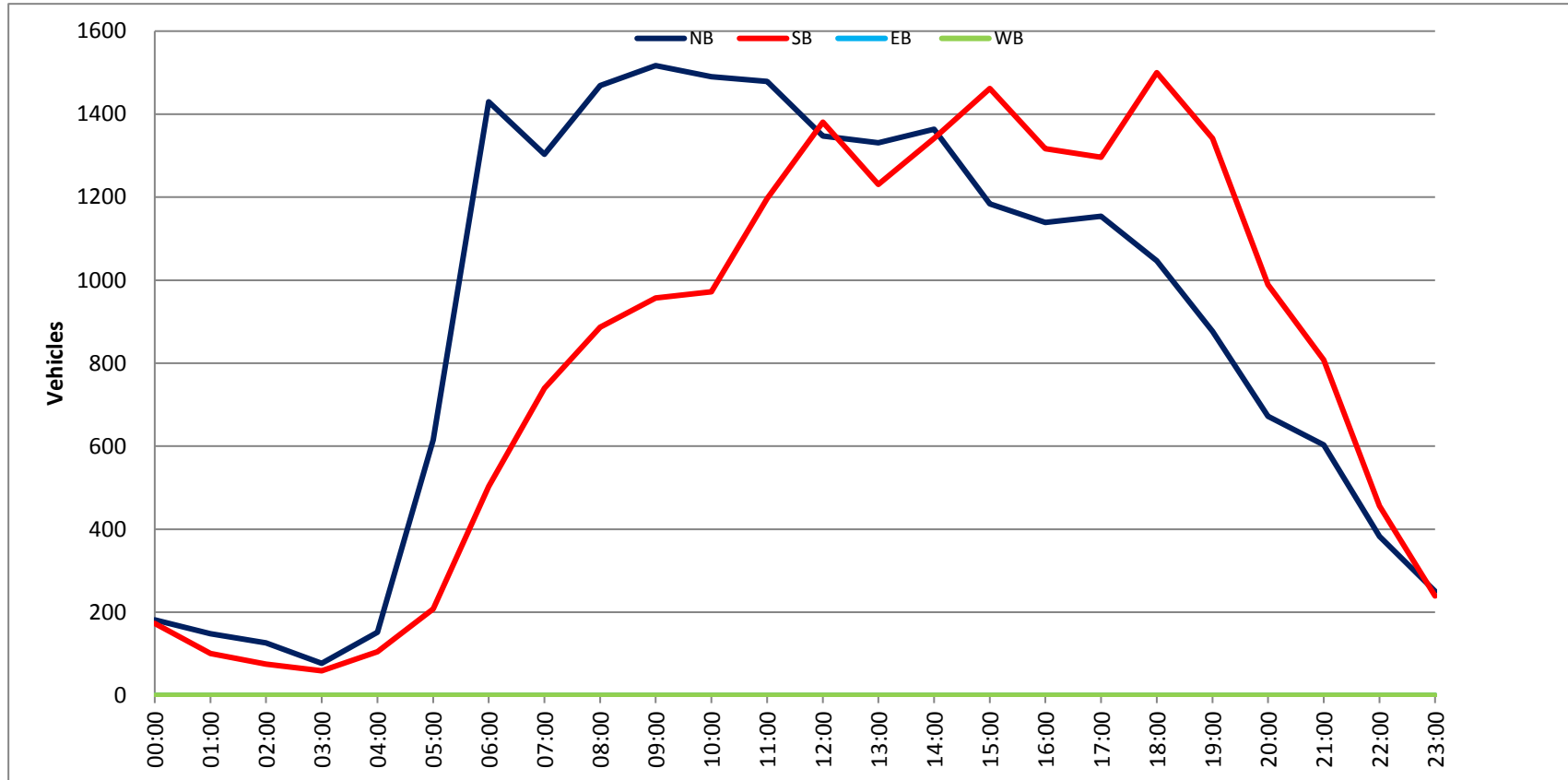
Prepared by NDS/ATD

Project #: CA16_4124_011

City: San Diego

Location: Mission Bay Dr Bet. Garnet Ave & Damon

Date: 5/10/2016



VOLUME

Mission Bay Drive Bet. Damon Ave & Bluffside Ave

Day: Tuesday
Date: 5/10/2016

City: San Diego
Project #: CA16_4124_012

DAILY TOTALS					NB	SB					EB	WB	Total
					19,170	16,410					0	0	35,580
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	52	43			95		12:00	257	331			588	
00:15	44	37			81		12:15	299	295			594	
00:30	32	41			73		12:30	349	271			620	
00:45	19	147	16	137	35	284	12:45	327	1232	327	1224	654	2456
01:00	23	25			48		13:00	314	236			550	
01:15	29	26			55		13:15	331	304			635	
01:30	24	15			39		13:30	283	302			585	
01:45	30	106	21	87	51	193	13:45	312	1240	291	1133	603	2373
02:00	26	20			46		14:00	310	283			593	
02:15	24	14			38		14:15	305	302			607	
02:30	32	16			48		14:30	342	314			656	
02:45	23	105	11	61	34	166	14:45	321	1278	334	1233	655	2511
03:00	13	17			30		15:00	312	333			645	
03:15	15	10			25		15:15	293	337			630	
03:30	14	8			22		15:30	292	286			578	
03:45	15	57	14	49	29	106	15:45	273	1170	314	1270	587	2440
04:00	23	14			37		16:00	249	277			526	
04:15	31	17			48		16:15	306	223			529	
04:30	29	29			58		16:30	245	190			435	
04:45	38	121	24	84	62	205	16:45	293	1093	222	912	515	2005
05:00	55	17			72		17:00	300	132			432	
05:15	85	34			119		17:15	260	148			408	
05:30	165	69			234		17:30	322	197			519	
05:45	181	486	76	196	257	682	17:45	296	1178	215	692	511	1870
06:00	185	94			279		18:00	263	193			456	
06:15	248	114			362		18:15	272	328			600	
06:30	366	115			481		18:30	248	344			592	
06:45	352	1151	148	471	500	1622	18:45	237	1020	328	1193	565	2213
07:00	339	163			502		19:00	238	343			581	
07:15	328	158			486		19:15	219	351			570	
07:30	318	160			478		19:30	211	260			471	
07:45	327	1312	184	665	511	1977	19:45	192	860	248	1202	440	2062
08:00	345	208			553		20:00	166	228			394	
08:15	330	196			526		20:15	158	205			363	
08:30	316	182			498		20:30	155	254			409	
08:45	262	1253	205	791	467	2044	20:45	161	640	185	872	346	1512
09:00	299	196			495		21:00	167	205			372	
09:15	312	206			518		21:15	165	179			344	
09:30	291	203			494		21:30	144	160			304	
09:45	304	1206	220	825	524	2031	21:45	105	581	156	700	261	1281
10:00	267	213			480		22:00	99	123			222	
10:15	288	209			497		22:15	102	113			215	
10:30	316	224			540		22:30	88	94			182	
10:45	290	1161	225	871	515	2032	22:45	74	363	91	421	165	784
11:00	290	244			534		23:00	69	66			135	
11:15	302	276			578		23:15	63	63			126	
11:30	302	294			596		23:30	56	45			101	
11:45	281	1175	297	1111	578	2286	23:45	47	235	36	210	83	445
TOTALS	8280	5348			13628		TOTALS	10890	11062			21952	
SPLIT %	60.8%	39.2%			38.3%		SPLIT %	49.6%	50.4%			61.7%	

DAILY TOTALS					NB	SB					EB	WB	Total
					19,170	16,410					0	0	35,580

AM Peak Hour	06:30	11:30			11:45		PM Peak Hour	12:30	18:30			14:30	
AM Pk Volume	1385	1217			2380		PM Pk Volume	1321	1366			2586	
Pk Hr Factor	0.946	0.919			0.960		Pk Hr Factor	0.946	0.973			0.986	
7 - 9 Volume	2565	1456	0	0	4021		4 - 6 Volume	2271	1604	0	0	3875	
7 - 9 Peak Hour	07:30	08:00			07:45		4 - 6 Peak Hour	17:00	16:00			16:00	
7 - 9 Pk Volume	1320	791	0	0	2088		4 - 6 Pk Volume	1178	912	0	0	2005	
Pk Hr Factor	0.957	0.951	0.000	0.000	0.944		Pk Hr Factor	0.915	0.823	0.000	0.000	0.948	

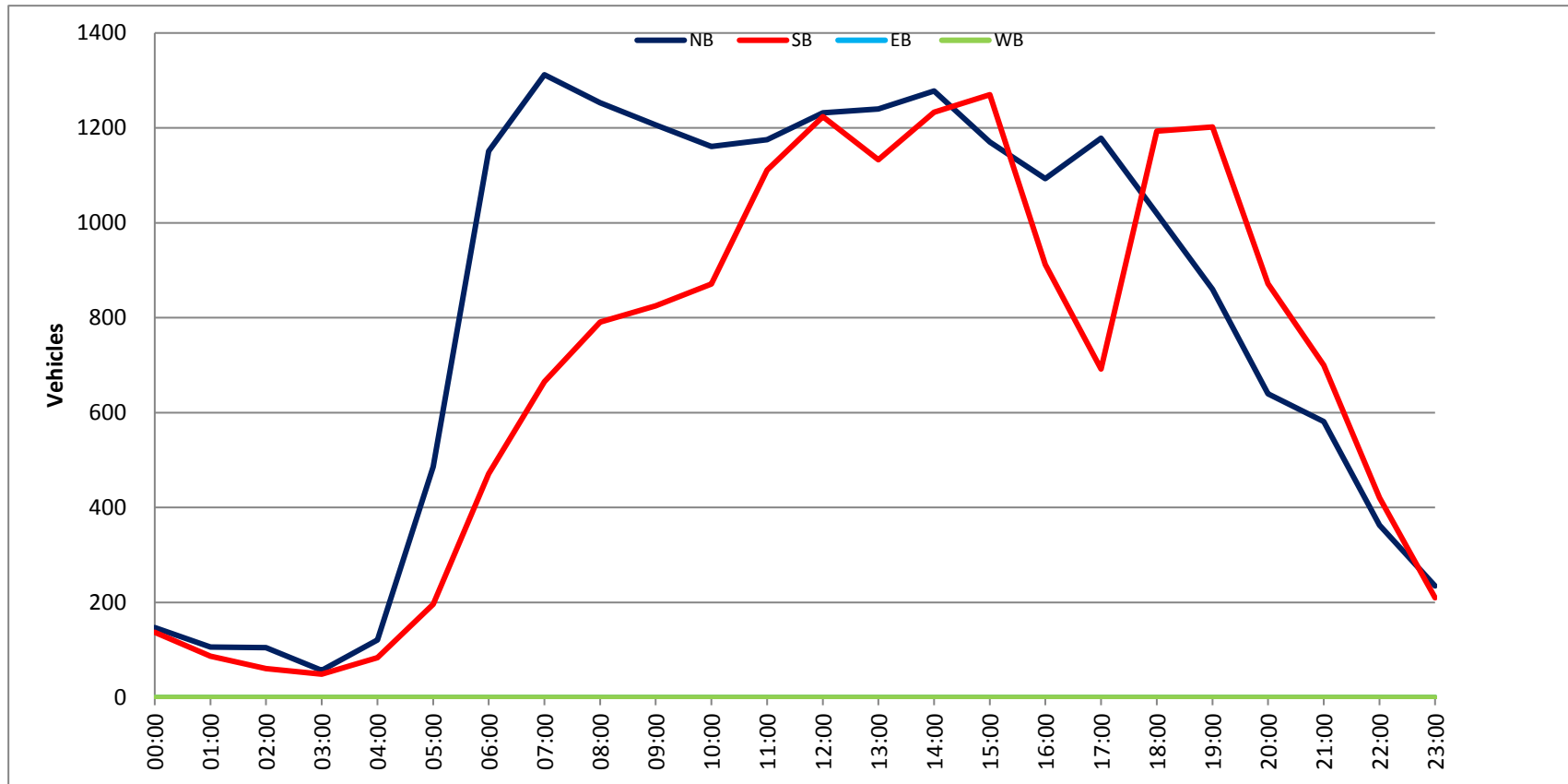
Prepared by NDS/ATD

Project #: CA16_4124_012

City: San Diego

Location: Mission Bay Drive Bet. Damon Ave &

Date: 5/10/2016



VOLUME

Grand Avenue & on the Rose Creek Bridge

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_013

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						21,054	16,861	37,915
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			72	53	125		12:00			267	226	493		
00:15			59	45	104		12:15			258	232	490		
00:30			59	25	84		12:30			284	230	514		
00:45			42	232	24	147	12:45			267	1076	227	915	
01:00			36		18	54	13:00			252		210	462	
01:15			38		20	58	13:15			259		222	481	
01:30			37		18	55	13:30			274		282	556	
01:45			42	153	17	73	13:45			281	1066	263	977	
02:00			44		23	67	14:00			269		286	555	
02:15			30		18	48	14:15			435		255	690	
02:30			19		16	35	14:30			353		266	619	
02:45			12	105	10	67	14:45			351	1408	257	1064	
03:00			15		12	27	15:00			310		258	568	
03:15			27		10	37	15:15			342		298	640	
03:30			16		10	26	15:30			416		291	707	
03:45			12	70	11	43	15:45			370	1438	302	1149	
04:00			17		17	34	16:00			362		322	684	
04:15			26		14	40	16:15			347		359	706	
04:30			34		19	53	16:30			340		354	694	
04:45			37	114	31	81	16:45			362	1411	420	1455	
05:00			52		28	80	17:00			354		379	733	
05:15			78		24	102	17:15			404		423	827	
05:30			109		48	157	17:30			397		412	809	
05:45			108	347	70	170	17:45			321	1476	384	1598	
06:00			153		76	229	18:00			323		361	684	
06:15			187		102	289	18:15			285		322	607	
06:30			278		126	404	18:30			279		280	559	
06:45			293	911	126	430	18:45			267	1154	276	1239	
07:00			368		234	602	19:00			264		267	531	
07:15			429		280	709	19:15			261		237	498	
07:30			512		255	767	19:30			257		201	458	
07:45			472	1781	181	950	19:45			258	1040	200	905	
08:00			416		207	623	20:00			263		184	447	
08:15			437		211	648	20:15			214		183	397	
08:30			416		227	643	20:30			188		154	342	
08:45			338	1607	233	878	20:45			196	861	180	701	
09:00			329		231	560	21:00			206		166	372	
09:15			294		206	500	21:15			188		156	344	
09:30			244		231	475	21:30			170		130	300	
09:45			261	1128	274	942	21:45			172	736	141	593	
10:00			237		298	535	22:00			168		131	299	
10:15			264		249	513	22:15			149		107	256	
10:30			232		199	431	22:30			149		94	243	
10:45			218	951	211	957	22:45			148	614	74	406	
11:00			218		195	413	23:00			137		57	194	
11:15			243		200	443	23:15			113		74	187	
11:30			267		226	493	23:30			87		61	148	
11:45			225	953	244	865	23:45			85	422	64	256	
TOTALS	8352				5603	13955	TOTALS	12702				11258	23960	
SPLIT %	59.8%				40.2%	36.8%	SPLIT %	53.0%				47.0%	63.2%	

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	21,054					16,861	37,915	

AM Peak Hour			07:30	09:30	07:15		PM Peak Hour			16:45	16:45	16:45		
AM Pk Volume			1837	1052	2752		PM Pk Volume			1517	1634	3151		
Pk Hr Factor			0.897	0.883	0.897		Pk Hr Factor			0.939	0.966	0.953		
7 - 9 Volume	0	0	3388	1828	5216		4 - 6 Volume	0	0	2887	3053	5940		
7 - 9 Peak Hour			07:30	07:00	07:15		4 - 6 Peak Hour			16:45	16:45	16:45		
7 - 9 Pk Volume	0	0	1837	950	2752		4 - 6 Pk Volume	0	0	1517	1634	3151		
Pk Hr Factor	0.000	0.000	0.897	0.848	0.897		Pk Hr Factor	0.000	0.000	0.939	0.966	0.953		

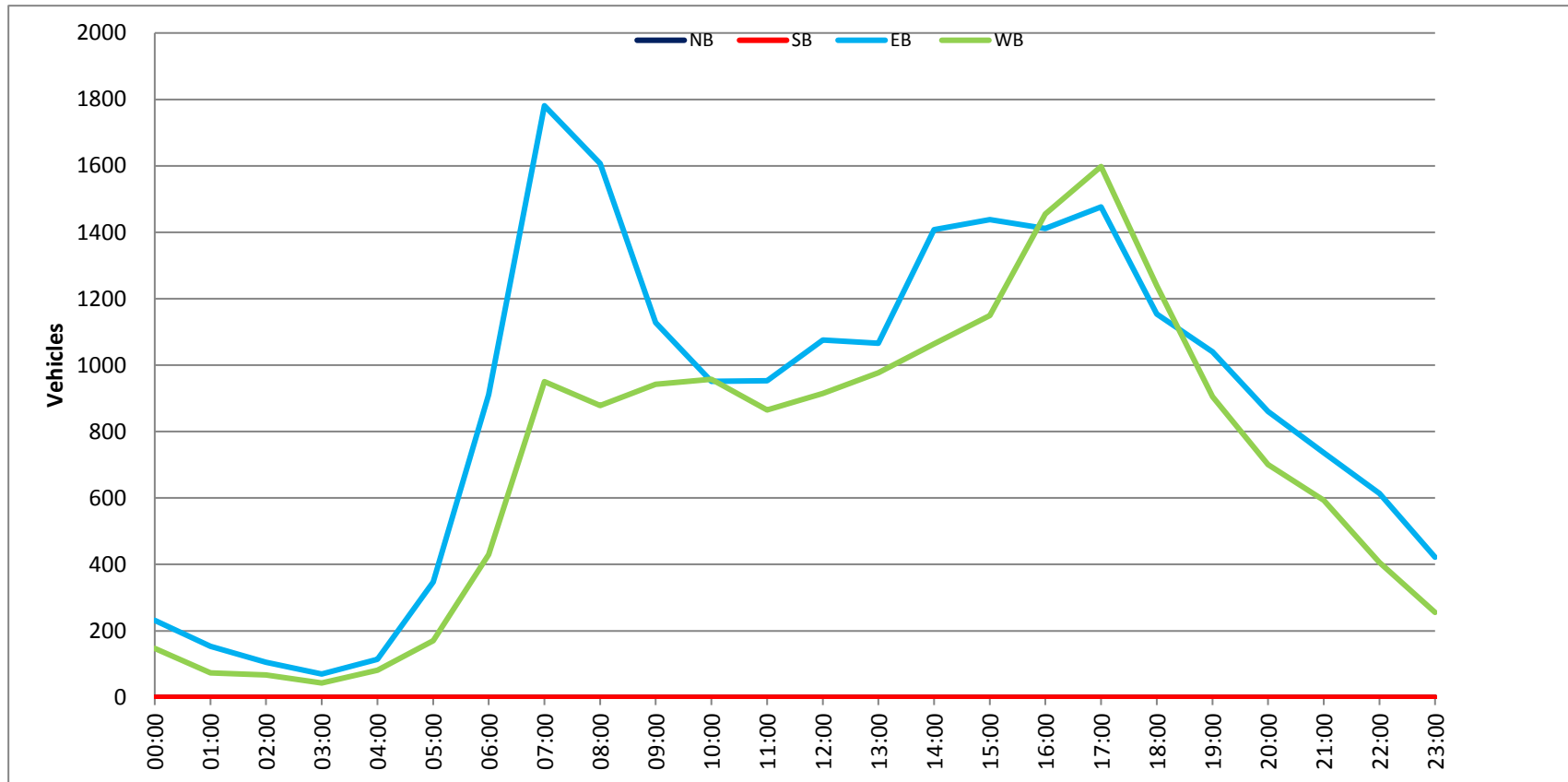
Prepared by NDS/ATD

Project #: CA16_4124_013

City: San Diego

Location: Grand Avenue & on the Rose Creek Bridge

Date: 5/10/2016



VOLUME

Mission Bay Drive Bet. Del Rey St & I-5 Ramps

Day: Tuesday
Date: 5/10/2016

City: San Diego
Project #: CA16_4124_014

DAILY TOTALS				NB	SB	EB				WB	Total
				26,832	28,219	0				0	55,051

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	71	85			156	12:00	423	397			820
00:15	96	67			163	12:15	381	442			823
00:30	74	66			140	12:30	369	410			779
00:45	56	297	50	268	106 565	12:45	412	1585	435	1684	847 3269
01:00	55	51			106	13:00	393	378			771
01:15	53	44			97	13:15	403	440			843
01:30	44	43			87	13:30	406	425			831
01:45	34	186	29	167	63 353	13:45	380	1582	441	1684	821 3266
02:00	48	31			79	14:00	428	412			840
02:15	35	44			79	14:15	427	454			881
02:30	28	19			47	14:30	398	495			893
02:45	22	133	25	119	47 252	14:45	416	1669	461	1822	877 3491
03:00	25	31			56	15:00	405	493			898
03:15	29	30			59	15:15	451	501			952
03:30	22	28			50	15:30	427	535			962
03:45	28	104	16	105	44 209	15:45	485	1768	518	2047	1003 3815
04:00	20	24			44	16:00	479	482			961
04:15	22	38			60	16:15	536	442			978
04:30	31	45			76	16:30	557	466			1023
04:45	20	93	65	172	85 265	16:45	565	2137	429	1819	994 3956
05:00	24	68			92	17:00	584	468			1052
05:15	24	112			136	17:15	610	455			1065
05:30	30	138			168	17:30	586	455			1041
05:45	25	103	208	526	233 629	17:45	527	2307	448	1826	975 4133
06:00	49	206			255	18:00	478	453			931
06:15	70	263			333	18:15	454	447			901
06:30	92	326			418	18:30	470	468			938
06:45	109	320	351	1146	460 1466	18:45	437	1839	462	1830	899 3669
07:00	245	385			630	19:00	369	399			768
07:15	184	486			670	19:15	349	314			663
07:30	178	577			755	19:30	339	315			654
07:45	255	862	551	1999	806 2861	19:45	357	1414	346	1374	703 2788
08:00	312	496			808	20:00	285	315			600
08:15	422	497			919	20:15	303	295			598
08:30	374	511			885	20:30	228	265			493
08:45	408	1516	484	1988	892 3504	20:45	242	1058	241	1116	483 2174
09:00	527	388			915	21:00	219	264			483
09:15	320	384			704	21:15	230	246			476
09:30	360	374			734	21:30	267	220			487
09:45	539	1746	404	1550	943 3296	21:45	208	924	192	922	400 1846
10:00	437	347			784	22:00	173	192			365
10:15	384	348			732	22:15	182	184			366
10:30	466	374			840	22:30	139	174			313
10:45	588	1875	333	1402	921 3277	22:45	131	625	135	685	266 1310
11:00	498	324			822	23:00	116	168			284
11:15	553	389			942	23:15	98	126			224
11:30	589	382			971	23:30	72	104			176
11:45	665	2305	397	1492	1062 3797	23:45	98	384	78	476	176 860
TOTALS	9540	10934			20474	TOTALS	17292	17285			34577
SPLIT %	46.6%	53.4%			37.2%	SPLIT %	50.0%	50.0%			62.8%

DAILY TOTALS				NB	SB	EB				WB	Total
				26,832	28,219	0				0	55,051

AM Peak Hour	11:00	07:30			11:00	PM Peak Hour	16:45	15:00			16:45
AM Pk Volume	2305	2121			3797	PM Pk Volume	2345	2047			4152
Pk Hr Factor	0.867	0.919			0.894	Pk Hr Factor	0.961	0.957			0.975
7 - 9 Volume	2378	3987	0	0	6365	4 - 6 Volume	4444	3645	0	0	8089
7 - 9 Peak Hour	08:00	07:30			08:00	4 - 6 Peak Hour	16:45	17:00			16:45
7 - 9 Pk Volume	1516	2121	0	0	3504	4 - 6 Pk Volume	2345	1826	0	0	4152
Pk Hr Factor	0.898	0.919	0.000	0.000	0.953	Pk Hr Factor	0.961	0.975	0.000	0.000	0.975

Prepared by NDS/ATD

Project #: CA16_4124_014

City: San Diego

Location: Mission Bay Drive Bet. Del Rey St & I-5

Date: 5/10/2016



VOLUME

Damon Ave Bet. Mission Bay Dr & Santa Fe St

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_015

DAILY TOTALS					NB	SB	EB					WB	Total		
					0	0						2,294	2,121	4,415	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00			0	0	0		12:00			44	40	84			
00:15			3	4	7		12:15			57	58	115			
00:30			1	2	3		12:30			49	37	86			
00:45			2	6	2	8	12:45			54	204	39	174		
					4	14						93	378		
01:00			1	1	2		13:00			52	43	95			
01:15			4	1	5		13:15			34	28	62			
01:30			1	5	6		13:30			48	47	95			
01:45			2	8	0	7	13:45			42	176	42	160		
					2	15						84	336		
02:00			0	1	1		14:00			53	41	94			
02:15			1	1	2		14:15			38	32	70			
02:30			5	3	8		14:30			54	49	103			
02:45			3	9	8	13	14:45			51	196	35	157		
					11	22						86	353		
03:00			3	2	5		15:00			37	43	80			
03:15			5	5	10		15:15			46	43	89			
03:30			2	5	7		15:30			32	41	73			
03:45			1	11	0	12	15:45			38	153	37	164		
					1	23						75	317		
04:00			1	9	10		16:00			42	40	82			
04:15			3	7	10		16:15			30	40	70			
04:30			7	0	7		16:30			29	43	72			
04:45			3	14	2	18	16:45			27	128	52	175		
					5	32						79	303		
05:00			11	4	15		17:00			36	63	99			
05:15			19	9	28		17:15			32	69	101			
05:30			26	6	32		17:30			27	36	63			
05:45			46	102	17	36	17:45			26	121	35	203		
					63	138						61	324		
06:00			33	8	41		18:00			27	36	63			
06:15			61	13	74		18:15			27	39	66			
06:30			41	28	69		18:30			25	34	59			
06:45			35	170	22	71	18:45			29	108	37	146		
					57	241						66	254		
07:00			27	23	50		19:00			23	27	50			
07:15			22	16	38		19:15			17	11	28			
07:30			36	34	70		19:30			11	18	29			
07:45			33	118	27	100	19:45			10	61	17	73		
					60	218						27	134		
08:00			48	32	80		20:00			8	25	33			
08:15			35	17	52		20:15			13	14	27			
08:30			29	24	53		20:30			7	16	23			
08:45			45	157	28	101	20:45			13	41	8	63		
					73	258						21	104		
09:00			39	28	67		21:00			10	14	24			
09:15			33	18	51		21:15			12	12	24			
09:30			33	33	66		21:30			13	14	27			
09:45			52	157	20	99	21:45			7	42	11	51		
					72	256						18	93		
10:00			28	24	52		22:00			11	13	24			
10:15			39	40	79		22:15			8	5	13			
10:30			29	16	45		22:30			7	4	11			
10:45			35	131	25	105	22:45			3	29	2	24		
					60	236						5	53		
11:00			25	24	49		23:00			4	9	13			
11:15			39	40	79		23:15			5	7	12			
11:30			30	30	60		23:30			4	8	12			
11:45			42	136	38	132	23:45			3	16	5	29		
					80	268						8	45		
TOTALS	1019					702	1721	TOTALS	1275					1419	2694
SPLIT %	59.2%					40.8%	39.0%	SPLIT %	47.3%					52.7%	61.0%

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	2,294					2,121	4,415	
AM Peak Hour			11:45	11:45	11:45		PM Peak Hour			12:15	16:30	12:15		
AM Pk Volume			192	173	365		PM Pk Volume			212	227	389		
Pk Hr Factor			0.842	0.746	0.793		Pk Hr Factor			0.930	0.822	0.846		
7 - 9 Volume	0	0	275	201	476		4 - 6 Volume	0	0	249	378	627		
7 - 9 Peak Hour			08:00	07:30	07:30		4 - 6 Peak Hour			16:00	16:30	16:30		
7 - 9 Pk Volume	0	0	157	110	262		4 - 6 Pk Volume	0	0	128	227	351		
Pk Hr Factor	0.000	0.000	0.818	0.809	0.819		Pk Hr Factor	0.000	0.000	0.762	0.822	0.869		

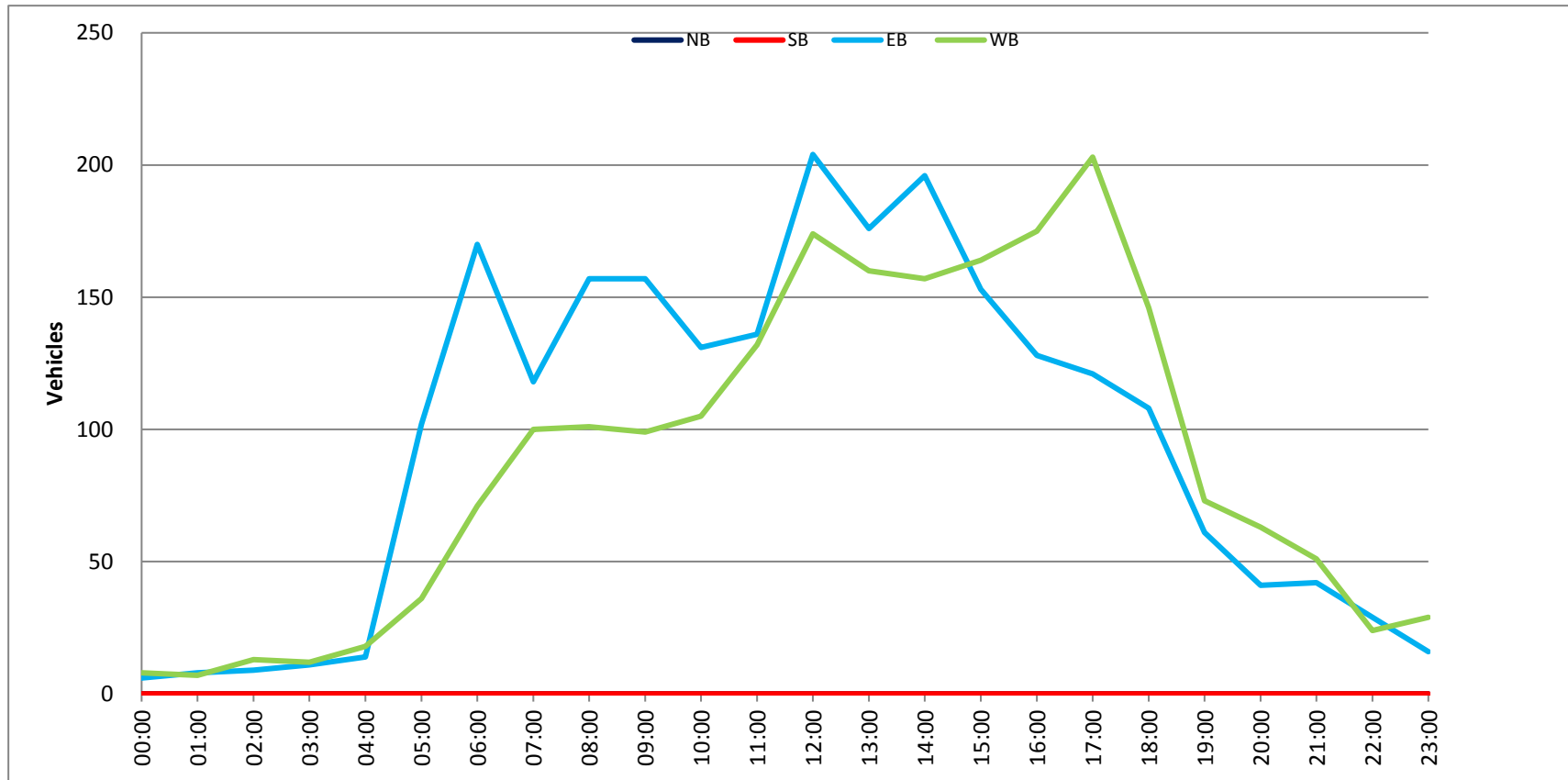
Prepared by NDS/ATD

Project #: CA16_4124_015

City: San Diego

Location: Damon Ave Bet. Mission Bay Dr & Santa Fe

Date: 5/10/2016



VOLUME

Balboa Avenue Bet. Garnet Ave & Grand Ave

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_016

DAILY TOTALS					NB	SB	EBWB					Total			
					0	0						14,263			
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00			22	24	46		12:00			95	106	201			
00:15			17	12	29		12:15			127	111	238			
00:30			19	13	32		12:30			100	108	208			
00:45			14	72	14	63	28	135		111	433	111	436	222	869
01:00			16		13		29			107		97		204	
01:15			6		12		18			121		95		216	
01:30			13		6		19			114		88		202	
01:45			10	45	11	42	21	87		124	466	102	382	226	848
02:00			7		8		15			122		94		216	
02:15			7		11		18			113		107		220	
02:30			7		3		10			109		111		220	
02:45			5	26	3	25	8	51		106	450	113	425	219	875
03:00			6		3		9			94		103		197	
03:15			6		4		10			112		92		204	
03:30			4		3		7			100		124		224	
03:45			6	22	7	17	13	39		122	428	134	453	256	881
04:00			12		3		15			108		141		249	
04:15			10		4		14			119		156		275	
04:30			11		12		23			121		116		237	
04:45			21	54	13	32	34	86		95	443	124	537	219	980
05:00			18		9		27			88		133		221	
05:15			33		12		45			112		169		281	
05:30			68		14		82			113		144		257	
05:45			67	186	15	50	82	236		116	429	134	580	250	1009
06:00			69		17		86			114		148		262	
06:15			101		30		131			103		156		259	
06:30			161		45		206			85		138		223	
06:45			125	456	44	136	169	592		100	402	144	586	244	988
07:00			146		42		188			99		138		237	
07:15			161		61		222			83		118		201	
07:30			133		54		187			82		108		190	
07:45			136	576	53	210	189	786		83	347	103	467	186	814
08:00			144		52		196			72		90		162	
08:15			156		65		221			74		98		172	
08:30			120		71		191			70		84		154	
08:45			119	539	77	265	196	804		69	285	84	356	153	641
09:00			132		85		217			68		72		140	
09:15			128		63		191			68		54		122	
09:30			128		84		212			57		47		104	
09:45			131	519	90	322	221	841		53	246	60	233	113	479
10:00			99		87		186			52		54		106	
10:15			135		76		211			47		54		101	
10:30			115		65		180			43		51		94	
10:45			115	464	83	311	198	775		29	171	58	217	87	388
11:00			99		79		178			29		45		74	
11:15			113		80		193			22		38		60	
11:30			90		83		173			29		33		62	
11:45			133	435	115	357	248	792		38	118	33	149	71	267
TOTALS				3394	1830	5224	TOTALS				4218	4821	9039		
SPLIT %				65.0%	35.0%	36.6%	SPLIT %				46.7%	53.3%	63.4%		

DAILY TOTALS			NB	SB	EB			WB			Total		
			0	0							7,612	6,651	14,263
AM Peak Hour			06:30	11:45	11:45	PM Peak Hour					13:15	17:15	17:15
AM Pk Volume			593	440	895	PM Pk Volume					481	595	1050
Pk Hr Factor			0.921	0.957	0.902	Pk Hr Factor					0.970	0.880	0.934
7 - 9 Volume	0	0	1115	475	1590	4 - 6 Volume			0	0	872	1117	1989
7 - 9 Peak Hour			07:00	08:00	08:00	4 - 6 Peak Hour					16:00	17:00	17:00
7 - 9 Pk Volume	0	0	576	265	804	4 - 6 Pk Volume			0	0	443	580	1009
Pk Hr Factor	0.000	0.000	0.894	0.860	0.910	Pk Hr Factor			0.000	0.000	0.915	0.858	0.898

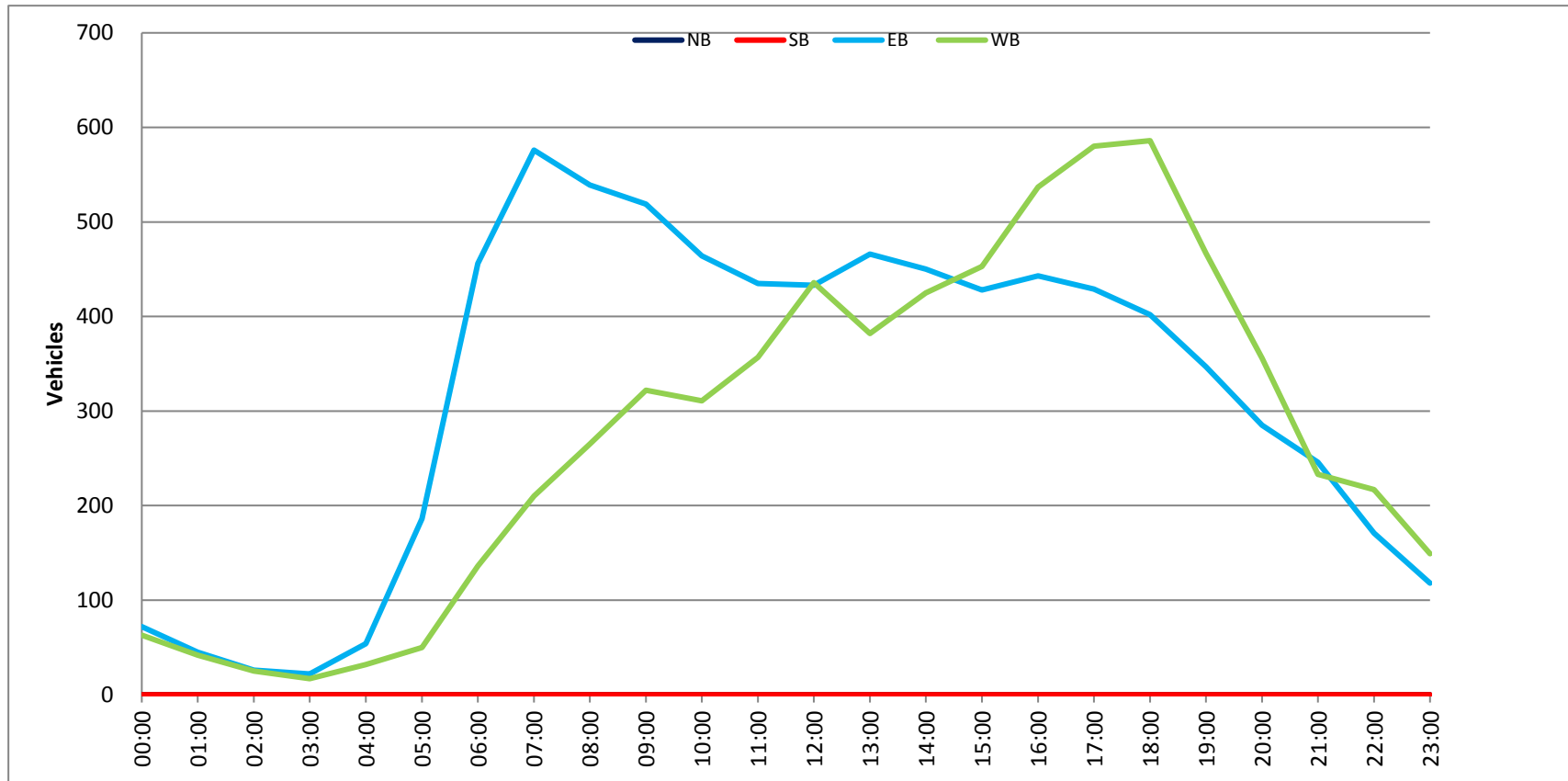
Prepared by NDS/ATD

Project #: CA16_4124_016

City: San Diego

Location: Balboa Avenue Bet. Garnet Ave & Grand

Date: 5/10/2016



VOLUME

Bond St Bet. Grand Ave & Magnolia Ave

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_017

DAILY TOTALS				NB	SB	EB				WB	Total
				572	1,150	0				0	1,722

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	4	3			7	12:00	5	18			23
00:15	1	3			4	12:15	8	18			26
00:30	2	6			8	12:30	4	16			20
00:45	5	12	3	15	8 27	12:45	7	24	18	70	25 94
01:00	1	1			2	13:00	8	19			27
01:15	2	5			7	13:15	7	17			24
01:30	2	2			4	13:30	4	14			18
01:45	1	6	2	10	3 16	13:45	11	30	26	76	37 106
02:00	0	3			3	14:00	7	21			28
02:15	2	0			2	14:15	7	25			32
02:30	1	0			1	14:30	9	14			23
02:45	0	3	0	3	0 6	14:45	8	31	14	74	22 105
03:00	0	1			1	15:00	11	20			31
03:15	0	0			0	15:15	5	30			35
03:30	3	3			6	15:30	6	20			26
03:45	0	3	0	4	0 7	15:45	5	27	18	88	23 115
04:00	1	0			1	16:00	10	30			40
04:15	0	0			0	16:15	7	17			24
04:30	0	1			1	16:30	7	23			30
04:45	1	2	1	2	2 4	16:45	5	29	28	98	33 127
05:00	4	0			4	17:00	10	33			43
05:15	3	1			4	17:15	10	40			50
05:30	5	0			5	17:30	4	30			34
05:45	6	18	4	5	10 23	17:45	4	28	29	132	33 160
06:00	4	3			7	18:00	5	21			26
06:15	8	2			10	18:15	8	23			31
06:30	6	4			10	18:30	7	33			40
06:45	4	22	2	11	6 33	18:45	10	30	24	101	34 131
07:00	9	14			23	19:00	7	17			24
07:15	11	11			22	19:15	10	12			22
07:30	13	15			28	19:30	5	10			15
07:45	13	46	8	48	21 94	19:45	10	32	12	51	22 83
08:00	10	10			20	20:00	8	15			23
08:15	15	10			25	20:15	7	10			17
08:30	15	11			26	20:30	8	7			15
08:45	12	52	13	44	25 96	20:45	2	25	12	44	14 69
09:00	7	10			17	21:00	2	13			15
09:15	5	7			12	21:15	5	14			19
09:30	9	12			21	21:30	9	15			24
09:45	11	32	14	43	25 75	21:45	6	22	13	55	19 77
10:00	4	14			18	22:00	4	16			20
10:15	10	12			22	22:15	9	8			17
10:30	15	19			34	22:30	3	7			10
10:45	8	37	15	60	23 97	22:45	2	18	8	39	10 57
11:00	7	15			22	23:00	5	8			13
11:15	7	13			20	23:15	2	4			6
11:30	6	9			15	23:30	4	6			10
11:45	11	31	19	56	30 87	23:45	1	12	3	21	4 33
TOTALS	264	301			565	TOTALS	308	849			1157
SPLIT %	46.7%	53.3%			32.8%	SPLIT %	26.6%	73.4%			67.2%

DAILY TOTALS				NB	SB	EB				WB	Total
				572	1,150	0				0	1,722

AM Peak Hour	07:45	11:45			10:15	PM Peak Hour	14:15	17:00			16:45
AM Pk Volume	53	71			101	PM Pk Volume	35	132			160
Pk Hr Factor	0.883	0.934			0.743	Pk Hr Factor	0.795	0.825			0.800
7 - 9 Volume	98	92	0	0	190	4 - 6 Volume	57	230	0	0	287
7 - 9 Peak Hour	07:45	07:00			08:00	4 - 6 Peak Hour	16:30	17:00			16:45
7 - 9 Pk Volume	53	48	0	0	96	4 - 6 Pk Volume	32	132	0	0	160
Pk Hr Factor	0.883	0.800	0.000	0.000	0.923	Pk Hr Factor	0.800	0.825	0.000	0.000	0.800

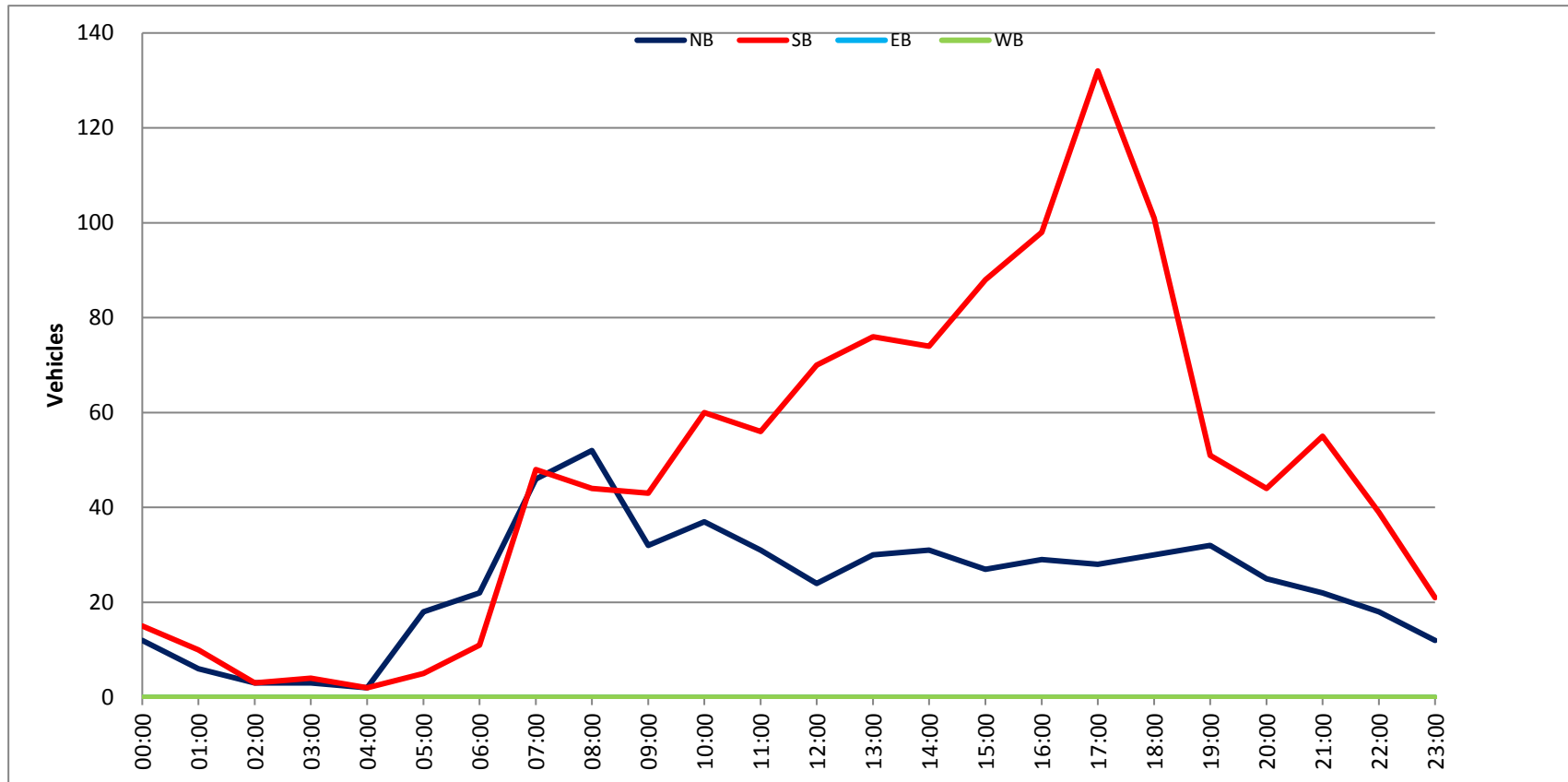
Prepared by NDS/ATD

Project #: CA16_4124_017

City: San Diego

Location: Bond St Bet. Grand Ave & Magnolia Ave

Date: 5/10/2016



VOLUME

Magnolia Ave Bet. Bond St & Figueroa Blvd

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_018

DAILY TOTALS					NB	SB	EB				WB	Total
					0	0	597				790	1,387
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL
00:00			0	1	1		12:00			6	9	15
00:15			1	3	4		12:15			6	13	19
00:30			0	4	4		12:30			4	12	16
00:45			2	3 0 8	2 11		12:45			10 26 10 44		20 70
01:00			0	1	1		13:00			5	11	16
01:15			2	3	5		13:15			11	7	18
01:30			1	1	2		13:30			5	8	13
01:45			2	5 0 5	2 10		13:45			13 34 14 40		27 74
02:00			0	0	0		14:00			3	12	15
02:15			2	1	3		14:15			8	17	25
02:30			1	1	2		14:30			10	12	22
02:45			0	3 0 2	0 5		14:45			10 31 13 54		23 85
03:00			0	0	0		15:00			12	14	26
03:15			0	0	0		15:15			7	18	25
03:30			1	0	1		15:30			6	12	18
03:45			0	1 0	0 1		15:45			6 31 15 59		21 90
04:00			1	0	1		16:00			12	22	34
04:15			0	0	0		16:15			10	16	26
04:30			0	0	0		16:30			6	19	25
04:45			1	2 0	1 2		16:45			9 37 14 71		23 108
05:00			3	0	3		17:00			7	24	31
05:15			2	1	3		17:15			8	24	32
05:30			3	0	3		17:30			15	19	34
05:45			4	12 1 2	5 14		17:45			8 38 26 93		34 131
06:00			2	1	3		18:00			8	20	28
06:15			8	1	9		18:15			7	21	28
06:30			10	3	13		18:30			11	24	35
06:45			7	27 5 10	12 37		18:45			12 38 14 79		26 117
07:00			10	10	20		19:00			12	16	28
07:15			10	8	18		19:15			6	10	16
07:30			19	10	29		19:30			5	12	17
07:45			16	55 5 33	21 88		19:45			7 30 12 50		19 80
08:00			12	11	23		20:00			8	10	18
08:15			15	5	20		20:15			7	6	13
08:30			20	5	25		20:30			6	6	12
08:45			15	62 7 28	22 90		20:45			4 25 9 31		13 56
09:00			7	7	14		21:00			4	9	13
09:15			9	2	11		21:15			6	15	21
09:30			10	8	18		21:30			4	13	17
09:45			5	31 6 23	11 54		21:45			4 18 10 47		14 65
10:00			10	6	16		22:00			4	11	15
10:15			11	10	21		22:15			3	5	8
10:30			9	12	21		22:30			2	2	4
10:45			5	35 11 39	16 74		22:45			2 11 5 23		7 34
11:00			5	9	14		23:00			4	7	11
11:15			8	6	14		23:15			3	5	8
11:30			5	7	12		23:30			2	1	3
11:45			12	30 10 32	22 62		23:45			3 12 4 17		7 29
TOTALS			266	182	448		TOTALS			331	608	939
SPLIT %			59.4%	40.6%	32.3%		SPLIT %			35.3%	64.7%	67.7%

DAILY TOTALS					NB	SB	EB				WB	Total
					0	0	597				790	1,387

AM Peak Hour			07:45	11:45	07:30	PM Peak Hour			18:15	17:00	17:00
AM Pk Volume			63	44	93	PM Pk Volume			42	93	131
Pk Hr Factor			0.788	0.846	0.802	Pk Hr Factor			0.875	0.894	0.963
7 - 9 Volume	0	0	117	61	178	4 - 6 Volume	0	0	75	164	239
7 - 9 Peak Hour			07:45	07:15	07:30	4 - 6 Peak Hour			16:45	17:00	17:00
7 - 9 Pk Volume	0	0	63	34	93	4 - 6 Pk Volume	0	0	39	93	131
Pk Hr Factor	0.000	0.000	0.788	0.773	0.802	Pk Hr Factor	0.000	0.000	0.650	0.894	0.963

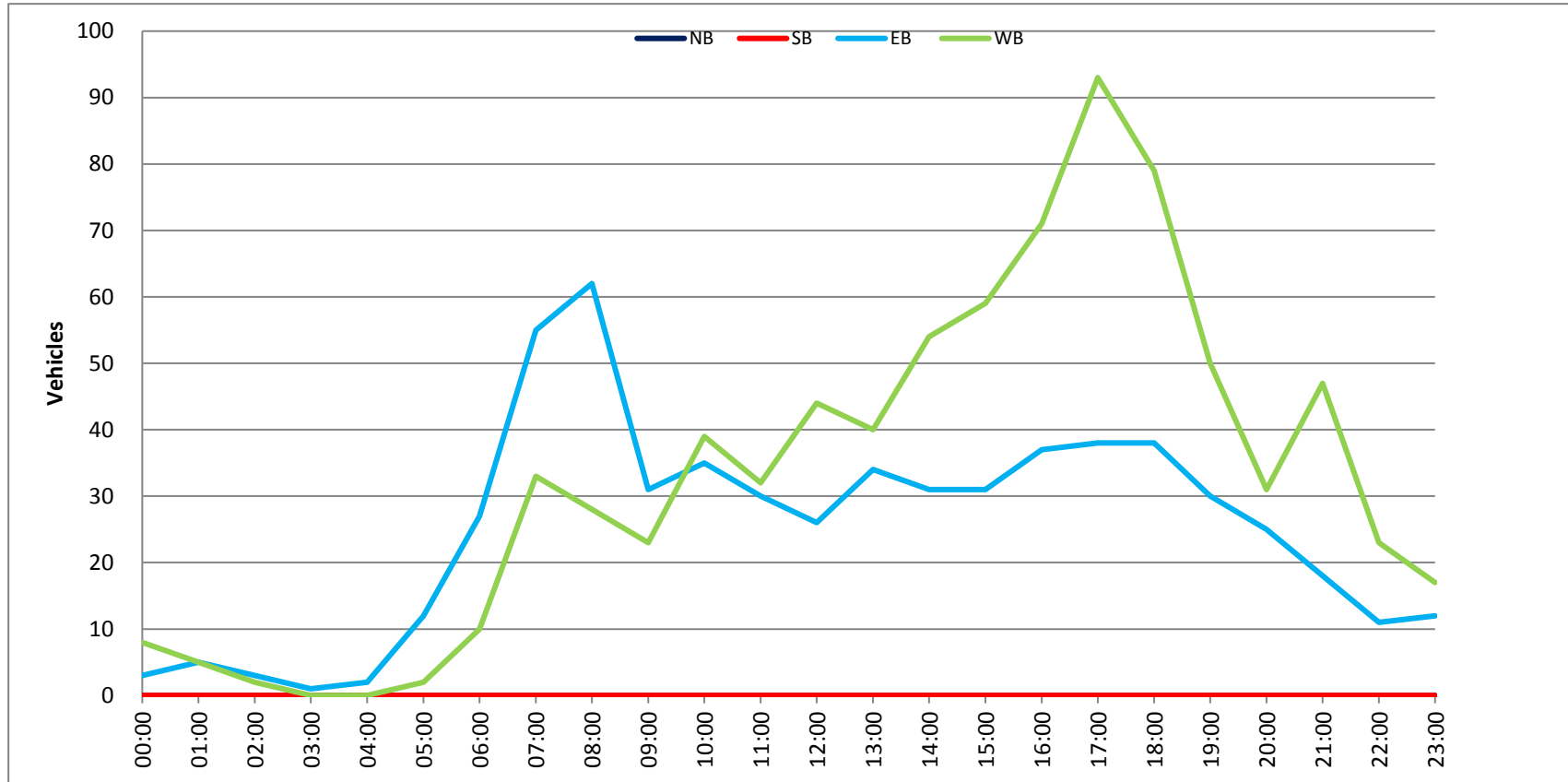
Prepared by NDS/ATD

Project #: CA16_4124_018

City: San Diego

Location: Magnolia Ave Bet. Bond St & Figueroa Blvd

Date: 5/10/2016



VOLUME

Figueroa Blvd Bet. Hornblend St & Grand Ave

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_019

DAILY TOTALS					NB	SB	EBWB					Total	
					1,022	57						0	0
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	2	0			2		12:00	21	2			23	
00:15	4	0			4		12:15	9	1			10	
00:30	4	0			4		12:30	16	1			17	
00:45	3	13	2	2	5	15	12:45	9	55	1	5	10	60
01:00	0	0			0		13:00	8	0			8	
01:15	2	0			2		13:15	15	1			16	
01:30	0	0			0		13:30	26	0			26	
01:45	1	3	0		1	3	13:45	20	69	0	1	20	70
02:00	2	0			2		14:00	16	2			18	
02:15	0	0			0		14:15	24	2			26	
02:30	3	0			3		14:30	16	2			18	
02:45	0	5	0		0	5	14:45	15	71	2	8	17	79
03:00	0	0			0		15:00	13	2			15	
03:15	2	1			3		15:15	17	1			18	
03:30	1	0			1		15:30	24	2			26	
03:45	2	5	0	1	2	6	15:45	15	69	0	5	15	74
04:00	2	0			2		16:00	23	0			23	
04:15	1	0			1		16:15	15	0			15	
04:30	0	0			0		16:30	12	0			12	
04:45	2	5	0		2	5	16:45	17	67	0		17	67
05:00	3	0			3		17:00	20	2			22	
05:15	1	0			1		17:15	26	0			26	
05:30	2	0			2		17:30	27	2			29	
05:45	2	8	0		2	8	17:45	23	96	0	4	23	100
06:00	4	0			4		18:00	17	1			18	
06:15	2	1			3		18:15	15	0			15	
06:30	7	1			8		18:30	14	1			15	
06:45	11	24	1	3	12	27	18:45	14	60	1	3	15	63
07:00	12	1			13		19:00	18	0			18	
07:15	13	1			14		19:15	22	2			24	
07:30	18	1			19		19:30	13	0			13	
07:45	17	60	1	4	18	64	19:45	15	68	2	4	17	72
08:00	10	0			10		20:00	11	0			11	
08:15	14	3			17		20:15	14	0			14	
08:30	17	1			18		20:30	14	0			14	
08:45	9	50	1	5	10	55	20:45	8	47	1	1	9	48
09:00	10	0			10		21:00	11	0			11	
09:15	13	1			14		21:15	5	1			6	
09:30	16	2			18		21:30	14	1			15	
09:45	14	53	1	4	15	57	21:45	9	39	0	2	9	41
10:00	12	1			13		22:00	9	0			9	
10:15	8	0			8		22:15	5	1			6	
10:30	17	1			18		22:30	7	0			7	
10:45	10	47	1	3	11	50	22:45	10	31	0	1	10	32
11:00	13	0			13		23:00	8	1			9	
11:15	13	0			13		23:15	13	0			13	
11:30	11	0			11		23:30	5	0			5	
11:45	11	48	0		11	48	23:45	3	29	0	1	3	30
TOTALS	321	22			343		TOTALS	701	35			736	
SPLIT %	93.6%	6.4%			31.8%		SPLIT %	95.2%	4.8%			68.2%	

DAILY TOTALS					NB	SB	EB				WB	Total
					1,022	57	0				0	1,079
AM Peak Hour	07:00	07:30			07:00		PM Peak Hour	17:00	14:00			17:00
AM Pk Volume	60	5			64		PM Pk Volume	96	8			100
Pk Hr Factor	0.833	0.417			0.842		Pk Hr Factor	0.889	1.000			0.862
7 - 9 Volume	110	9	0	0	119		4 - 6 Volume	163	4	0	0	167
7 - 9 Peak Hour	07:00	07:30			07:00		4 - 6 Peak Hour	17:00	16:45			17:00
7 - 9 Pk Volume	60	5	0	0	64		4 - 6 Pk Volume	96	4	0	0	100
Pk Hr Factor	0.833	0.417	0.000	0.000	0.842		Pk Hr Factor	0.889	0.500	0.000	0.000	0.862

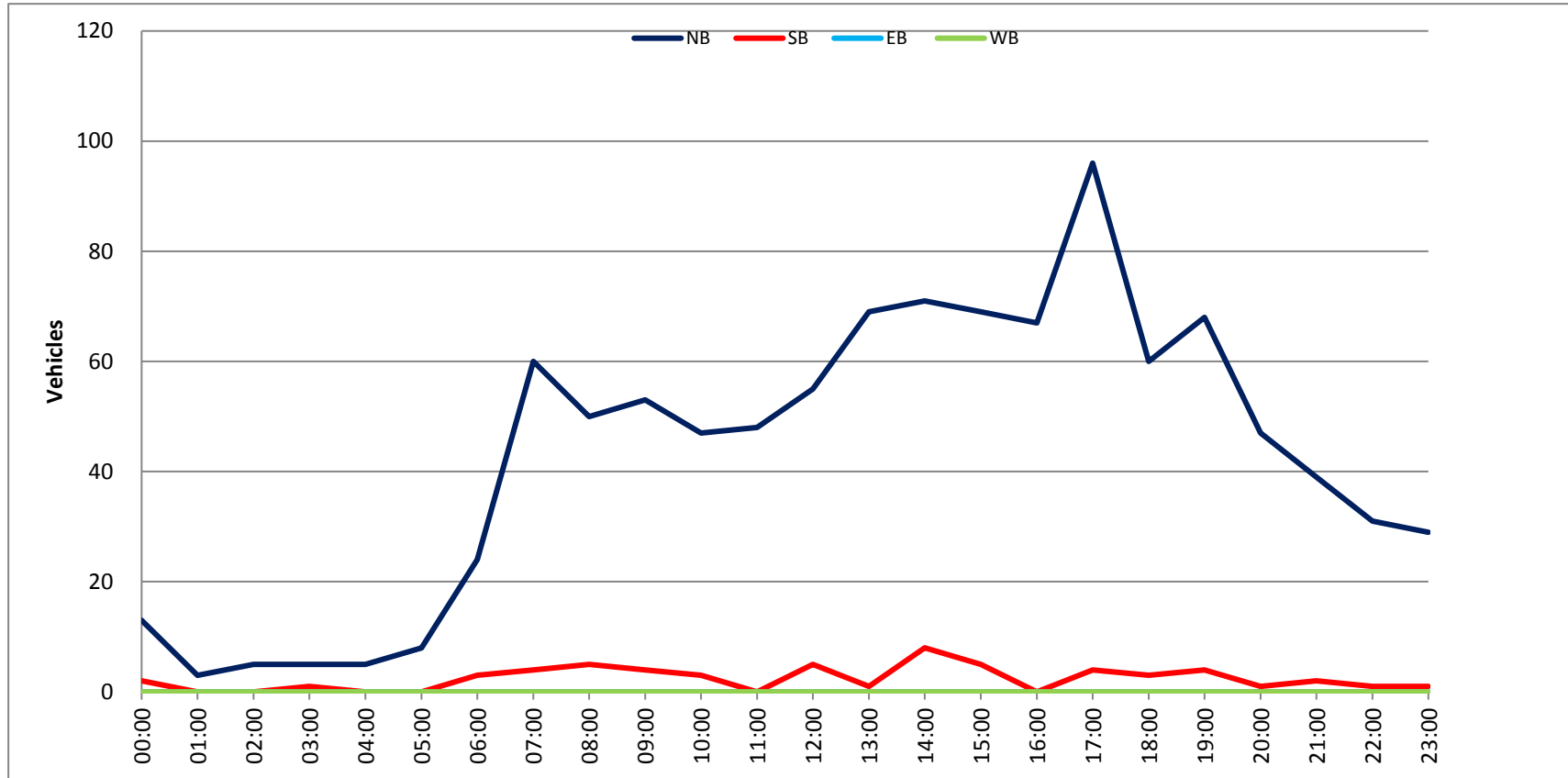
Prepared by NDS/ATD

Project #: CA16_4124_019

City: San Diego

Location: Figueroa Blvd Bet. Hornblend St & Grand

Date: 5/10/2016



VOLUME

Morena Blvd S/O Jutland Dr

Day: Tuesday
Date: 5/10/2016

City: San Diego
Project #: CA16_4124_020

DAILY TOTALS					NB	SB	EBWB					Total	
					5,392	6,162						0	0
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	3	3			6		12:00	73	119			192	
00:15	3	2			5		12:15	81	106			187	
00:30	7	6			13		12:30	121	116			237	
00:45	2	15	0	11	2	26	12:45	128	403	102	443	230	846
01:00	0	2			2		13:00	117	113			230	
01:15	5	3			8		13:15	117	99			216	
01:30	0	2			2		13:30	88	101			189	
01:45	1	6	2	9	3	15	13:45	89	411	95	408	184	819
02:00	1	1			2		14:00	85	103			188	
02:15	2	3			5		14:15	78	102			180	
02:30	1	1			2		14:30	89	91			180	
02:45	1	5	0	5	1	10	14:45	70	322	124	420	194	742
03:00	2	4			6		15:00	88	117			205	
03:15	2	3			5		15:15	79	125			204	
03:30	1	1			2		15:30	83	123			206	
03:45	2	7	5	13	7	20	15:45	81	331	146	511	227	842
04:00	4	2			6		16:00	101	138			239	
04:15	1	4			5		16:15	108	154			262	
04:30	5	5			10		16:30	99	187			286	
04:45	3	13	11	22	14	35	16:45	94	402	171	650	265	1052
05:00	7	3			10		17:00	99	242			341	
05:15	24	7			31		17:15	96	183			279	
05:30	17	12			29		17:30	85	203			288	
05:45	40	88	19	41	59	129	17:45	82	362	178	806	260	1168
06:00	34	21			55		18:00	83	190			273	
06:15	38	28			66		18:15	74	113			187	
06:30	75	54			129		18:30	64	103			167	
06:45	58	205	63	166	121	371	18:45	61	282	115	521	176	803
07:00	64	67			131		19:00	72	80			152	
07:15	98	74			172		19:15	74	86			160	
07:30	114	72			186		19:30	66	55			121	
07:45	171	447	95	308	266	755	19:45	55	267	65	286	120	553
08:00	154	50			204		20:00	60	54			114	
08:15	128	64			192		20:15	60	46			106	
08:30	119	76			195		20:30	49	33			82	
08:45	119	520	73	263	192	783	20:45	49	218	29	162	78	380
09:00	110	74			184		21:00	32	18			50	
09:15	64	66			130		21:15	23	18			41	
09:30	67	67			134		21:30	26	11			37	
09:45	69	310	92	299	161	609	21:45	20	101	12	59	32	160
10:00	67	70			137		22:00	14	16			30	
10:15	64	76			140		22:15	13	5			18	
10:30	73	91			164		22:30	7	8			15	
10:45	68	272	81	318	149	590	22:45	10	44	4	33	14	77
11:00	69	94			163		23:00	15	8			23	
11:15	82	91			173		23:15	6	4			10	
11:30	82	95			177		23:30	6	3			9	
11:45	97	330	106	386	203	716	23:45	4	31	7	22	11	53
TOTALS	2218	1841			4059		TOTALS	3174	4321			7495	
SPLIT %	54.6%	45.4%			35.1%		SPLIT %	42.3%	57.7%			64.9%	

DAILY TOTALS					NB	SB	EB					WB	Total	
					5,392	6,162						0	0	11,554
AM Peak Hour	07:45	11:45			07:45	PM Peak Hour	12:30	17:00					16:45	
AM Pk Volume	572	447			857	PM Pk Volume	483	806					1173	
Pk Hr Factor	0.836	0.939			0.805	Pk Hr Factor	0.943	0.833					0.860	
7 - 9 Volume	967	571	0	0	1538	4 - 6 Volume	764	1456	0	0			2220	
7 - 9 Peak Hour	07:45	07:00			07:45	4 - 6 Peak Hour	16:00	17:00					16:45	
7 - 9 Pk Volume	572	308	0	0	857	4 - 6 Pk Volume	402	806	0	0			1173	
Pk Hr Factor	0.836	0.811	0.000	0.000	0.805	Pk Hr Factor	0.931	0.833	0.000	0.000			0.860	

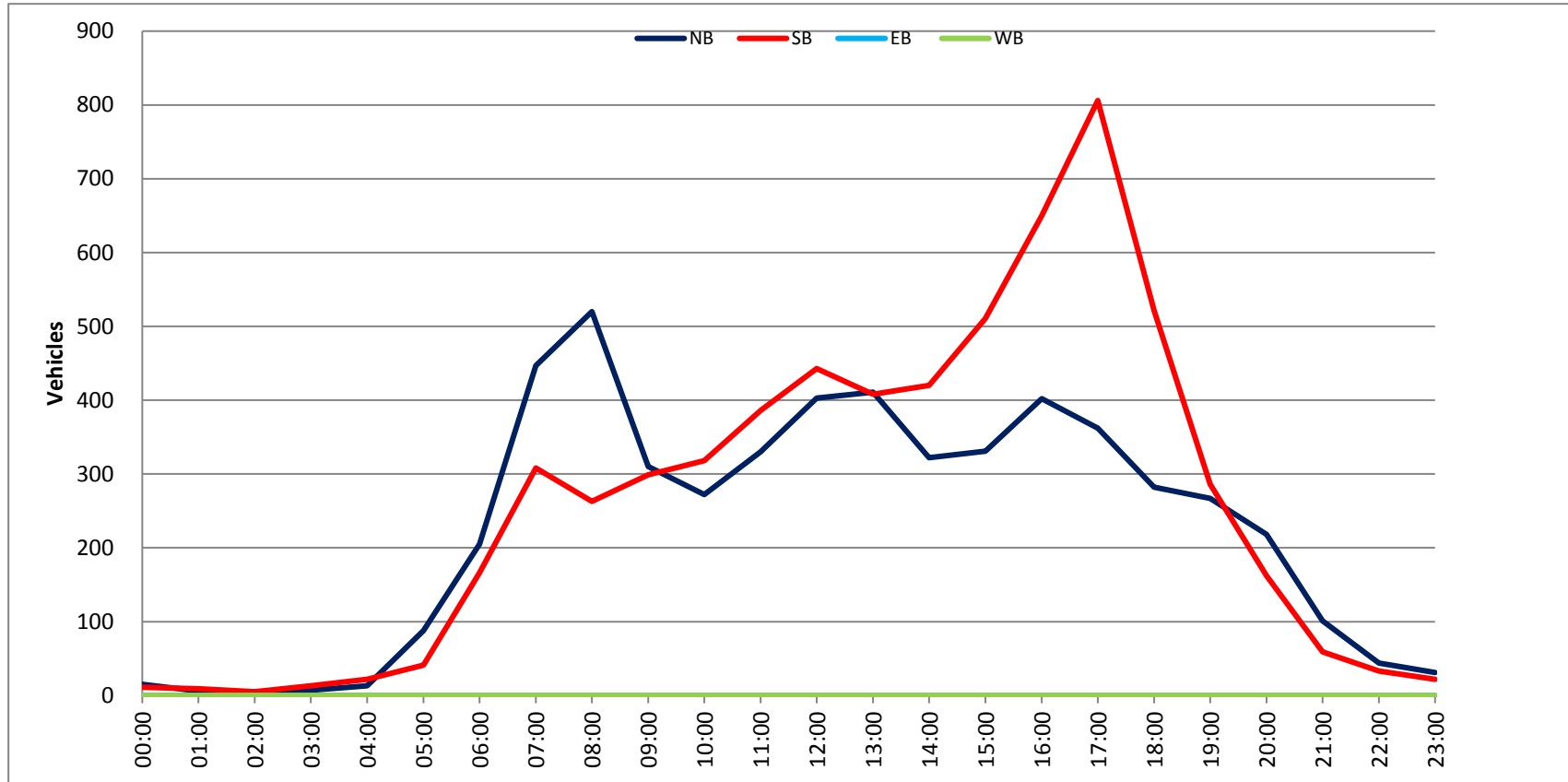
Prepared by NDS/ATD

Project #: CA16_4124_020

City: San Diego

Location: Morena Blvd S/O Jutland Dr

Date: 5/10/2016



VOLUME

Grand Avenue Bet. Lamont St & Kendall St

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_021

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						27,091	24,687	51,778
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			123	85	208		12:00			384	369	753		
00:15			89	49	138		12:15			366	365	731		
00:30			89	50	139		12:30			376	354	730		
00:45			55	356	53	237	12:45			382	1508	397	1485	
01:00			79	55	134		13:00			372	358	730		
01:15			51	34	85		13:15			412	370	782		
01:30			74	30	104		13:30			361	354	715		
01:45			75	279	36	155	13:45			391	1536	383	1465	
02:00			41	40	81		14:00			415	377	792		
02:15			41	36	77		14:15			468	410	878		
02:30			34	19	53		14:30			379	449	828		
02:45			19	135	12	107	14:45			412	1674	368	1604	
03:00			35	21	56		15:00			449	443	892		
03:15			29	13	42		15:15			445	426	871		
03:30			21	20	41		15:30			451	349	800		
03:45			18	103	25	79	15:45			495	1840	497	1715	
04:00			31	12	43		16:00			437	489	926		
04:15			26	13	39		16:15			426	419	845		
04:30			37	40	77		16:30			446	426	872		
04:45			62	156	53	118	16:45			441	1750	480	1814	
05:00			70	29	99		17:00			406	448	854		
05:15			93	45	138		17:15			393	468	861		
05:30			163	64	227		17:30			409	524	933		
05:45			167	493	106	244	17:45			423	1631	551	1991	
06:00			200	92	292		18:00			343	477	820		
06:15			273	148	421		18:15			375	490	865		
06:30			344	161	505		18:30			390	535	925		
06:45			323	1140	200	601	18:45			384	1492	501	2003	
07:00			443	180	623		19:00			347	428	775		
07:15			408	222	630		19:15			379	410	789		
07:30			422	219	641		19:30			367	376	743		
07:45			413	1686	179	800	19:45			368	1461	340	1554	
08:00			454	213	667		20:00			320	318	638		
08:15			454	219	673		20:15			310	343	653		
08:30			434	255	689		20:30			269	283	552		
08:45			369	1711	259	946	20:45			303	1202	300	1244	
09:00			400	299	699		21:00			293	259	552		
09:15			366	240	606		21:15			271	261	532		
09:30			361	302	663		21:30			274	275	549		
09:45			356	1483	344	1185	21:45			283	1121	305	1100	
10:00			321	310	631		22:00			232	287	519		
10:15			352	275	627		22:15			243	274	517		
10:30			370	315	685		22:30			198	227	425		
10:45			336	1379	331	1231	22:45			207	880	246	1034	
11:00			324	327	651		23:00			205	171	376		
11:15			327	316	643		23:15			159	145	304		
11:30			380	362	742		23:30			157	134	291		
11:45			384	1415	408	1413	23:45			139	660	112	562	
TOTALS	10336				7116	17452	TOTALS	16755				17571	34326	
SPLIT %	59.2%				40.8%	33.7%	SPLIT %	48.8%				51.2%	66.3%	

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	27,091					24,687	51,778	
AM Peak Hour			07:45	11:30	11:30		PM Peak Hour			15:00	17:45	15:45		
AM Pk Volume			1755	1504	3018		PM Pk Volume			1840	2053	3635		
Pk Hr Factor			0.966	0.922	0.953		Pk Hr Factor			0.929	0.931	0.916		
7 - 9 Volume	0	0	3397	1746	5143		4 - 6 Volume	0	0	3381	3805	7186		
7 - 9 Peak Hour			07:45	08:00	08:00		4 - 6 Peak Hour			16:00	17:00	17:00		
7 - 9 Pk Volume	0	0	1755	946	2657		4 - 6 Pk Volume	0	0	1750	1991	3622		
Pk Hr Factor	0.000	0.000	0.966	0.913	0.964		Pk Hr Factor	0.000	0.000	0.981	0.903	0.930		

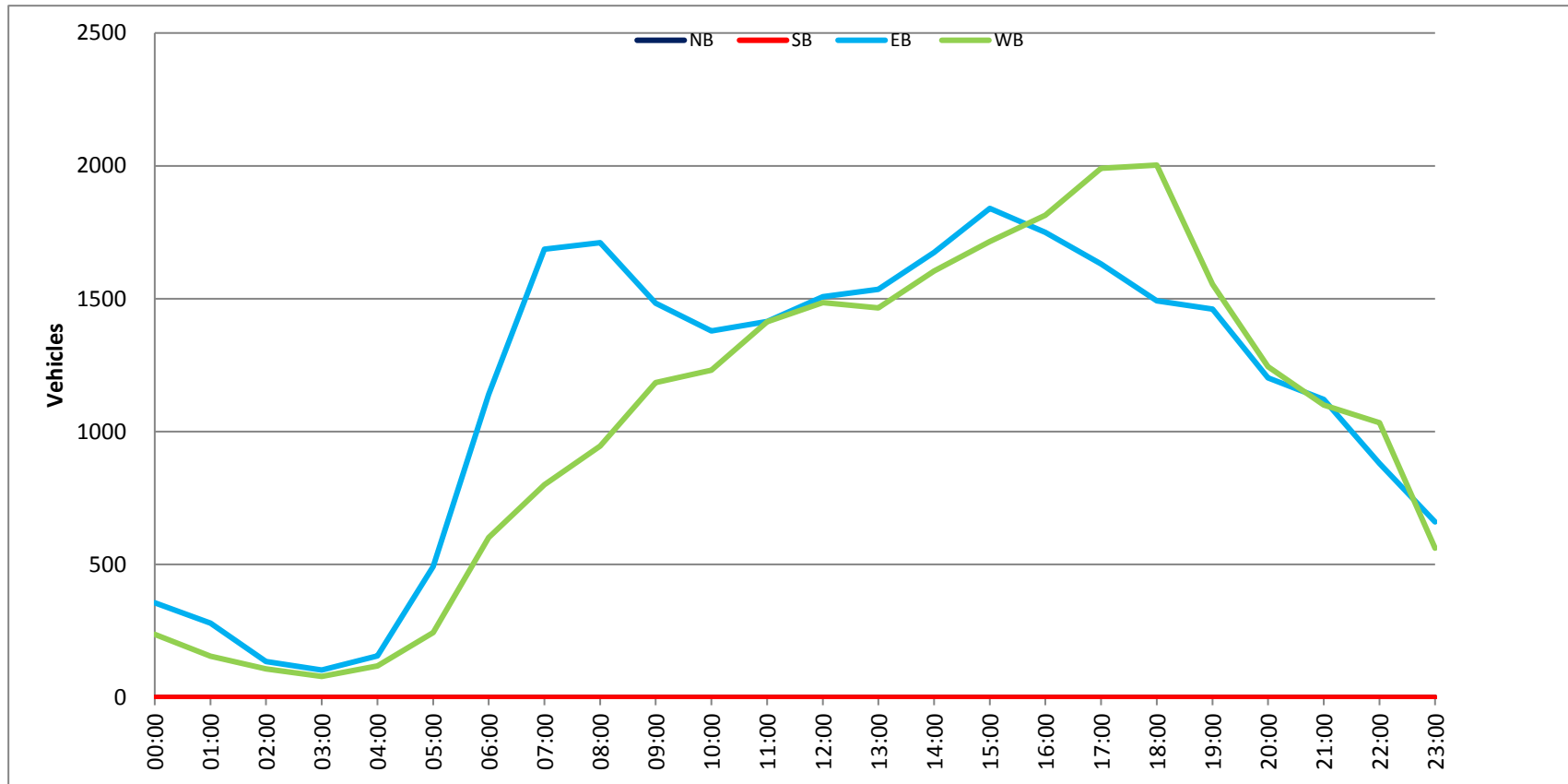
Prepared by NDS/ATD

Project #: CA16_4124_021

City: San Diego

Location: Grand Avenue Bet. Lamont St & Kendall St

Date: 5/10/2016



VOLUME

Morena Blvd Bet. Gesner St & Clairemont Dr

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_022

DAILY TOTALS					NB	SB	EBWB					Total	
					8,435	7,149						0	0
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	13	4			17		12:00	185	88			273	
00:15	5	6			11		12:15	165	108			273	
00:30	7	3			10		12:30	179	106			285	
00:45	6	31	4	17	10	48	12:45	172	701	104	406	276	1107
01:00	3	1			4		13:00	145	107			252	
01:15	2	3			5		13:15	189	98			287	
01:30	6	4			10		13:30	195	102			297	
01:45	5	16	2	10	7	26	13:45	188	717	90	397	278	1114
02:00	3	2			5		14:00	189	105			294	
02:15	1	5			6		14:15	149	112			261	
02:30	1	0			1		14:30	103	119			222	
02:45	2	7	0	7	2	14	14:45	99	540	96	432	195	972
03:00	0	2			2		15:00	120	111			231	
03:15	2	0			2		15:15	98	132			230	
03:30	3	0			3		15:30	142	154			296	
03:45	2	7	2	4	4	11	15:45	124	484	178	575	302	1059
04:00	1	5			6		16:00	118	208			326	
04:15	3	0			3		16:15	114	188			302	
04:30	4	4			8		16:30	117	249			366	
04:45	5	13	5	14	10	27	16:45	112	461	221	866	333	1327
05:00	5	5			10		17:00	114	294			408	
05:15	7	5			12		17:15	113	248			361	
05:30	5	6			11		17:30	112	259			371	
05:45	17	34	20	36	37	70	17:45	87	426	220	1021	307	1447
06:00	21	30			51		18:00	88	174			262	
06:15	27	27			54		18:15	77	141			218	
06:30	60	48			108		18:30	73	110			183	
06:45	110	218	52	157	162	375	18:45	96	334	101	526	197	860
07:00	143	60			203		19:00	68	77			145	
07:15	173	72			245		19:15	69	64			133	
07:30	218	83			301		19:30	71	61			132	
07:45	256	790	130	345	386	1135	19:45	56	264	93	295	149	559
08:00	251	84			335		20:00	63	81			144	
08:15	239	91			330		20:15	51	73			124	
08:30	224	108			332		20:30	56	65			121	
08:45	211	925	113	396	324	1321	20:45	44	214	57	276	101	490
09:00	134	97			231		21:00	53	55			108	
09:15	105	88			193		21:15	38	37			75	
09:30	161	85			246		21:30	41	32			73	
09:45	227	627	81	351	308	978	21:45	24	156	21	145	45	301
10:00	213	96			309		22:00	22	22			44	
10:15	188	104			292		22:15	35	13			48	
10:30	158	103			261		22:30	17	15			32	
10:45	156	715	78	381	234	1096	22:45	15	89	12	62	27	151
11:00	152	109			261		23:00	15	8			23	
11:15	153	88			241		23:15	6	4			10	
11:30	176	97			273		23:30	6	7			13	
11:45	153	634	110	404	263	1038	23:45	5	32	7	26	12	58
TOTALS	4017	2122			6139		TOTALS	4418	5027			9445	
SPLIT %	65.4%	34.6%			39.4%		SPLIT %	46.8%	53.2%			60.6%	

DAILY TOTALS					NB	SB					EB	WB	Total	
					8,435	7,149					0	0	15,584	

AM Peak Hour	07:45	07:45			07:45		PM Peak Hour	13:15	16:45			16:45	
AM Pk Volume	970	413			1383		PM Pk Volume	761	1022			1473	
Pk Hr Factor	0.947	0.794			0.896		Pk Hr Factor	0.976	0.869			0.903	
7 - 9 Volume	1715	741	0	0	2456		4 - 6 Volume	887	1887	0	0	2774	
7 - 9 Peak Hour	07:45	07:45			07:45		4 - 6 Peak Hour	16:00	16:45			16:45	
7 - 9 Pk Volume	970	413	0	0	1383		4 - 6 Pk Volume	461	1022	0	0	1473	
Pk Hr Factor	0.947	0.794	0.000	0.000	0.896		Pk Hr Factor	0.977	0.869	0.000	0.000	0.903	

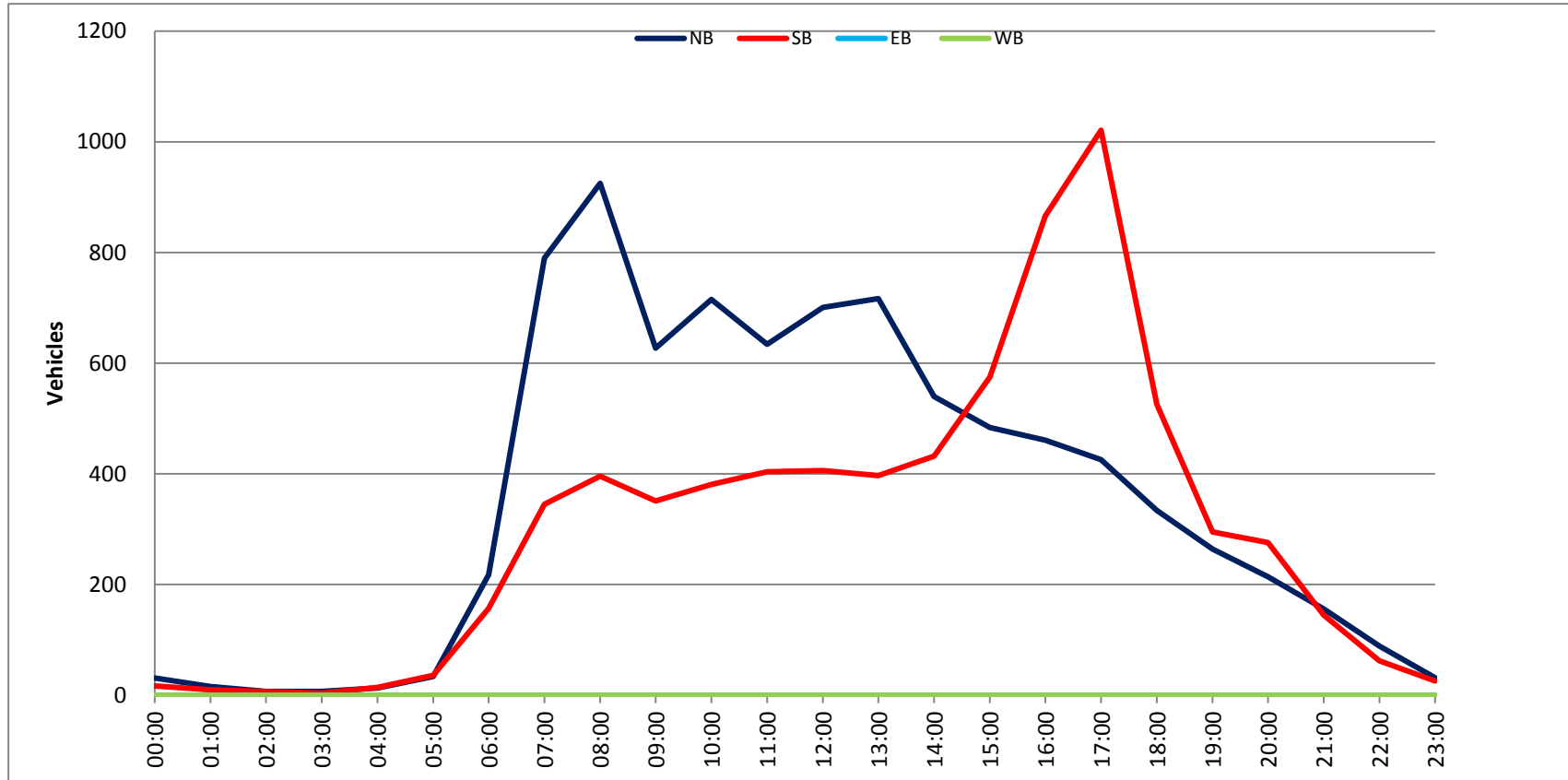
Prepared by NDS/ATD

Project #: CA16_4124_022

City: San Diego

Location: Morena Blvd Bet. Gesner St & Clairemont Dr

Date: 5/10/2016



VOLUME

Clairemont Dr Bet. Morena Blvd & Denver St

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_023

DAILY TOTALS					NB	SB	EB				WB	Total
					0	0	14,242				16,920	31,162
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL
00:00			37	14	51		12:00			207	276	483
00:15			27	24	51		12:15			176	295	471
00:30			24	17	41		12:30			183	282	465
00:45			18	106	11	66	12:45			222	788	267
					29	172				1120		489
01:00			16	9	25		13:00			223	285	508
01:15			20	13	33		13:15			197	284	481
01:30			13	6	19		13:30			176	303	479
01:45			18	67	6	34	13:45			235	831	290
					24	101				1162		525
02:00			14	3	17		14:00			162	280	442
02:15			13	7	20		14:15			279	278	557
02:30			11	7	18		14:30			298	279	577
02:45			10	48	8	25	14:45			322	1061	232
					18	73				1069		554
03:00			6	8	14		15:00			314	242	556
03:15			9	7	16		15:15			343	216	559
03:30			4	8	12		15:30			336	249	585
03:45			9	28	10	33	15:45			331	1324	304
					19	61				1011		635
04:00			3	11	14		16:00			314	258	572
04:15			13	20	33		16:15			324	267	591
04:30			13	38	51		16:30			343	230	573
04:45			16	45	43	112	16:45			317	1298	238
					59	157				993		555
05:00			23	58	81		17:00			362	220	582
05:15			23	76	99		17:15			342	204	546
05:30			32	124	156		17:30			320	239	559
05:45			51	129	144	402	17:45			303	1327	252
					195	531				915		555
06:00			60	134	194		18:00			277	234	511
06:15			71	193	264		18:15			282	252	534
06:30			85	285	370		18:30			286	237	523
06:45			83	299	311	923	18:45			262	1107	187
					394	1222				910		449
07:00			101	344	445		19:00			239	189	428
07:15			104	373	477		19:15			250	127	377
07:30			128	403	531		19:30			218	156	374
07:45			127	460	360	1480	19:45			201	908	144
					487	1940				616		345
08:00			130	397	527		20:00			180	124	304
08:15			156	343	499		20:15			162	126	288
08:30			192	377	569		20:30			174	121	295
08:45			201	679	360	1477	20:45			148	664	119
					561	2156				490		267
09:00			176	327	503		21:00			137	110	247
09:15			146	271	417		21:15			133	91	224
09:30			141	317	458		21:30			131	87	218
09:45			103	566	310	1225	21:45			121	522	69
					413	1791				357		190
10:00			178	245	423		22:00			111	63	174
10:15			155	297	452		22:15			98	63	161
10:30			134	284	418		22:30			109	51	160
10:45			200	667	265	1091	22:45			66	384	44
					465	1758				221		110
11:00			163	272	435		23:00			47	41	88
11:15			175	264	439		23:15			59	24	83
11:30			201	277	478		23:30			43	27	70
11:45			205	744	260	1073	23:45			41	190	23
					465	1817				115		64
TOTALS			3838	7941	11779		TOTALS			10404	8979	19383
SPLIT %			32.6%	67.4%	37.8%		SPLIT %			53.7%	46.3%	62.2%

DAILY TOTALS					NB	SB	EB				WB	Total
					0	0	14,242				16,920	31,162
AM Peak Hour			11:30	07:15	08:00		PM Peak Hour			16:30	13:00	15:30
AM Pk Volume			789	1533	2156		PM Pk Volume			1364	1162	2383
Pk Hr Factor			0.953	0.951	0.947		Pk Hr Factor			0.942	0.959	0.938
7 - 9 Volume	0	0	1139	2957	4096		4 - 6 Volume	0	0	2625	1908	4533
7 - 9 Peak Hour			08:00	07:15	08:00		4 - 6 Peak Hour			16:30	16:00	16:15
7 - 9 Pk Volume	0	0	679	1533	2156		4 - 6 Pk Volume	0	0	1364	993	2301
Pk Hr Factor	0.000	0.000	0.845	0.951	0.947		Pk Hr Factor	0.000	0.000	0.942	0.930	0.973

Prepared by NDS/ATD

Project #: CA16_4124_023

City: San Diego

Location: Clairemont Dr Bet. Morena Blvd & Denver St

Date: 5/10/2016



VOLUME

Santa Fe St Bet. Balboa Ave & Damon Ave

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_025

DAILY TOTALS					NB	SB	EBWB					Total	
					1,154	1,277						0	0
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	0	4			4		12:00	15	18			33	
00:15	1	3			4		12:15	22	20			42	
00:30	0	4			4		12:30	20	29			49	
00:45	1	2	4	15	5	17	12:45	28	85	15	82	43	167
01:00	1	3			4		13:00	21	20			41	
01:15	1	1			2		13:15	20	28			48	
01:30	1	2			3		13:30	30	23			53	
01:45	0	3	0	6	0	9	13:45	28	99	29	100	57	199
02:00	1	2			3		14:00	22	27			49	
02:15	0	1			1		14:15	23	21			44	
02:30	0	0			0		14:30	24	39			63	
02:45	2	3	8	11	10	14	14:45	21	90	25	112	46	202
03:00	0	12			12		15:00	18	46			64	
03:15	3	6			9		15:15	34	41			75	
03:30	1	7			8		15:30	19	43			62	
03:45	0	4	1	26	1	30	15:45	21	92	31	161	52	253
04:00	0	0			0		16:00	16	37			53	
04:15	2	1			3		16:15	18	24			42	
04:30	3	1			4		16:30	22	26			48	
04:45	5	10	7	9	12	19	16:45	28	84	29	116	57	200
05:00	0	0			0		17:00	20	42			62	
05:15	3	7			10		17:15	27	46			73	
05:30	6	6			12		17:30	21	32			53	
05:45	6	15	9	22	15	37	17:45	25	93	13	133	38	226
06:00	12	3			15		18:00	19	21			40	
06:15	13	6			19		18:15	29	24			53	
06:30	12	31			43		18:30	20	17			37	
06:45	16	53	8	48	24	101	18:45	1	69	4	66	5	135
07:00	18	13			31		19:00	4	5			9	
07:15	14	10			24		19:15	6	5			11	
07:30	26	9			35		19:30	0	3			3	
07:45	24	82	12	44	36	126	19:45	3	13	1	14	4	27
08:00	35	8			43		20:00	4	8			12	
08:15	17	11			28		20:15	1	1			2	
08:30	33	18			51		20:30	0	3			3	
08:45	28	113	21	58	49	171	20:45	0	5	0	12	0	17
09:00	30	26			56		21:00	2	3			5	
09:15	17	19			36		21:15	2	2			4	
09:30	11	9			20		21:30	1	1			2	
09:45	9	67	16	70	25	137	21:45	1	6	0	6	1	12
10:00	20	13			33		22:00	0	0			0	
10:15	27	23			50		22:15	0	0			0	
10:30	15	13			28		22:30	0	0			0	
10:45	17	79	19	68	36	147	22:45	0	0			0	
11:00	22	21			43		23:00	4	2			6	
11:15	15	30			45		23:15	0	1			1	
11:30	23	24			47		23:30	0	0			0	
11:45	22	82	15	90	37	172	23:45	1	5	5	8	6	13
TOTALS	513		467		980		TOTALS	641		810		1451	
SPLIT %	52.3%		47.7%		40.3%		SPLIT %	44.2%		55.8%		59.7%	

DAILY TOTALS					NB	SB					EB	WB	Total	
					1,154	1,277					0	0	2,431	
AM Peak Hour	08:00	10:45			08:30		PM Peak Hour	13:30	15:00			15:00		
AM Pk Volume	113	94			192		PM Pk Volume	103	161			253		
Pk Hr Factor	0.807	0.783			0.857		Pk Hr Factor	0.858	0.875			0.843		
7 - 9 Volume	195	102	0	0	297		4 - 6 Volume	177	249	0	0	426		
7 - 9 Peak Hour	08:00	08:00			08:00		4 - 6 Peak Hour	16:30	16:45			16:45		
7 - 9 Pk Volume	113	58	0	0	171		4 - 6 Pk Volume	97	149	0	0	245		
Pk Hr Factor	0.807	0.690	0.000	0.000	0.838		Pk Hr Factor	0.866	0.810	0.000	0.000	0.839		

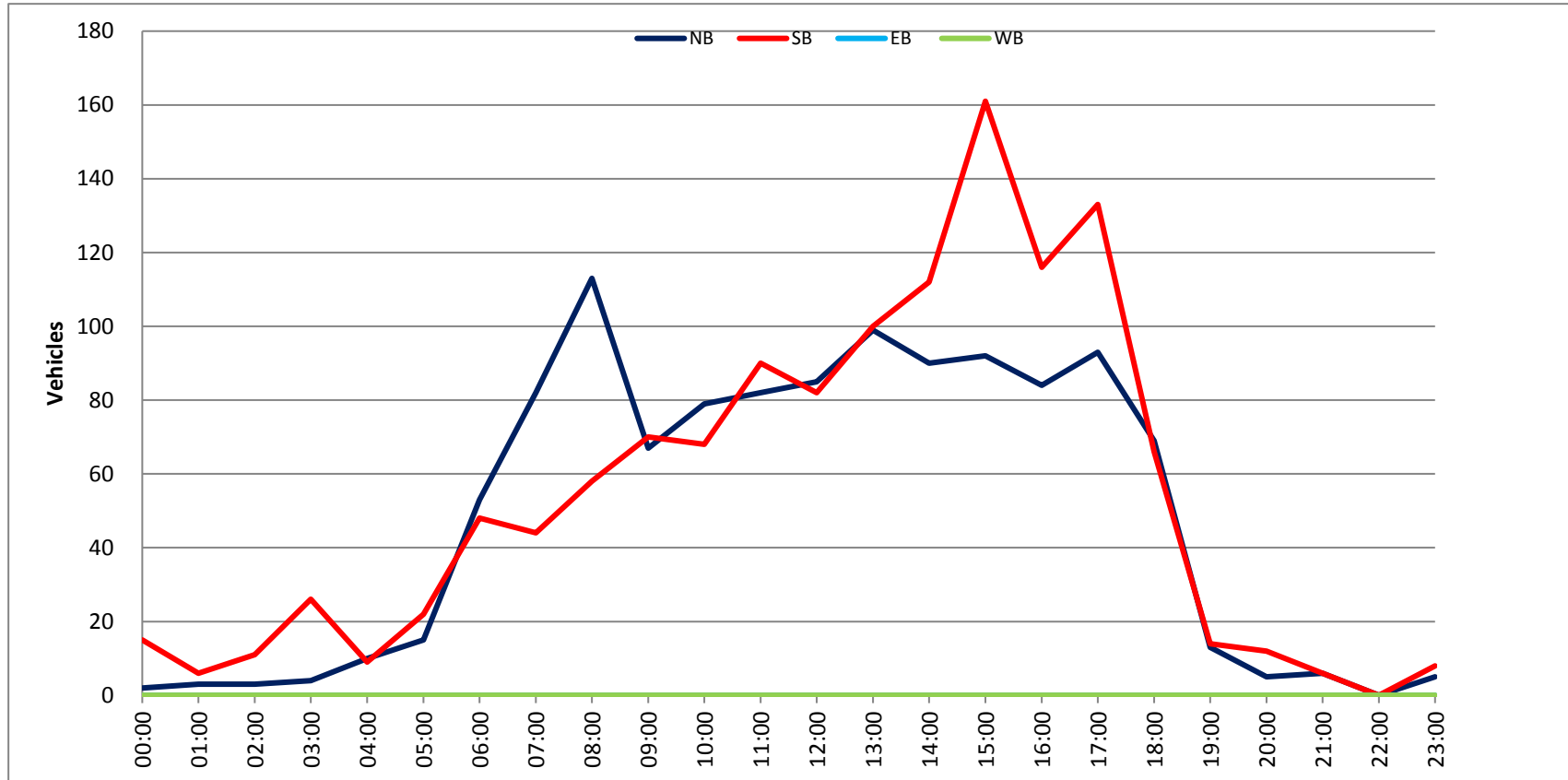
Prepared by NDS/ATD

Project #: CA16_4124_025

City: San Diego

Location: Santa Fe St Bet. Balboa Ave & Damon Ave

Date: 5/10/2016



VOLUME

Balboa Ave W/O Clairemont Dr

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_026

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						17,480	17,423	34,903
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			47	21	68		12:00			249	245	494		
00:15			33	18	51		12:15			284	277	561		
00:30			17	11	28		12:30			241	269	510		
00:45			14	111	19	69	12:45			260	1034	281	1072	
01:00			14		10	24	13:00			237		276	513	
01:15			13		5	18	13:15			277		262	539	
01:30			10		10	20	13:30			268		312	580	
01:45			12	49	7	32	13:45			262	1044	295	1145	
02:00			14		5	19	14:00			245		245	490	
02:15			17		6	23	14:15			292		270	562	
02:30			11		4	15	14:30			350		253	603	
02:45			7	49	8	23	14:45			312	1199	298	1066	
03:00			10		6	16	15:00			299		298	597	
03:15			2		7	9	15:15			367		321	688	
03:30			7		8	15	15:30			328		288	616	
03:45			10	29	8	29	15:45			348	1342	294	1201	
04:00			10		8	18	16:00			335		310	645	
04:15			11		16	27	16:15			358		339	697	
04:30			9		21	30	16:30			362		387	749	
04:45			23	53	26	71	16:45			330	1385	319	1355	
05:00			29		41	70	17:00			321		305	626	
05:15			35		55	90	17:15			351		350	701	
05:30			39		84	123	17:30			336		323	659	
05:45			64	167	77	257	17:45			347	1355	327	1305	
06:00			72		89	161	18:00			258		322	580	
06:15			91		141	232	18:15			254		300	554	
06:30			141		192	333	18:30			266		330	596	
06:45			151	455	215	637	18:45			281	1059	281	1233	
07:00			205		258	463	19:00			240		248	488	
07:15			263		337	600	19:15			249		208	457	
07:30			289		322	611	19:30			246		208	454	
07:45			310	1067	338	1255	19:45			235	970	169	833	
08:00			295		288	583	20:00			225		214	439	
08:15			325		285	610	20:15			197		183	380	
08:30			275		322	597	20:30			177		141	318	
08:45			306	1201	338	1233	20:45			144	743	172	710	
09:00			251		260	511	21:00			130		164	294	
09:15			221		231	452	21:15			143		123	266	
09:30			224		280	504	21:30			157		134	291	
09:45			227	923	256	1027	21:45			120	550	111	532	
10:00			253		247	500	22:00			95		115	210	
10:15			309		238	547	22:15			108		61	169	
10:30			256		231	487	22:30			97		56	153	
10:45			297	1115	229	945	22:45			56	356	49	281	
11:00			265		230	495	23:00			66		42	108	
11:15			257		262	519	23:15			41		30	71	
11:30			275		219	494	23:30			37		40	77	
11:45			243	1040	268	979	23:45			40	184	21	133	
TOTALS	6259				6557	12816	TOTALS	11221				10866	22087	
SPLIT %	48.8%				51.2%	36.7%	SPLIT %	50.8%				49.2%	63.3%	

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	17,480					17,423	34,903	

AM Peak Hour			07:30	07:15	07:30		PM Peak Hour			15:45	16:30	16:00		
AM Pk Volume			1219	1285	2452		PM Pk Volume			1403	1361	2740		
Pk Hr Factor			0.938	0.950	0.946		Pk Hr Factor			0.969	0.879	0.915		
7 - 9 Volume	0	0	2268	2488	4756		4 - 6 Volume	0	0	2740	2660	5400		
7 - 9 Peak Hour			07:30	07:15	07:30		4 - 6 Peak Hour			16:00	16:30	16:00		
7 - 9 Pk Volume	0	0	1219	1285	2452		4 - 6 Pk Volume	0	0	1385	1361	2740		
Pk Hr Factor	0.000	0.000	0.938	0.950	0.946		Pk Hr Factor	0.000	0.000	0.956	0.879	0.915		

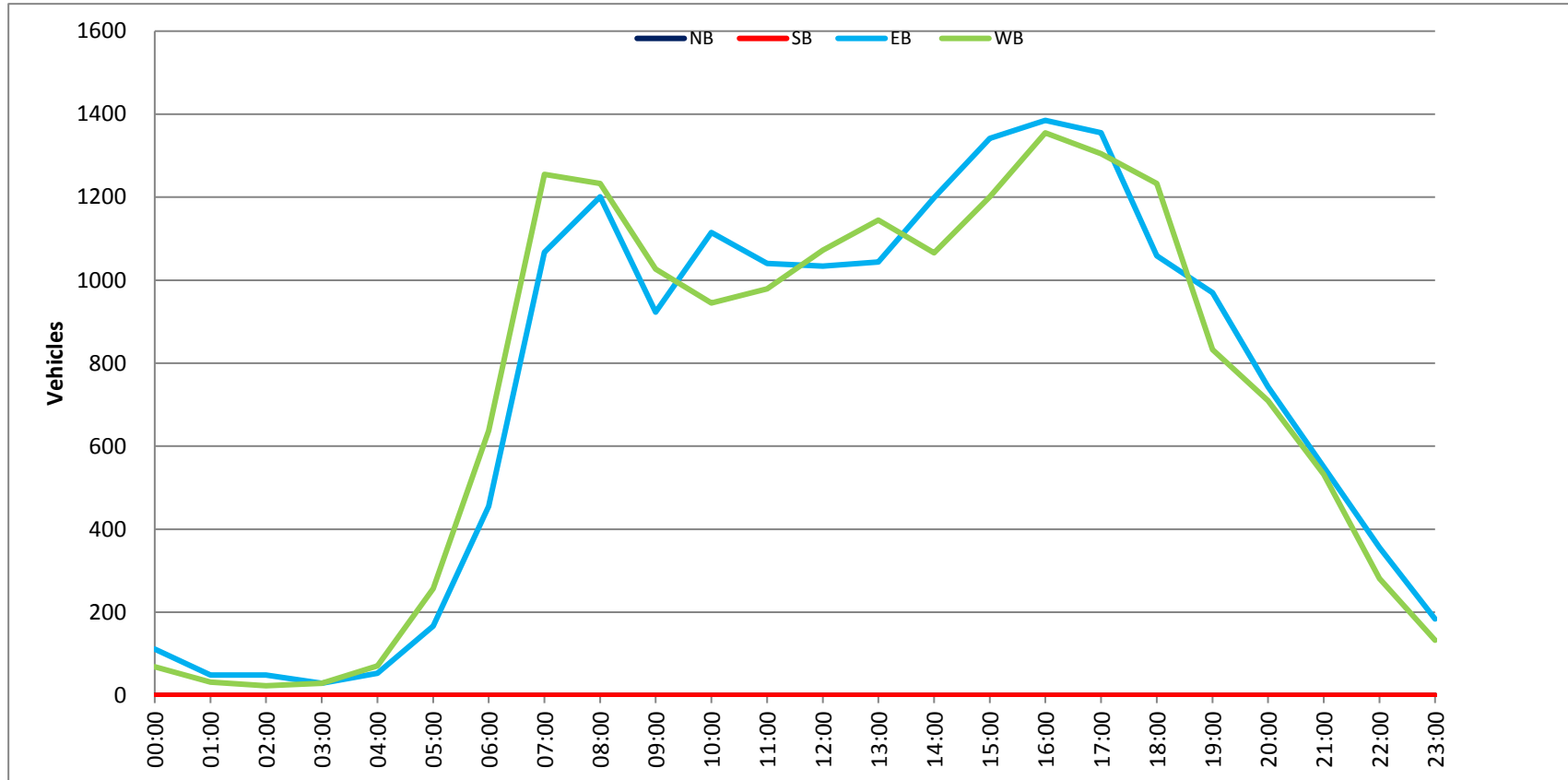
Prepared by NDS/ATD

Project #: CA16_4124_026

City: San Diego

Location: Balboa Ave W/O Clairemont Dr

Date: 5/10/2016



VOLUME

Balboa Ave E/O Clairemont Dr

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_027

DAILY TOTALS					NB	SB	EBWB					Total	
					0	0						37,383	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			33	27	60		12:00			266	260	526	
00:15			27	20	47		12:15			275	313	588	
00:30			20	9	29		12:30			274	309	583	
00:45			15	95	17	73	12:45			293	1108	329	1211
					32	168						622	2319
01:00			16	12	28		13:00			269	286	555	
01:15			10	7	17		13:15			269	312	581	
01:30			8	12	20		13:30			280	288	568	
01:45			9	43	8	39	13:45			279	1097	310	1196
					17	82						589	2293
02:00			14	6	20		14:00			273	299	572	
02:15			11	8	19		14:15			333	303	636	
02:30			9	6	15		14:30			338	331	669	
02:45			7	41	11	31	14:45			304	1248	321	1254
					18	72						625	2502
03:00			7	4	11		15:00			337	334	671	
03:15			3	4	7		15:15			362	329	691	
03:30			6	6	12		15:30			359	337	696	
03:45			14	30	8	22	15:45			438	1496	328	1328
					22	52						766	2824
04:00			10	7	17		16:00			407	337	744	
04:15			11	15	26		16:15			398	364	762	
04:30			18	16	34		16:30			407	435	842	
04:45			28	67	28	66	16:45			413	1625	374	1510
					56	133						787	3135
05:00			34	35	69		17:00			372	363	735	
05:15			46	39	85		17:15			402	382	784	
05:30			48	56	104		17:30			391	366	757	
05:45			67	195	47	177	17:45			393	1558	337	1448
					114	372						730	3006
06:00			76	82	158		18:00			329	344	673	
06:15			103	129	232		18:15			264	332	596	
06:30			156	152	308		18:30			281	369	650	
06:45			199	534	203	566	18:45			250	1124	272	1317
					402	1100						522	2441
07:00			244	306	550		19:00			247	228	475	
07:15			326	305	631		19:15			245	271	516	
07:30			363	305	668		19:30			242	206	448	
07:45			366	1299	341	1257	19:45			227	961	205	910
					707	2556						432	1871
08:00			337	316	653		20:00			208	220	428	
08:15			350	310	660		20:15			194	179	373	
08:30			345	335	680		20:30			142	175	317	
08:45			368	1400	338	1299	20:45			153	697	185	759
					706	2699						338	1456
09:00			319	275	594		21:00			140	150	290	
09:15			252	262	514		21:15			119	132	251	
09:30			255	288	543		21:30			121	150	271	
09:45			245	1071	240	1065	21:45			112	492	117	549
					485	2136						229	1041
10:00			250	266	516		22:00			100	100	200	
10:15			304	233	537		22:15			94	74	168	
10:30			277	243	520		22:30			83	74	157	
10:45			323	1154	247	989	22:45			46	323	40	288
					570	2143						86	611
11:00			261	239	500		23:00			48	45	93	
11:15			264	283	547		23:15			34	31	65	
11:30			270	265	535		23:30			32	37	69	
11:45			245	1040	259	1046	23:45			29	143	29	142
					504	2086						58	285
TOTALS	6969				6630	13599	TOTALS	11872				11912	23784
SPLIT %	51.2%				48.8%	36.4%	SPLIT %	49.9%				50.1%	63.6%

DAILY TOTALS					NB	SB	EB				WB	Total
					0	0	18,841				18,542	37,383

AM Peak Hour			07:30	07:45	07:45	PM Peak Hour			15:45	16:30	16:30
AM Pk Volume			1416	1302	2700	PM Pk Volume			1650	1554	3148
Pk Hr Factor			0.967	0.955	0.955	Pk Hr Factor			0.942	0.893	0.935
7 - 9 Volume	0	0	2699	2556	5255	4 - 6 Volume	0	0	3183	2958	6141
7 - 9 Peak Hour			07:30	07:45	07:45	4 - 6 Peak Hour			16:00	16:30	16:30
7 - 9 Pk Volume	0	0	1416	1302	2700	4 - 6 Pk Volume	0	0	1625	1554	3148
Pk Hr Factor	0.000	0.000	0.967	0.955	0.955	Pk Hr Factor	0.000	0.000	0.984	0.893	0.935

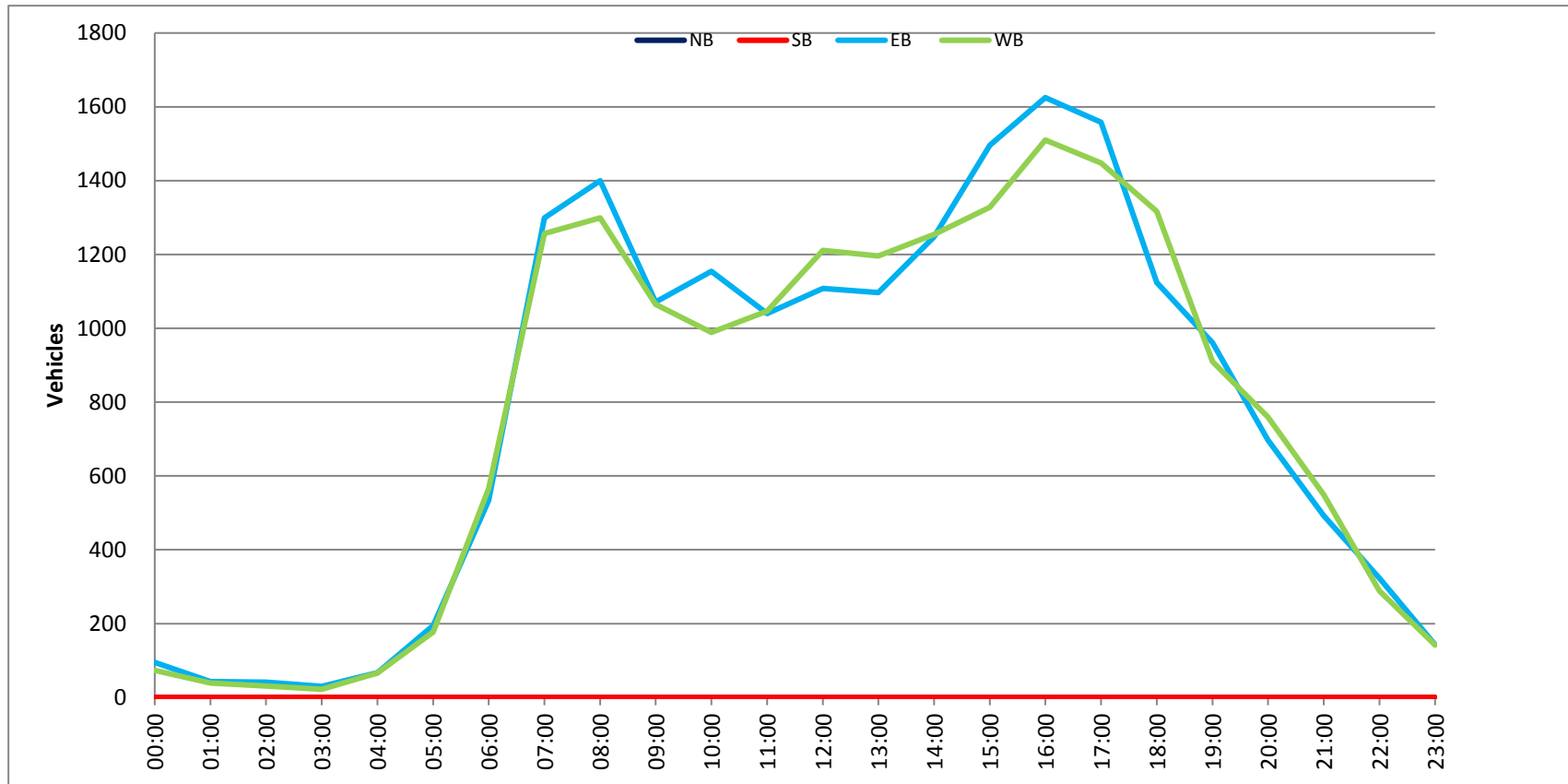
Prepared by NDS/ATD

Project #: CA16_4124_027

City: San Diego

Location: Balboa Ave E/O Clairemont Dr

Date: 5/10/2016



VOLUME

Clairemont Dr Bet. Balboa Ave & Chippewa Ct

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_028

DAILY TOTALS	NB	SB	EB		WB	Total
	10,004	11,255	0	0		21,259

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	19		12						31		12:00	136		158						294	
00:15	12		6						18		12:15	154		157						311	
00:30	8		14						22		12:30	155		157						312	
00:45	7	46	7	39					14	85	12:45	152	597	152	624					304	1221
01:00	5		5						10		13:00	146		184						330	
01:15	8		3						11		13:15	173		185						358	
01:30	9		7						16		13:30	144		172						316	
01:45	6	28	4	19					10	47	13:45	161	624	161	702					322	1326
02:00	10		5						15		14:00	141		165						306	
02:15	7		2						9		14:15	184		170						354	
02:30	11		2						13		14:30	248		170						418	
02:45	3	31	1	10					4	41	14:45	190	763	207	712					397	1475
03:00	5		6						11		15:00	194		221						415	
03:15	1		5						6		15:15	191		262						453	
03:30	7		5						12		15:30	179		272						451	
03:45	2	15	5	21					7	36	15:45	252	816	234	989					486	1805
04:00	4		3						7		16:00	245		244						489	
04:15	10		7						17		16:15	211		272						483	
04:30	2		9						11		16:30	190		273						463	
04:45	11	27	6	25					17	52	16:45	194	840	302	1091					496	1931
05:00	7		22						29		17:00	224		258						482	
05:15	14		27						41		17:15	176		268						444	
05:30	22		46						68		17:30	197		296						493	
05:45	26	69	51	146					77	215	17:45	174	771	266	1088					440	1859
06:00	38		38						76		18:00	164		239						403	
06:15	39		58						97		18:15	151		218						369	
06:30	50		87						137		18:30	178		196						374	
06:45	67	194	114	297					181	491	18:45	151	644	191	844					342	1488
07:00	115		161						276		19:00	163		144						307	
07:15	142		193						335		19:15	137		147						284	
07:30	151		197						348		19:30	144		120						264	
07:45	161	569	159	710					320	1279	19:45	130	574	114	525					244	1099
08:00	173		167						340		20:00	123		109						232	
08:15	172		197						369		20:15	116		96						212	
08:30	178		231						409		20:30	98		89						187	
08:45	206	729	214	809					420	1538	20:45	81	418	78	372					159	790
09:00	153		158						311		21:00	69		74						143	
09:15	138		126						264		21:15	98		67						165	
09:30	127		160						287		21:30	103		57						160	
09:45	113	531	142	586					255	1117	21:45	60	330	64	262					124	592
10:00	134		123						257		22:00	57		53						110	
10:15	146		145						291		22:15	59		37						96	
10:30	138		165						303		22:30	44		29						73	
10:45	127	545	138	571					265	1116	22:45	28	188	28	147					56	335
11:00	114		127						241		23:00	29		12						41	
11:15	163		155						318		23:15	26		18						44	
11:30	136		152						288		23:30	19		19						38	
11:45	149	562	174	608					323	1170	23:45	19	93	9	58					28	151
TOTALS	3346		3841						7187		TOTALS	6658		7414						14072	
SPLIT %	46.6%		53.4%						33.8%		SPLIT %	47.3%		52.7%						66.2%	

DAILY TOTALS	NB	SB	EB		WB	Total
	10,004	11,255	0	0		21,259

AM Peak Hour	08:00	08:00			08:00	PM Peak Hour	15:45	16:45			16:00
AM Pk Volume	729	809			1538	PM Pk Volume	898	1124			1931
Pk Hr Factor	0.885	0.876			0.915	Pk Hr Factor	0.891	0.930			0.973
7 - 9 Volume	1298	1519	0	0	2817	4 - 6 Volume	1611	2179	0	0	3790
7 - 9 Peak Hour	08:00	08:00			08:00	4 - 6 Peak Hour	16:00	16:45			16:00
7 - 9 Pk Volume	729	809	0	0	1538	4 - 6 Pk Volume	840	1124	0	0	1931
Pk Hr Factor	0.885	0.876	0.000	0.000	0.915	Pk Hr Factor	0.857	0.930	0.000	0.000	0.973

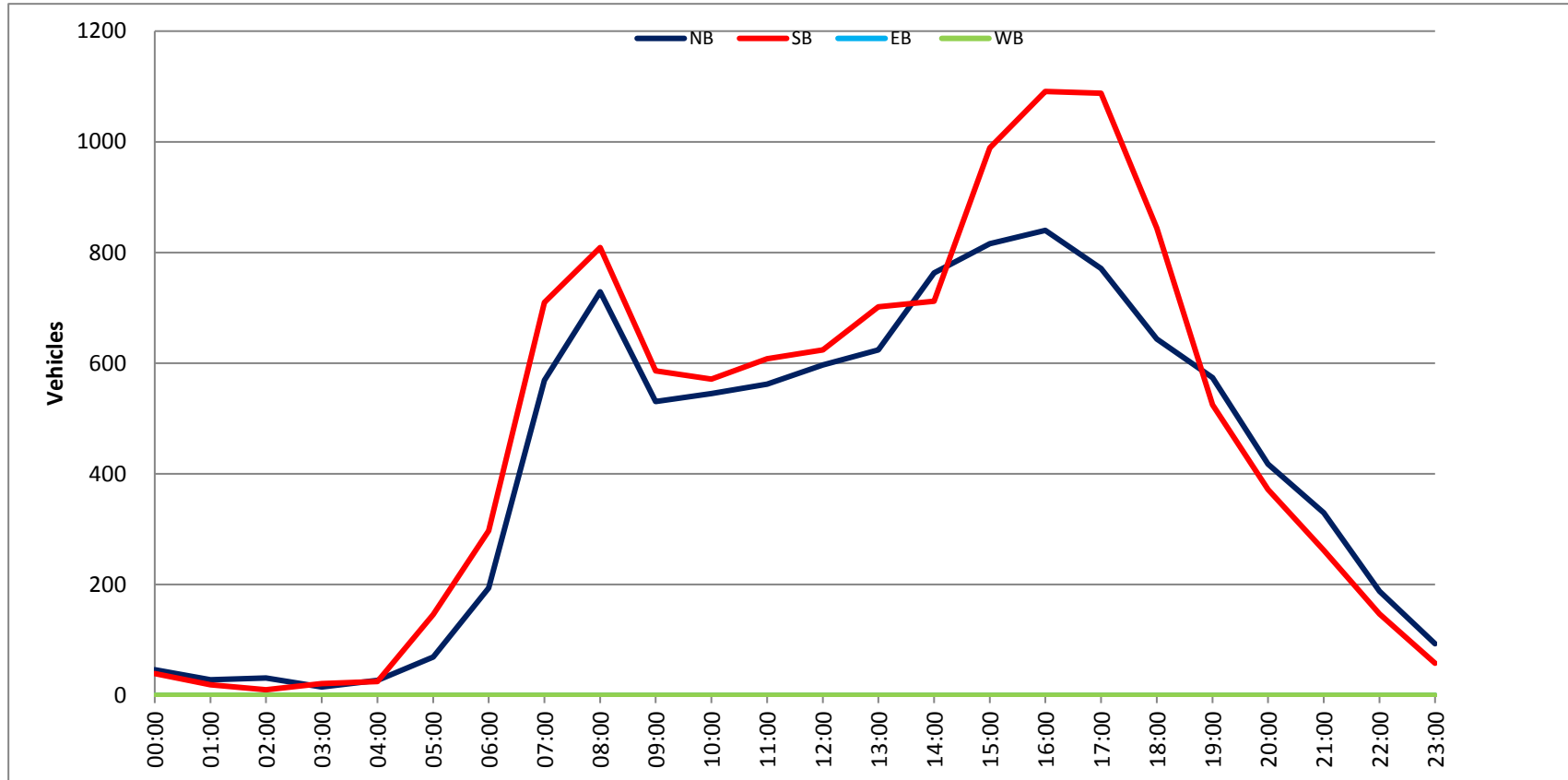
Prepared by NDS/ATD

Project #: CA16_4124_028

City: San Diego

Location: Clairemont Dr Bet. Balboa Ave & Chippewa

Date: 5/10/2016



VOLUME

N Mission Bay Drive & Near De Anza Rd

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_029

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						1,181	1,275	2,456
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			0	1	1		12:00			18	30	48		
00:15			1	2	3		12:15			25	24	49		
00:30			8	9	17		12:30			15	21	36		
00:45			1	10	1	13	12:45			15	73	16	91	
01:00			1	1	2		13:00			24	31	55		
01:15			0	1	1		13:15			28	23	51		
01:30			0	0	0		13:30			14	33	47		
01:45			1	2	0	2	13:45			35	101	30	117	
02:00			0	0	0		14:00			18	26	44		
02:15			0	0	0		14:15			24	21	45		
02:30			0	0	0		14:30			30	24	54		
02:45			1	1	1	1	14:45			17	89	24	95	
03:00			2	0	2		15:00			22	19	41		
03:15			2	1	3		15:15			19	35	54		
03:30			0	1	1		15:30			25	20	45		
03:45			0	4	0	2	15:45			26	92	31	105	
04:00			0	1	1		16:00			30	27	57		
04:15			0	2	2		16:15			18	26	44		
04:30			0	2	2		16:30			23	24	47		
04:45			1	1	7	12	16:45			24	95	22	99	
05:00			2	0	2		17:00			24	29	53		
05:15			3	2	5		17:15			19	25	44		
05:30			0	2	2		17:30			20	24	44		
05:45			5	10	3	7	17:45			19	82	41	119	
06:00			5	5	10		18:00			25	39	64		
06:15			2	5	7		18:15			24	26	50		
06:30			9	5	14		18:30			15	22	37		
06:45			3	19	7	22	18:45			14	78	20	107	
07:00			6	7	13		19:00			18	18	36		
07:15			7	5	12		19:15			23	17	40		
07:30			11	13	24		19:30			28	11	39		
07:45			13	37	16	41	19:45			17	86	18	64	
08:00			8	13	21		20:00			39	14	53		
08:15			7	11	18		20:15			21	11	32		
08:30			12	14	26		20:30			23	7	30		
08:45			5	32	11	49	20:45			19	102	13	45	
09:00			8	13	21		21:00			14	11	25		
09:15			13	13	26		21:15			12	9	21		
09:30			14	13	27		21:30			6	3	9		
09:45			13	48	12	51	21:45			9	41	15	38	
10:00			15	14	29		22:00			7	9	16		
10:15			17	16	33		22:15			1	8	9		
10:30			21	19	40		22:30			9	4	13		
10:45			19	72	17	66	22:45			7	24	7	28	
11:00			20	21	41		23:00			2	6	8		
11:15			27	21	48		23:15			3	4	7		
11:30			15	21	36		23:30			0	2	2		
11:45			10	72	23	86	23:45			5	10	3	15	
TOTALS	308				352	660	TOTALS	873				923	1796	
SPLIT %	46.7%				53.3%	26.9%	SPLIT %	48.6%				51.4%	73.1%	

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	1,181					1,275	2,456	
AM Peak Hour			10:30	11:30	11:30		PM Peak Hour			13:45	17:30	13:00		
AM Pk Volume			87	98	166		PM Pk Volume			107	130	218		
Pk Hr Factor			0.806	0.817	0.847		Pk Hr Factor			0.764	0.793	0.838		
7 - 9 Volume	0	0	69	90	159		4 - 6 Volume	0	0	177	218	395		
7 - 9 Peak Hour			07:45	07:45	07:45		4 - 6 Peak Hour			16:00	17:00	17:00		
7 - 9 Pk Volume	0	0	40	54	94		4 - 6 Pk Volume	0	0	95	119	201		
Pk Hr Factor	0.000	0.000	0.769	0.844	0.810		Pk Hr Factor	0.000	0.000	0.792	0.726	0.838		

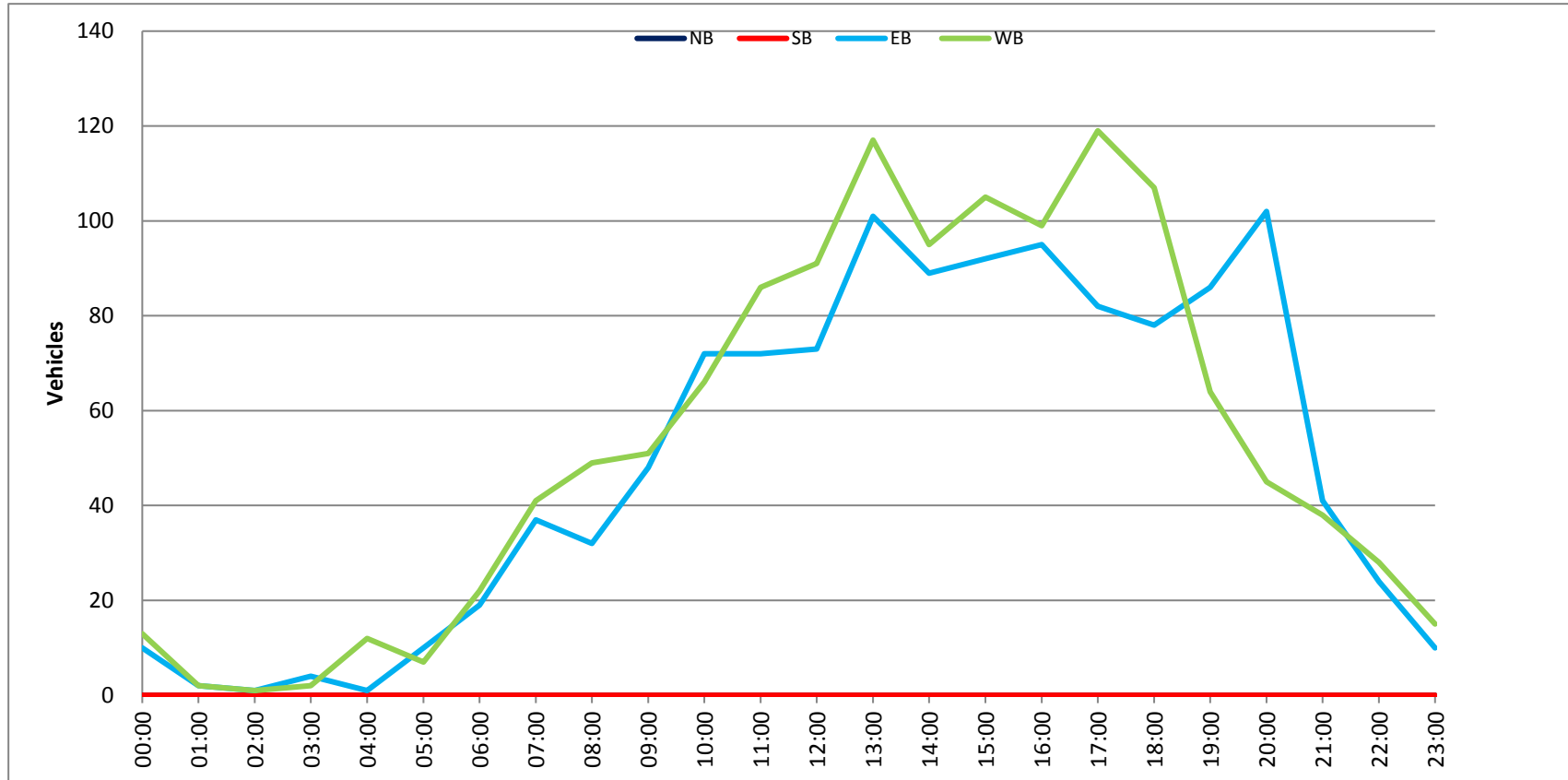
Prepared by NDS/ATD

Project #: CA16_4124_029

City: San Diego

Location: N Mission Bay Drive & Near De Anza Rd

Date: 5/10/2016



VOLUME

Morena Blvd Bet. Balboa Ave & Ticonderoga St

Day: Tuesday
Date: 5/10/2016

City: San Diego
Project #: CA16_4124_030

DAILY TOTALS				NB	SB	EB				WB	Total
				7,932	7,891	0				0	15,823

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	8	6			14	12:00	113	121			234
00:15	12	12			24	12:15	133	111			244
00:30	8	11			19	12:30	116	114			230
00:45	6	34	3	32	9 66	12:45	111	473	117	463	228 936
01:00	5	8			13	13:00	119	116			235
01:15	10	9			19	13:15	127	96			223
01:30	2	3			5	13:30	125	120			245
01:45	6	23	8	28	14 51	13:45	127	498	99	431	226 929
02:00	1	2			3	14:00	130	109			239
02:15	3	3			6	14:15	130	139			269
02:30	2	1			3	14:30	127	156			283
02:45	3	9	6	12	9 21	14:45	112	499	117	521	229 1020
03:00	3	2			5	15:00	147	146			293
03:15	6	2			8	15:15	117	157			274
03:30	4	2			6	15:30	133	190			323
03:45	9	22	4	10	13 32	15:45	151	548	219	712	370 1260
04:00	3	4			7	16:00	143	209			352
04:15	2	8			10	16:15	135	254			389
04:30	15	9			24	16:30	153	284			437
04:45	7	27	6	27	13 54	16:45	131	562	259	1006	390 1568
05:00	10	11			21	17:00	143	294			437
05:15	19	9			28	17:15	121	298			419
05:30	13	10			23	17:30	118	265			383
05:45	25	67	12	42	37 109	17:45	126	508	265	1122	391 1630
06:00	27	32			59	18:00	127	211			338
06:15	51	31			82	18:15	89	195			284
06:30	64	41			105	18:30	90	174			264
06:45	127	269	49	153	176 422	18:45	88	394	140	720	228 1114
07:00	151	53			204	19:00	81	107			188
07:15	188	66			254	19:15	64	89			153
07:30	248	83			331	19:30	72	69			141
07:45	260	847	97	299	357 1146	19:45	54	271	62	327	116 598
08:00	304	78			382	20:00	59	56			115
08:15	240	89			329	20:15	72	60			132
08:30	224	92			316	20:30	61	43			104
08:45	208	976	127	386	335 1362	20:45	57	249	41	200	98 449
09:00	168	95			263	21:00	43	40			83
09:15	115	85			200	21:15	49	31			80
09:30	107	93			200	21:30	48	19			67
09:45	123	513	82	355	205 868	21:45	29	169	34	124	63 293
10:00	113	93			206	22:00	36	19			55
10:15	98	91			189	22:15	31	26			57
10:30	93	107			200	22:30	16	17			33
10:45	87	391	90	381	177 772	22:45	18	101	13	75	31 176
11:00	113	94			207	23:00	14	14			28
11:15	102	119			221	23:15	4	11			15
11:30	113	107			220	23:30	12	7			19
11:45	117	445	104	424	221 869	23:45	7	37	9	41	16 78
TOTALS	3623	2149			5772	TOTALS	4309	5742			10051
SPLIT %	62.8%	37.2%			36.5%	SPLIT %	42.9%	57.1%			63.5%

DAILY TOTALS				NB	SB	EB				WB	Total
				7,932	7,891	0				0	15,823

AM Peak Hour	07:30	11:15			07:30	PM Peak Hour	15:45	16:30			16:30
AM Pk Volume	1052	451			1399	PM Pk Volume	582	1135			1683
Pk Hr Factor	0.865	0.932			0.916	Pk Hr Factor	0.951	0.952			0.963
7 - 9 Volume	1823	685	0	0	2508	4 - 6 Volume	1070	2128	0	0	3198
7 - 9 Peak Hour	07:30	08:00			07:30	4 - 6 Peak Hour	16:00	16:30			16:30
7 - 9 Pk Volume	1052	386	0	0	1399	4 - 6 Pk Volume	562	1135	0	0	1683
Pk Hr Factor	0.865	0.760	0.000	0.000	0.916	Pk Hr Factor	0.918	0.952	0.000	0.000	0.963

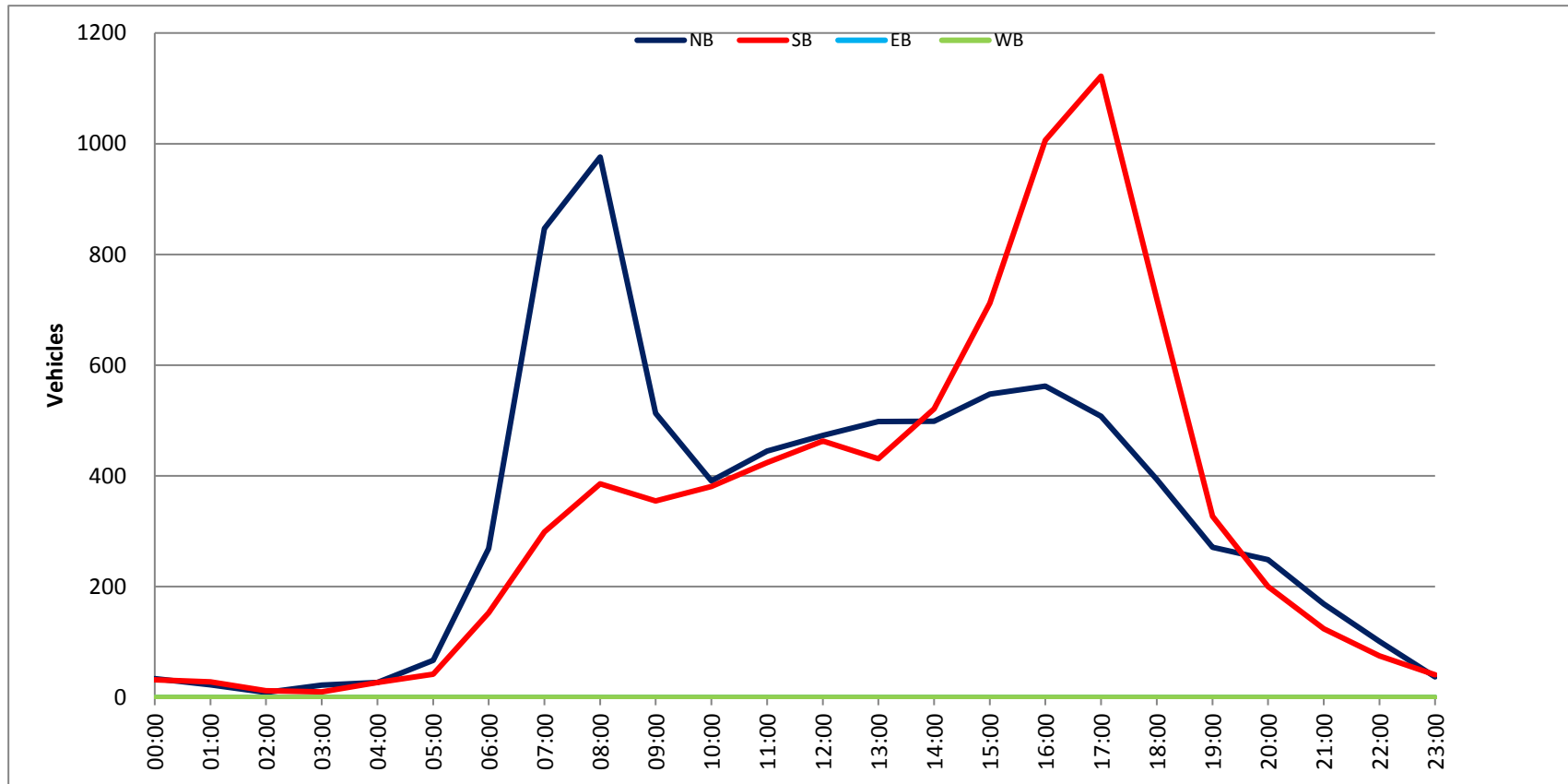
Prepared by NDS/ATD

Project #: CA16_4124_030

City: San Diego

Location: Morena Blvd Bet. Balboa Ave & Ticonderoga

Date: 5/10/2016



VOLUME

Clairemont Dr Bet. Balboa Ave & Ute Dr

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_031

DAILY TOTALS				NB	SB	EB				WB	Total	
				9,726	9,599					0	0	19,325

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	5	18			23	12:00	147	135			282
00:15	11	9			20	12:15	117	139			256
00:30	10	11			21	12:30	141	146			287
00:45	8	34	7	45	15 79	12:45	168	573	142	562	310 1135
01:00	5	6			11	13:00	169	139			308
01:15	7	5			12	13:15	141	183			324
01:30	5	8			13	13:30	156	135			291
01:45	5	22	4	23	9 45	13:45	163	629	152	609	315 1238
02:00	9	6			15	14:00	144	156			300
02:15	6	6			12	14:15	219	192			411
02:30	5	3			8	14:30	172	163			335
02:45	4	24	5	20	9 44	14:45	172	707	207	718	379 1425
03:00	1	2			3	15:00	190	172			362
03:15	2	2			4	15:15	159	216			375
03:30	5	2			7	15:30	180	248			428
03:45	8	16	4	10	12 26	15:45	283	812	194	830	477 1642
04:00	4	3			7	16:00	229	199			428
04:15	9	3			12	16:15	185	251			436
04:30	10	2			12	16:30	212	231			443
04:45	13	36	6	14	19 50	16:45	198	824	256	937	454 1761
05:00	16	15			31	17:00	180	238			418
05:15	31	9			40	17:15	200	245			445
05:30	31	16			47	17:30	186	246			432
05:45	38	116	18	58	56 174	17:45	167	733	234	963	401 1696
06:00	54	26			80	18:00	159	202			361
06:15	52	37			89	18:15	139	192			331
06:30	103	44			147	18:30	146	186			332
06:45	129	338	85	192	214 530	18:45	133	577	128	708	261 1285
07:00	165	147			312	19:00	105	112			217
07:15	197	118			315	19:15	105	143			248
07:30	176	115			291	19:30	115	125			240
07:45	184	722	99	479	283 1201	19:45	98	423	112	492	210 915
08:00	180	126			306	20:00	86	113			199
08:15	189	173			362	20:15	86	79			165
08:30	244	215			459	20:30	64	105			169
08:45	226	839	193	707	419 1546	20:45	61	297	84	381	145 678
09:00	180	107			287	21:00	65	78			143
09:15	155	109			264	21:15	63	64			127
09:30	135	113			248	21:30	46	63			109
09:45	126	596	104	433	230 1029	21:45	40	214	64	269	104 483
10:00	124	104			228	22:00	50	41			91
10:15	136	116			252	22:15	32	46			78
10:30	134	116			250	22:30	24	27			51
10:45	136	530	104	440	240 970	22:45	19	125	24	138	43 263
11:00	121	111			232	23:00	10	14			24
11:15	143	116			259	23:15	12	18			30
11:30	108	140			248	23:30	16	17			33
11:45	121	493	140	507	261 1000	23:45	8	46	15	64	23 110
TOTALS	3766	2928			6694	TOTALS	5960	6671			12631
SPLIT %	56.3%	43.7%			34.6%	SPLIT %	47.2%	52.8%			65.4%

DAILY TOTALS				NB	SB	EB				WB	Total	
				9,726	9,599					0	0	19,325

AM Peak Hour	08:00	08:00			08:00	PM Peak Hour	15:45	16:45			15:45
AM Pk Volume	839	707			1546	PM Pk Volume	909	985			1784
Pk Hr Factor	0.860	0.822			0.842	Pk Hr Factor	0.803	0.962			0.935
7 - 9 Volume	1561	1186	0	0	2747	4 - 6 Volume	1557	1900	0	0	3457
7 - 9 Peak Hour	08:00	08:00			08:00	4 - 6 Peak Hour	16:00	16:45			16:00
7 - 9 Pk Volume	839	707	0	0	1546	4 - 6 Pk Volume	824	985	0	0	1761
Pk Hr Factor	0.860	0.822	0.000	0.000	0.842	Pk Hr Factor	0.900	0.962	0.000	0.000	0.970

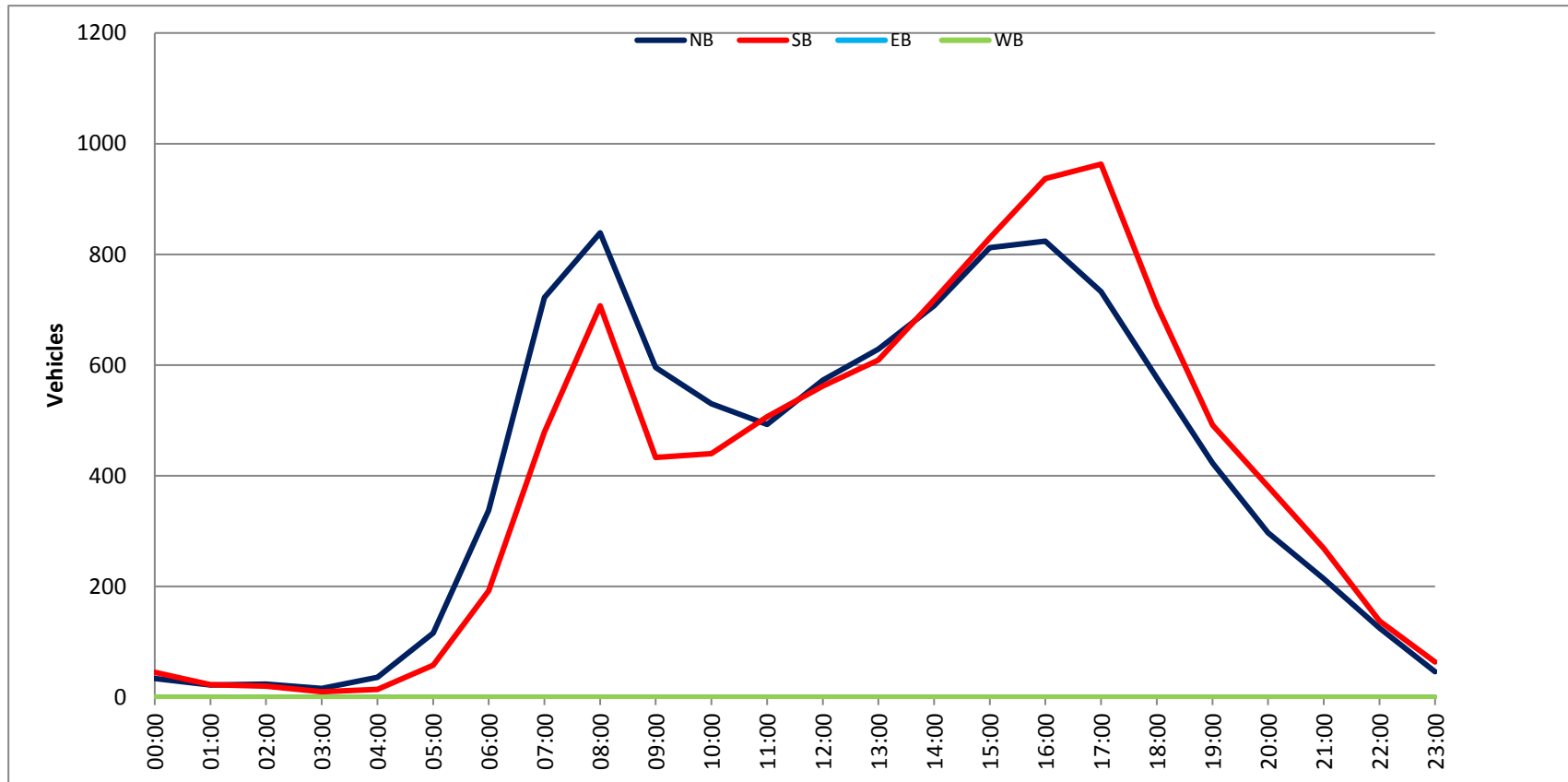
Prepared by NDS/ATD

Project #: CA16_4124_031

City: San Diego

Location: Clairemont Dr Bet. Balboa Ave & Ute Dr

Date: 5/10/2016



VOLUME

Soledad Mountain Rd Bet. Garnet St & Beryl St

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_032

DAILY TOTALS					NB	SB	EBWB					Total
					13,726	13,509						0
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00	23	9			32	12:00	193	203			396	
00:15	31	8			39	12:15	202	233			435	
00:30	23	15			38	12:30	211	208			419	
00:45	12	89	10	42	22 131	12:45	186	792	192	836	378 1628	
01:00	15	4			19	13:00	199	200			399	
01:15	11	4			15	13:15	218	186			404	
01:30	14	7			21	13:30	205	196			401	
01:45	6	46	9	24	15 70	13:45	256	878	164	746	420 1624	
02:00	9	6			15	14:00	237	213			450	
02:15	7	8			15	14:15	255	290			545	
02:30	4	2			6	14:30	270	231			501	
02:45	5	25	6	22	11 47	14:45	237	999	253	987	490 1986	
03:00	3	3			6	15:00	247	271			518	
03:15	8	11			19	15:15	257	265			522	
03:30	1	5			6	15:30	250	292			542	
03:45	4	16	6	25	10 41	15:45	244	998	270	1098	514 2096	
04:00	4	5			9	16:00	245	261			506	
04:15	2	10			12	16:15	268	240			508	
04:30	14	12			26	16:30	263	235			498	
04:45	18	38	27	54	45 92	16:45	241	1017	243	979	484 1996	
05:00	13	28			41	17:00	267	255			522	
05:15	18	35			53	17:15	267	239			506	
05:30	33	55			88	17:30	259	250			509	
05:45	55	119	66	184	121 303	17:45	253	1046	251	995	504 2041	
06:00	58	106			164	18:00	254	269			523	
06:15	109	91			200	18:15	188	161			349	
06:30	154	178			332	18:30	246	195			441	
06:45	188	509	193	568	381 1077	18:45	221	909	195	820	416 1729	
07:00	198	230			428	19:00	248	194			442	
07:15	173	244			417	19:15	184	136			320	
07:30	186	268			454	19:30	166	164			330	
07:45	212	769	239	981	451 1750	19:45	200	798	127	621	327 1419	
08:00	194	250			444	20:00	161	125			286	
08:15	233	250			483	20:15	147	109			256	
08:30	184	273			457	20:30	126	77			203	
08:45	202	813	230	1003	432 1816	20:45	123	557	86	397	209 954	
09:00	215	186			401	21:00	130	78			208	
09:15	180	224			404	21:15	133	90			223	
09:30	161	219			380	21:30	117	82			199	
09:45	187	743	222	851	409 1594	21:45	119	499	62	312	181 811	
10:00	161	190			351	22:00	108	51			159	
10:15	173	201			374	22:15	81	66			147	
10:30	198	208			406	22:30	85	53			138	
10:45	194	726	217	816	411 1542	22:45	67	341	46	216	113 557	
11:00	191	179			370	23:00	60	45			105	
11:15	198	207			405	23:15	47	22			69	
11:30	213	225			438	23:30	40	27			67	
11:45	198	800	208	819	406 1619	23:45	52	199	19	113	71 312	
TOTALS	4693	5389			10082	TOTALS	9033	8120			17153	
SPLIT %	46.5%	53.5%			37.0%	SPLIT %	52.7%	47.3%			63.0%	

DAILY TOTALS					NB	SB					EB	WB	Total	
					13,726	13,509					0	0	27,235	

AM Peak Hour	08:15	07:45			07:45		PM Peak Hour	17:00	15:00			15:00	
AM Pk Volume	834	1012			1835		PM Pk Volume	1046	1098			2096	
Pk Hr Factor	0.895	0.927			0.950		Pk Hr Factor	0.979	0.940			0.967	
7 - 9 Volume	1582	1984	0	0	3566		4 - 6 Volume	2063	1974	0	0	4037	
7 - 9 Peak Hour	07:30	07:45			07:45		4 - 6 Peak Hour	17:00	17:00			17:00	
7 - 9 Pk Volume	825	1012	0	0	1835		4 - 6 Pk Volume	1046	995	0	0	2041	
Pk Hr Factor	0.885	0.927	0.000	0.000	0.950		Pk Hr Factor	0.979	0.975	0.000	0.000	0.977	

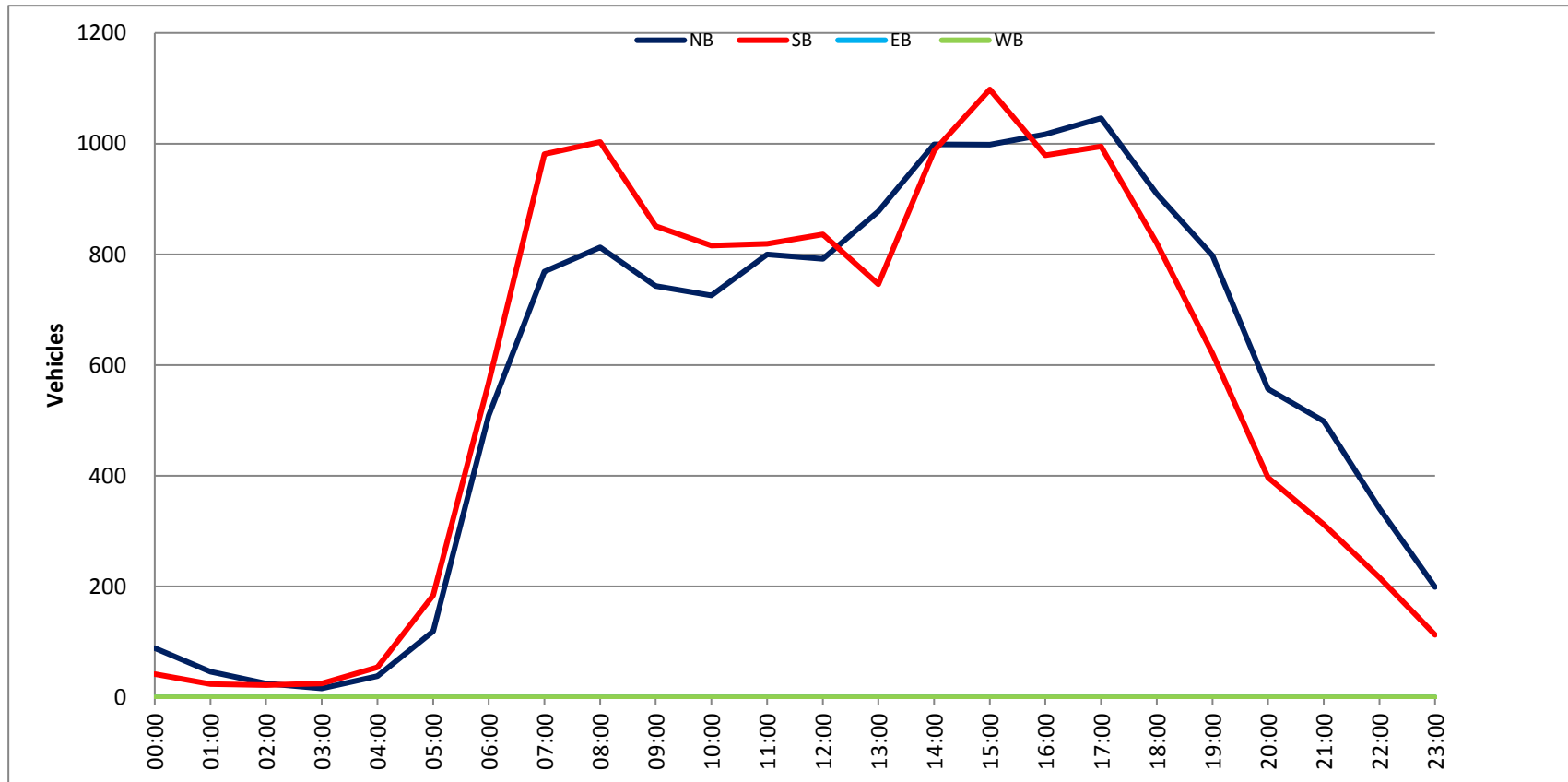
Prepared by NDS/ATD

Project #: CA16_4124_032

City: San Diego

Location: Soledad Mountain Rd Bet. Garnet St & Beryl

Date: 5/10/2016



VOLUME

Morena Blvd Bet. Avati Dr & Balboa Ave Ramps

Day: Tuesday

Date: 5/10/2016

City: San Diego

Project #: CA16_4124_033

DAILY TOTALS					NB	SB	EB				WB	Total
					11,182	8,954	0				0	20,136
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL
00:00	7	7			14		12:00	207	172			379
00:15	12	2			14		12:15	214	180			394
00:30	12	9			21		12:30	218	158			376
00:45	10	41	3	21	13	62	12:45	204	843	168	678	372 1521
01:00	7	2			9		13:00	234	169			403
01:15	9	3			12		13:15	222	166			388
01:30	9	4			13		13:30	236	150			386
01:45	9	34	4	13	13	47	13:45	235	927	163	648	398 1575
02:00	3	1			4		14:00	188	177			365
02:15	4	3			7		14:15	205	185			390
02:30	6	2			8		14:30	163	238			401
02:45	7	20	2	8	9	28	14:45	182	738	170	770	352 1508
03:00	8	6			14		15:00	195	177			372
03:15	3	2			5		15:15	177	182			359
03:30	5	0			5		15:30	199	183			382
03:45	26	42	3	11	29	53	15:45	210	781	175	717	385 1498
04:00	4	3			7		16:00	195	183			378
04:15	10	10			20		16:15	196	164			360
04:30	12	13			25		16:30	195	179			374
04:45	16	42	17	43	33	85	16:45	175	761	202	728	377 1489
05:00	21	14			35		17:00	199	236			435
05:15	42	13			55		17:15	189	204			393
05:30	56	27			83		17:30	186	187			373
05:45	92	211	27	81	119	292	17:45	157	731	174	801	331 1532
06:00	73	43			116		18:00	161	192			353
06:15	88	62			150		18:15	129	165			294
06:30	108	74			182		18:30	130	157			287
06:45	109	378	85	264	194	642	18:45	151	571	150	664	301 1235
07:00	107	94			201		19:00	174	149			323
07:15	135	98			233		19:15	145	125			270
07:30	186	107			293		19:30	146	120			266
07:45	228	656	118	417	346	1073	19:45	126	591	125	519	251 1110
08:00	238	94			332		20:00	108	104			212
08:15	191	113			304		20:15	100	130			230
08:30	196	105			301		20:30	72	104			176
08:45	191	816	116	428	307	1244	20:45	63	343	77	415	140 758
09:00	211	99			310		21:00	44	47			91
09:15	152	89			241		21:15	48	35			83
09:30	178	96			274		21:30	50	22			72
09:45	246	787	101	385	347	1172	21:45	52	194	31	135	83 329
10:00	185	95			280		22:00	37	31			68
10:15	179	130			309		22:15	36	24			60
10:30	170	136			306		22:30	32	17			49
10:45	202	736	137	498	339	1234	22:45	27	132	11	83	38 215
11:00	196	141			337		23:00	24	25			49
11:15	163	147			310		23:15	18	11			29
11:30	184	159			343		23:30	18	10			28
11:45	197	740	125	572	322	1312	23:45	7	67	9	55	16 122
TOTALS	4503	2741			7244		TOTALS	6679	6213			12892
SPLIT %	62.2%	37.8%			36.0%		SPLIT %	51.8%	48.2%			64.0%

DAILY TOTALS					NB	SB	EB				WB	Total
					11,182	8,954	0				0	20,136
AM Peak Hour	07:45	11:30			11:45		PM Peak Hour	13:00	16:45			16:30
AM Pk Volume	853	636			1471		PM Pk Volume	927	829			1579
Pk Hr Factor	0.896	0.883			0.933		Pk Hr Factor	0.982	0.878			0.907
7 - 9 Volume	1472	845	0	0	2317		4 - 6 Volume	1492	1529	0	0	3021
7 - 9 Peak Hour	07:45	07:30			07:45		4 - 6 Peak Hour	16:15	16:45			16:30
7 - 9 Pk Volume	853	432	0	0	1283		4 - 6 Pk Volume	765	829	0	0	1579
Pk Hr Factor	0.896	0.915	0.000	0.000	0.927		Pk Hr Factor	0.961	0.878	0.000	0.000	0.907

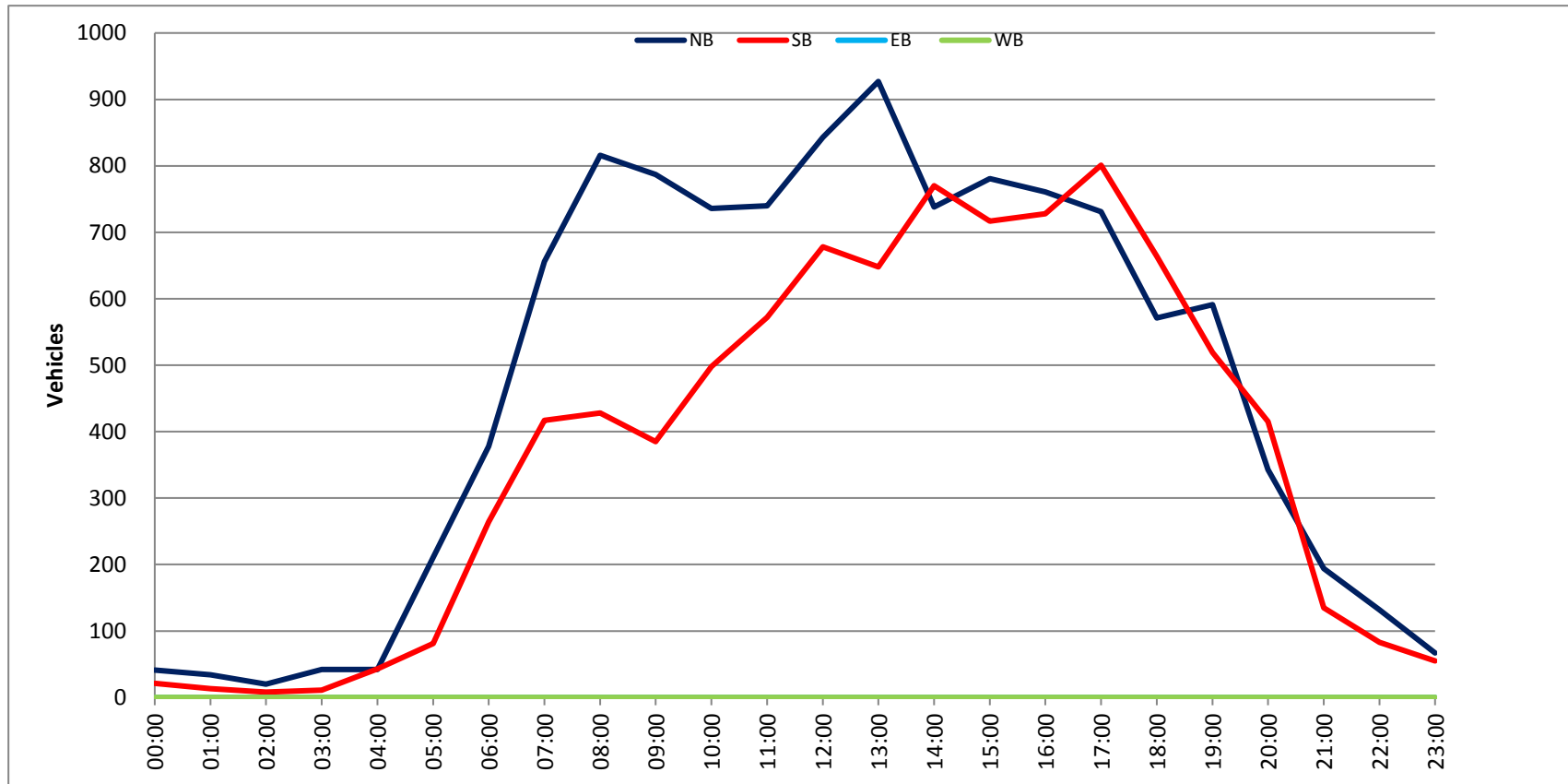
Prepared by NDS/ATD

Project #: CA16_4124_033

City: San Diego

Location: Morena Blvd Bet. Avati Dr & Balboa Ave

Date: 5/10/2016



VOLUME

Morena Blvd N/O Balboa Ave

Day: Thursday
Date: 6/9/2016

City: Pacific Beach
Project #: CA16_4185_001

DAILY TOTALS					NB	SB					EB	WB	Total
					11,271	12,663					0	0	23,934
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	5	5			10		12:00	204	256			460	
00:15	6	10			16		12:15	235	259			494	
00:30	6	7			13		12:30	202	250			452	
00:45	9	26	9	31	18	57	12:45	218	859	263	1028	481	1887
01:00	6	12			18		13:00	236	211			447	
01:15	8	11			19		13:15	217	220			437	
01:30	5	4			9		13:30	238	225			463	
01:45	5	24	8	35	13	59	13:45	203	894	248	904	451	1798
02:00	6	5			11		14:00	201	288			489	
02:15	6	5			11		14:15	202	221			423	
02:30	7	8			15		14:30	218	291			509	
02:45	5	24	11	29	16	53	14:45	206	827	227	1027	433	1854
03:00	5	1			6		15:00	177	255			432	
03:15	2	4			6		15:15	189	268			457	
03:30	3	3			6		15:30	187	273			460	
03:45	21	31	4	12	25	43	15:45	225	778	260	1056	485	1834
04:00	9	6			15		16:00	200	285			485	
04:15	10	5			15		16:15	215	253			468	
04:30	12	23			35		16:30	192	312			504	
04:45	19	50	15	49	34	99	16:45	198	805	313	1163	511	1968
05:00	19	19			38		17:00	203	406			609	
05:15	40	20			60		17:15	222	298			520	
05:30	66	26			92		17:30	199	354			553	
05:45	100	225	54	119	154	344	17:45	202	826	301	1359	503	2185
06:00	64	58			122		18:00	173	267			440	
06:15	100	75			175		18:15	169	228			397	
06:30	121	117			238		18:30	150	205			355	
06:45	126	411	104	354	230	765	18:45	128	620	219	919	347	1539
07:00	108	119			227		19:00	113	204			317	
07:15	176	120			296		19:15	142	144			286	
07:30	176	143			319		19:30	109	147			256	
07:45	250	710	167	549	417	1259	19:45	101	465	146	641	247	1106
08:00	198	148			346		20:00	82	120			202	
08:15	196	129			325		20:15	57	139			196	
08:30	207	143			350		20:30	51	108			159	
08:45	220	821	132	552	352	1373	20:45	52	242	114	481	166	723
09:00	176	123			299		21:00	51	90			141	
09:15	177	112			289		21:15	34	63			97	
09:30	193	118			311		21:30	25	23			48	
09:45	240	786	126	479	366	1265	21:45	25	135	37	213	62	348
10:00	177	141			318		22:00	24	37			61	
10:15	183	154			337		22:15	32	26			58	
10:30	182	191			373		22:30	20	15			35	
10:45	215	757	193	679	408	1436	22:45	24	100	13	91	37	191
11:00	192	190			382		23:00	10	30			40	
11:15	186	202			388		23:15	13	14			27	
11:30	215	226			441		23:30	8	15			23	
11:45	228	821	209	827	437	1648	23:45	3	34	7	66	10	100
TOTALS	4686	3715			8401		TOTALS	6585	8948			15533	
SPLIT %	55.8%	44.2%			35.1%		SPLIT %	42.4%	57.6%			64.9%	

DAILY TOTALS					NB	SB					EB	WB	Total
					11,271	12,663					0	0	23,934
AM Peak Hour	11:30	11:45			11:45		PM Peak Hour	12:45	16:45			16:45	
AM Pk Volume	882	974			1843		PM Pk Volume	909	1371			2193	
Pk Hr Factor	0.938	0.940			0.933		Pk Hr Factor	0.955	0.844			0.900	
7 - 9 Volume	1531	1101	0	0	2632		4 - 6 Volume	1631	2522	0	0	4153	
7 - 9 Peak Hour	07:45	07:30			07:45		4 - 6 Peak Hour	17:00	16:45			16:45	
7 - 9 Pk Volume	851	587	0	0	1438		4 - 6 Pk Volume	826	1371	0	0	2193	
Pk Hr Factor	0.851	0.879	0.000	0.000	0.862		Pk Hr Factor	0.930	0.844	0.000	0.000	0.900	

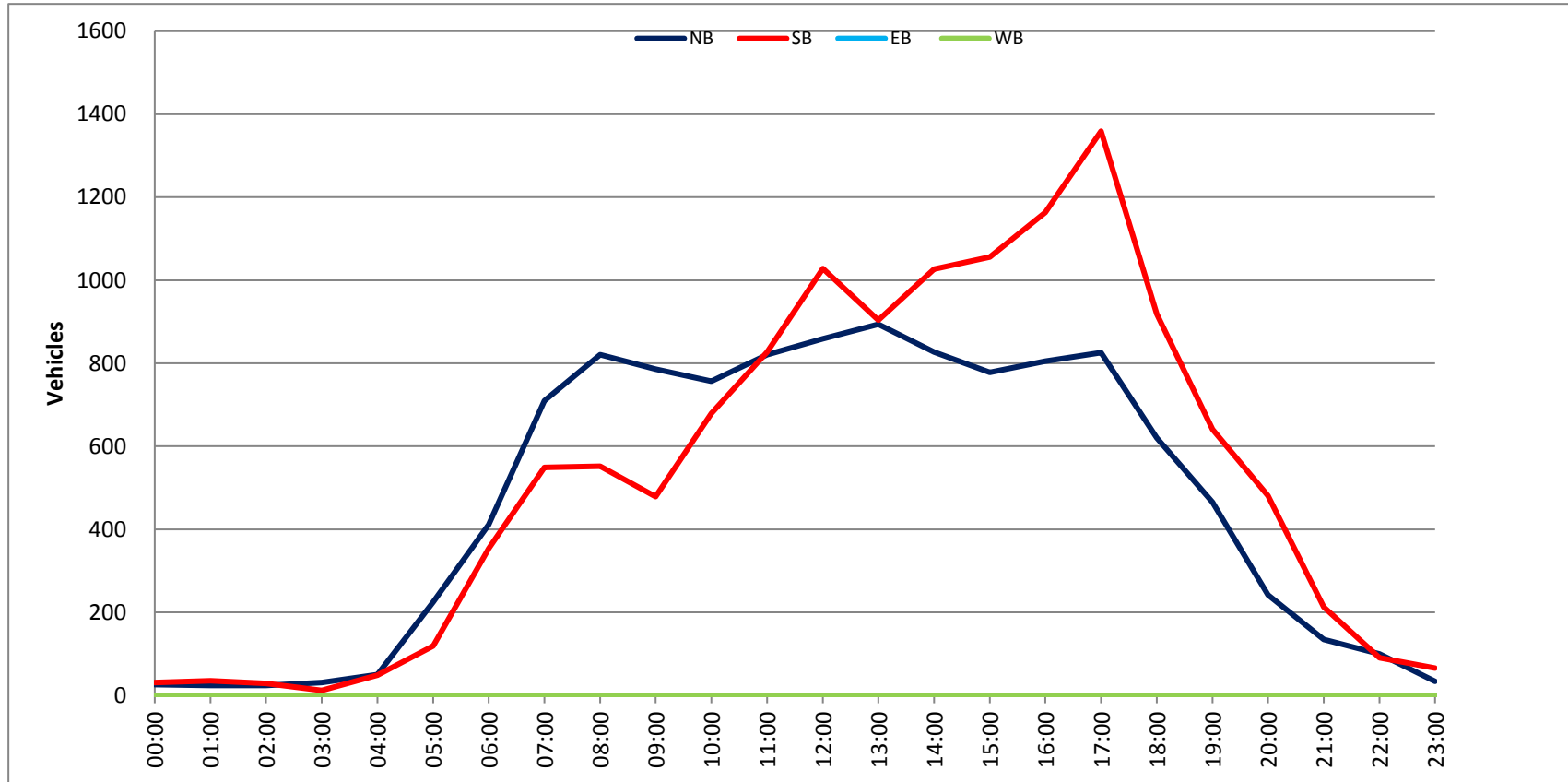
Prepared by NDS/ATD

Project #: CA16_4185_001

City: Pacific Beach

Location: Morena Blvd N/O Balboa Ave

Date: 6/9/2016



VOLUME

Morena Blvd S/O Balboa Ave

Day: Thursday
Date: 6/9/2016

City: Pacific Beach
Project #: CA16_4185_002

DAILY TOTALS					NB	SB	EB					WB	Total	
					8,194	8,051						0	0	16,245
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00	17	16			33		12:00	119	109			228		
00:15	20	5			25		12:15	142	102			244		
00:30	16	6			22		12:30	118	117			235		
00:45	10	63	7	34	17	97	12:45	115	494	131	459	246	953	
01:00	15	1			16		13:00	116	94			210		
01:15	11	8			19		13:15	111	87			198		
01:30	6	1			7		13:30	120	104			224		
01:45	4	36	8	18	12	54	13:45	130	477	123	408	253	885	
02:00	11	2			13		14:00	129	117			246		
02:15	6	1			7		14:15	149	127			276		
02:30	3	2			5		14:30	131	97			228		
02:45	5	25	2	7	7	32	14:45	111	520	134	475	245	995	
03:00	4	3			7		15:00	108	129			237		
03:15	2	2			4		15:15	124	159			283		
03:30	3	1			4		15:30	152	199			351		
03:45	3	12	2	8	5	20	15:45	145	529	191	678	336	1207	
04:00	3	1			4		16:00	125	253			378		
04:15	8	5			13		16:15	137	224			361		
04:30	8	8			16		16:30	121	237			358		
04:45	5	24	8	22	13	46	16:45	132	515	256	970	388	1485	
05:00	10	9			19		17:00	118	320			438		
05:15	21	7			28		17:15	152	293			445		
05:30	17	10			27		17:30	109	253			362		
05:45	24	72	17	43	41	115	17:45	143	522	265	1131	408	1653	
06:00	41	27			68		18:00	104	192			296		
06:15	44	30			74		18:15	113	175			288		
06:30	80	43			123		18:30	98	140			238		
06:45	129	294	57	157	186	451	18:45	93	408	130	637	223	1045	
07:00	138	43			181		19:00	102	123			225		
07:15	218	65			283		19:15	108	102			210		
07:30	210	93			303		19:30	100	104			204		
07:45	282	848	107	308	389	1156	19:45	79	389	115	444	194	833	
08:00	270	78			348		20:00	68	75			143		
08:15	226	98			324		20:15	65	80			145		
08:30	230	99			329		20:30	52	62			114		
08:45	243	969	122	397	365	1366	20:45	51	236	69	286	120	522	
09:00	190	82			272		21:00	66	71			137		
09:15	129	83			212		21:15	38	51			89		
09:30	108	75			183		21:30	36	33			69		
09:45	123	550	83	323	206	873	21:45	44	184	27	182	71	366	
10:00	94	87			181		22:00	39	47			86		
10:15	111	104			215		22:15	35	51			86		
10:30	105	92			197		22:30	27	38			65		
10:45	106	416	88	371	194	787	22:45	27	128	31	167	58	295	
11:00	92	76			168		23:00	19	38			57		
11:15	98	107			205		23:15	20	21			41		
11:30	119	134			253		23:30	8	13			21		
11:45	120	429	127	444	247	873	23:45	7	54	10	82	17	136	
TOTALS	3738	2132			5870		TOTALS	4456	5919			10375		
SPLIT %	63.7%	36.3%			36.1%		SPLIT %	42.9%	57.1%			63.9%		

DAILY TOTALS					NB	SB					EB	WB	Total	
					8,194	8,051					0	0	16,245	
AM Peak Hour	07:45	11:15			07:45		PM Peak Hour	15:30	17:00			17:00		
AM Pk Volume	1008	477			1390		PM Pk Volume	559	1131			1653		
Pk Hr Factor	0.894	0.890			0.893		Pk Hr Factor	0.919	0.884			0.929		
7 - 9 Volume	1817	705	0	0	2522		4 - 6 Volume	1037	2101	0	0	3138		
7 - 9 Peak Hour	07:45	08:00			07:45		4 - 6 Peak Hour	16:30	17:00			17:00		
7 - 9 Pk Volume	1008	397	0	0	1390		4 - 6 Pk Volume	523	1131	0	0	1653		
Pk Hr Factor	0.894	0.814	0.000	0.000	0.893		Pk Hr Factor	0.860	0.884	0.000	0.000	0.929		

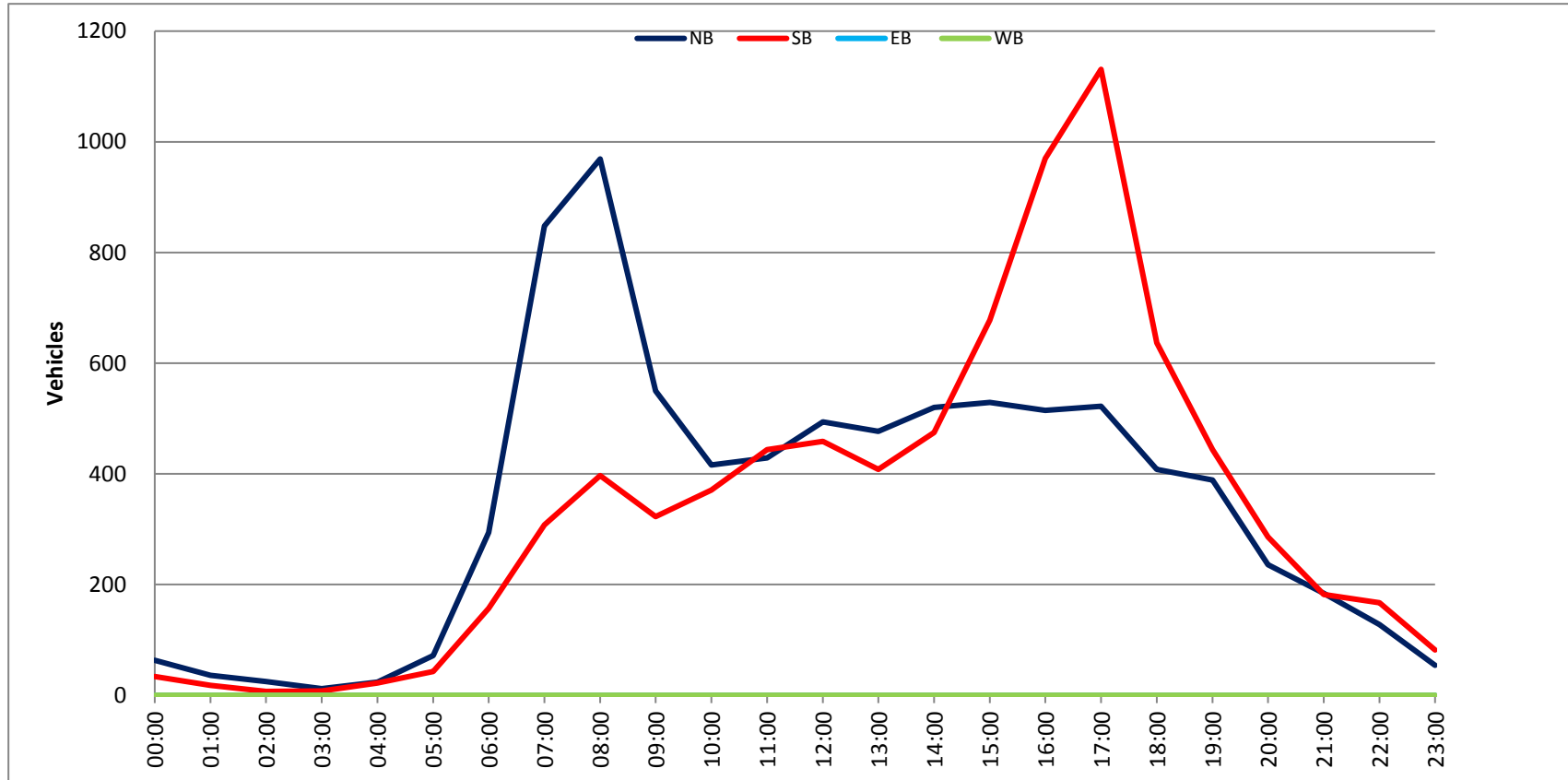
Prepared by NDS/ATD

Project #: CA16_4185_002

City: Pacific Beach

Location: Morena Blvd S/O Balboa Ave

Date: 6/9/2016



VOLUME

Balboa Ave W/O Moraga Ave

Day: Thursday
Date: 6/9/2016

City: Pacific Beach
Project #: CA16_4185_003

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						21,625	21,242	42,867
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			50	33	83		12:00			317	309	626		
00:15			61	29	90		12:15			330	344	674		
00:30			40	20	60		12:30			306	291	597		
00:45			37	188	22	104	12:45			337	1290	347	1291	
01:00			36	18	54		13:00			333	335	668		
01:15			21	17	38		13:15			283	326	609		
01:30			23	16	39		13:30			336	344	680		
01:45			22	102	13	64	13:45			350	1302	349	1354	
02:00			28	9	37		14:00			327	342	669		
02:15			30	14	44		14:15			334	311	645		
02:30			24	13	37		14:30			411	342	753		
02:45			11	93	11	47	14:45			376	1448	321	1316	
03:00			14	8	22		15:00			406	304	710		
03:15			12	3	15		15:15			367	350	717		
03:30			10	12	22		15:30			423	357	780		
03:45			7	43	15	38	15:45			411	1607	316	1327	
04:00			16	19	35		16:00			412	361	773		
04:15			17	17	34		16:15			421	393	814		
04:30			20	29	49		16:30			423	410	833		
04:45			26	79	32	97	16:45			440	1696	429	1593	
05:00			29	52	81		17:00			399	402	801		
05:15			52	72	124		17:15			421	413	834		
05:30			54	112	166		17:30			440	393	833		
05:45			60	195	121	357	17:45			414	1674	399	1607	
06:00			95	128	223		18:00			342	382	724		
06:15			103	148	251		18:15			350	381	731		
06:30			177	194	371		18:30			342	314	656		
06:45			172	547	256	726	18:45			353	1387	293	1370	
07:00			214	299	513		19:00			364	332	696		
07:15			275	344	619		19:15			345	296	641		
07:30			341	395	736		19:30			327	277	604		
07:45			334	1164	370	1408	19:45			263	1299	239	1144	
08:00			329	355	684		20:00			273	256	529		
08:15			295	342	637		20:15			251	247	498		
08:30			321	338	659		20:30			278	191	469		
08:45			337	1282	374	1409	20:45			254	1056	189	883	
09:00			283	346	629		21:00			254	203	457		
09:15			251	317	568		21:15			211	197	408		
09:30			229	315	544		21:30			179	158	337		
09:45			277	1040	307	1285	21:45			184	828	138	696	
10:00			281	260	541		22:00			179	167	346		
10:15			252	324	576		22:15			155	109	264		
10:30			276	273	549		22:30			152	98	250		
10:45			292	1101	283	1140	22:45			121	607	77	451	
11:00			289	285	574		23:00			119	79	198		
11:15			298	305	603		23:15			97	79	176		
11:30			296	317	613		23:30			111	71	182		
11:45			299	1182	349	1256	23:45			88	415	50	279	
TOTALS	7016				7931	14947	TOTALS	14609				13311	27920	
SPLIT %	46.9%				53.1%	34.9%	SPLIT %	52.3%				47.7%	65.1%	

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	21,625					21,242	42,867	
AM Peak Hour			07:30	07:15	07:30		PM Peak Hour			16:45	16:30	16:30		
AM Pk Volume			1299	1464	2761		PM Pk Volume			1700	1654	3337		
Pk Hr Factor			0.952	0.927	0.938		Pk Hr Factor			0.966	0.964	0.960		
7 - 9 Volume	0	0	2446	2817	5263		4 - 6 Volume	0	0	3370	3200	6570		
7 - 9 Peak Hour			07:30	07:15	07:30		4 - 6 Peak Hour			16:45	16:30	16:30		
7 - 9 Pk Volume	0	0	1299	1464	2761		4 - 6 Pk Volume	0	0	1700	1654	3337		
Pk Hr Factor	0.000	0.000	0.952	0.927	0.938		Pk Hr Factor	0.000	0.000	0.966	0.964	0.960		

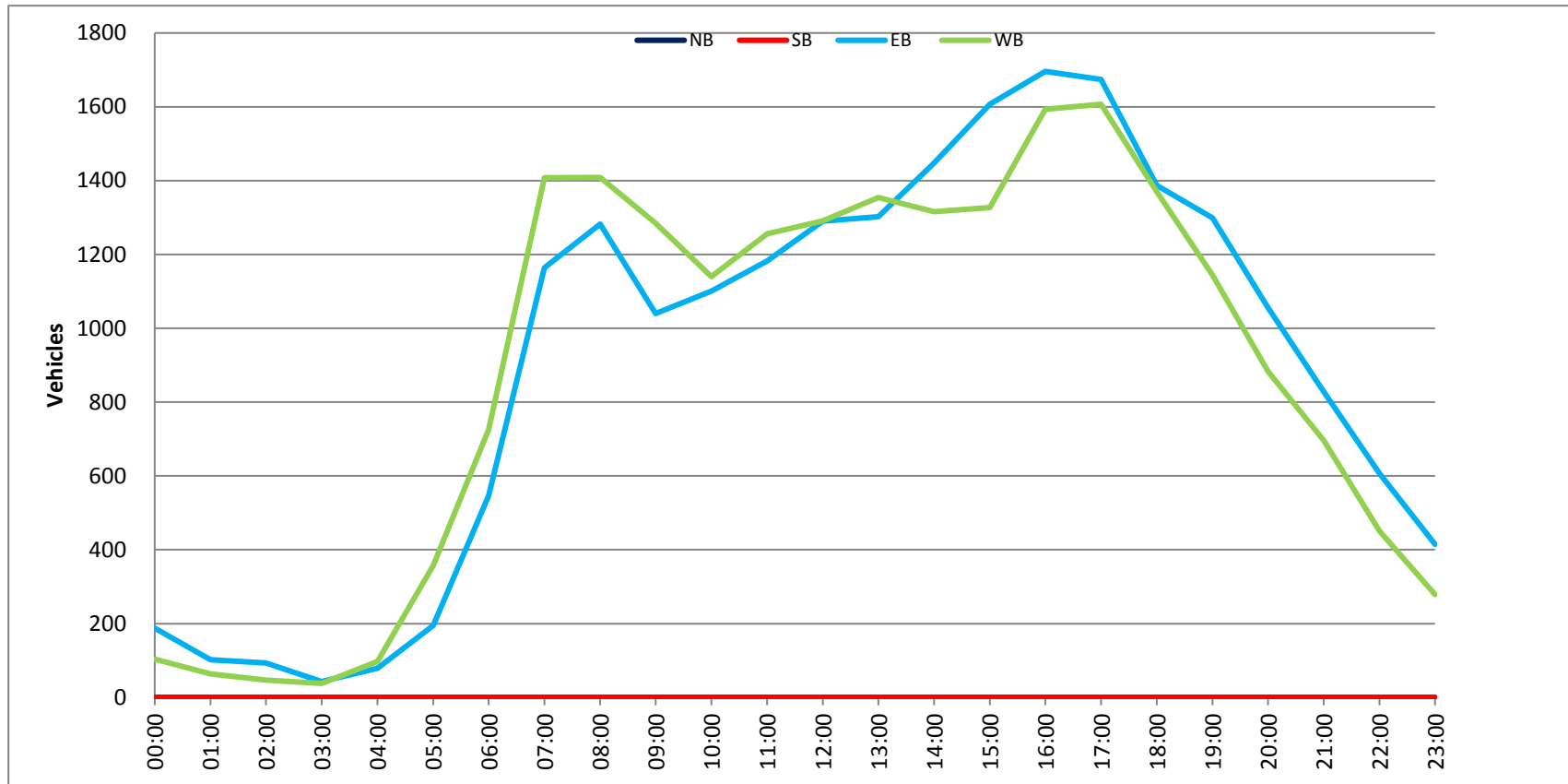
Prepared by NDS/ATD

Project #: CA16_4185_003

City: Pacific Beach

Location: Balboa Ave W/O Moraga Ave

Date: 6/9/2016



VOLUME

Garnet Ave W/O Mission Bay Dr

Day: Thursday
Date: 6/9/2016

City: Pacific Beach
Project #: CA16_4185_004

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	31,342					30,616	61,958
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			142	127	269		12:00			450	406	856	
00:15			100	122	222		12:15			509	472	981	
00:30			44	29	73		12:30			516	443	959	
00:45			48	334	49	327	12:45			461	1936	467	1788
					97	661						928	3724
01:00			61	43	104		13:00			514	476	990	
01:15			42	45	87		13:15			481	474	955	
01:30			39	22	61		13:30			519	451	970	
01:45			39	181	25	135	13:45			503	2017	460	1861
					64	316						963	3878
02:00			44	29	73		14:00			545	516	1061	
02:15			36	15	51		14:15			534	490	1024	
02:30			34	15	49		14:30			567	510	1077	
02:45			20	134	28	87	14:45			511	2157	484	2000
					48	221						995	4157
03:00			19	13	32		15:00			544	514	1058	
03:15			20	19	39		15:15			532	514	1046	
03:30			21	15	36		15:30			493	514	1007	
03:45			16	76	19	66	15:45			542	2111	523	2065
					35	142						1065	4176
04:00			26	22	48		16:00			490	528	1018	
04:15			43	23	66		16:15			435	566	1001	
04:30			42	34	76		16:30			460	565	1025	
04:45			47	158	51	130	16:45			420	1805	527	2186
					98	288						947	3991
05:00			67	40	107		17:00			451	552	1003	
05:15			115	51	166		17:15			440	577	1017	
05:30			183	76	259		17:30			438	550	988	
05:45			202	567	110	277	17:45			424	1753	556	2235
					312	844						980	3988
06:00			251	128	379		18:00			465	570	1035	
06:15			271	182	453		18:15			439	522	961	
06:30			410	306	716		18:30			472	558	1030	
06:45			394	1326	356	972	18:45			414	1790	543	2193
					750	2298						957	3983
07:00			468	383	851		19:00			399	504	903	
07:15			524	362	886		19:15			385	444	829	
07:30			545	359	904		19:30			340	437	777	
07:45			560	2097	352	1456	19:45			299	1423	428	1813
					912	3553						727	3236
08:00			481	376	857		20:00			269	374	643	
08:15			498	369	867		20:15			308	384	692	
08:30			526	403	929		20:30			331	352	683	
08:45			507	2012	402	1550	20:45			294	1202	319	1429
					909	3562						613	2631
09:00			490	413	903		21:00			313	319	632	
09:15			404	412	816		21:15			305	371	676	
09:30			461	393	854		21:30			274	316	590	
09:45			484	1839	420	1638	21:45			250	1142	297	1303
					904	3477						547	2445
10:00			479	379	858		22:00			269	319	588	
10:15			410	371	781		22:15			232	310	542	
10:30			433	428	861		22:30			216	231	447	
10:45			462	1784	437	1615	22:45			205	922	229	1089
					899	3399						434	2011
11:00			427	399	826		23:00			183	213	396	
11:15			481	402	883		23:15			187	189	376	
11:30			477	443	920		23:30			175	150	325	
11:45			502	1887	477	1721	23:45			144	689	128	680
					979	3608						272	1369
TOTALS			12395	9974	22369		TOTALS			18947	20642	39589	
SPLIT %			55.4%	44.6%	36.1%		SPLIT %			47.9%	52.1%	63.9%	

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	31,342					30,616	61,958
AM Peak Hour			07:15	11:30	11:45		PM Peak Hour			14:00	17:15	14:30	
AM Pk Volume			2110	1798	3775		PM Pk Volume			2157	2253	4176	
Pk Hr Factor			0.942	0.942	0.962		Pk Hr Factor			0.951	0.976	0.969	
7 - 9 Volume	0	0	4109	3006	7115		4 - 6 Volume	0	0	3558	4421	7979	
7 - 9 Peak Hour			07:15	08:00	07:45		4 - 6 Peak Hour			16:00	17:00	16:30	
7 - 9 Pk Volume	0	0	2110	1550	3565		4 - 6 Pk Volume	0	0	1805	2235	3992	
Pk Hr Factor	0.000	0.000	0.942	0.962	0.959		Pk Hr Factor	0.000	0.000	0.921	0.968	0.974	

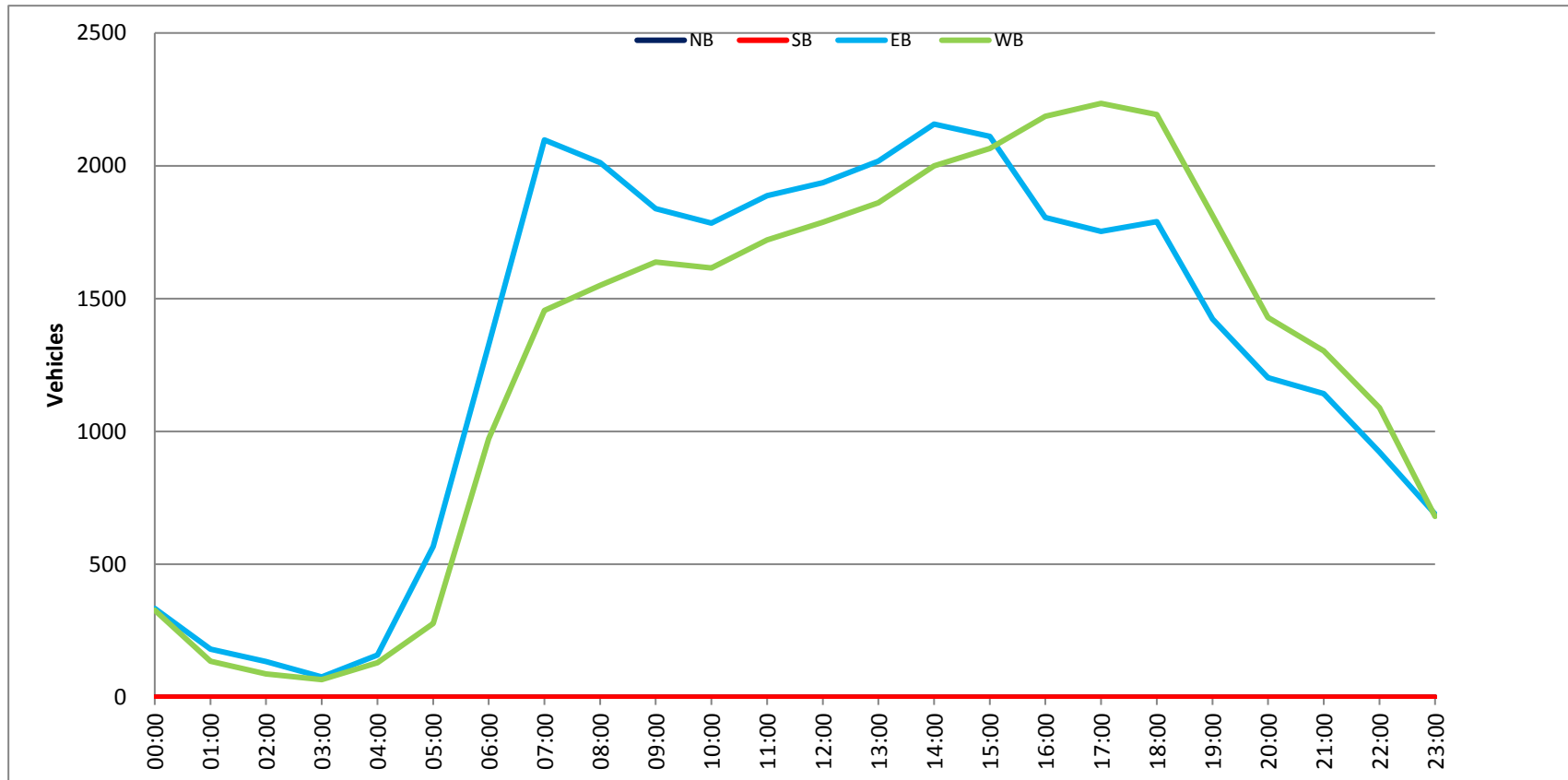
Prepared by NDS/ATD

Project #: CA16_4185_004

City: Pacific Beach

Location: Garnet Ave W/O Mission Bay Dr

Date: 6/9/2016



VOLUME

Grand Ave W/O Mission Bay Dr

Day: Thursday
Date: 6/9/2016

City: Pacific Beach
Project #: CA16_4185_005

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	19,930					17,064	36,994
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			92	68	160		12:00			245	272	517	
00:15			11	13	24		12:15			226	260	486	
00:30			33	44	77		12:30			262	283	545	
00:45			38	174	33	158	12:45			257	990	231	1046
					71	332						488	2036
01:00			37	25	62		13:00			282	245	527	
01:15			34	24	58		13:15			274	251	525	
01:30			24	15	39		13:30			256	261	517	
01:45			31	126	16	80	13:45			257	1069	280	1037
					47	206						537	2106
02:00			34	26	60		14:00			267	328	595	
02:15			24	20	44		14:15			388	251	639	
02:30			16	11	27		14:30			396	295	691	
02:45			13	87	18	75	14:45			293	1344	264	1138
					31	162						557	2482
03:00			14	11	25		15:00			298	249	547	
03:15			10	17	27		15:15			340	320	660	
03:30			9	8	17		15:30			323	287	610	
03:45			14	47	16	52	15:45			339	1300	316	1172
					30	99						655	2472
04:00			22	11	33		16:00			290	289	579	
04:15			16	11	27		16:15			280	319	599	
04:30			23	23	46		16:30			279	358	637	
04:45			48	109	27	72	16:45			266	1115	359	1325
					75	181						625	2440
05:00			37	27	64		17:00			328	382	710	
05:15			80	34	114		17:15			289	416	705	
05:30			114	42	156		17:30			303	391	694	
05:45			111	342	87	190	17:45			263	1183	409	1598
					198	532						672	2781
06:00			159	89	248		18:00			288	339	627	
06:15			201	110	311		18:15			276	313	589	
06:30			275	127	402		18:30			273	289	562	
06:45			307	942	138	464	18:45			286	1123	290	1231
					445	1406						576	2354
07:00			350	202	552		19:00			262	296	558	
07:15			431	200	631		19:15			288	220	508	
07:30			472	146	618		19:30			271	261	532	
07:45			481	1734	162	710	19:45			249	1070	252	1029
					643	2444						501	2099
08:00			414	141	555		20:00			229	214	443	
08:15			395	138	533		20:15			241	194	435	
08:30			417	150	567		20:30			204	185	389	
08:45			360	1586	175	604	20:45			201	875	216	809
					535	2190						417	1684
09:00			279	226	505		21:00			169	164	333	
09:15			282	187	469		21:15			194	188	382	
09:30			259	196	455		21:30			144	180	324	
09:45			266	1086	220	829	21:45			131	638	162	694
					486	1915						293	1332
10:00			259	182	441		22:00			142	161	303	
10:15			243	221	464		22:15			150	176	326	
10:30			263	221	484		22:30			132	150	282	
10:45			247	1012	232	856	22:45			118	542	123	610
					479	1868						241	1152
11:00			237	173	410		23:00			122	107	229	
11:15			255	243	498		23:15			114	104	218	
11:30			257	235	492		23:30			122	72	194	
11:45			248	997	266	917	23:45			81	439	85	368
					514	1914						166	807
TOTALS			8242	5007	13249		TOTALS			11688	12057	23745	
SPLIT %			62.2%	37.8%	35.8%		SPLIT %			49.2%	50.8%	64.2%	

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	19,930					17,064	36,994
AM Peak Hour			07:15	11:45	07:15		PM Peak Hour			14:15	17:00	17:00	
AM Pk Volume			1798	1081	2447		PM Pk Volume			1375	1598	2781	
Pk Hr Factor			0.935	0.955	0.951		Pk Hr Factor			0.868	0.960	0.979	
7 - 9 Volume	0	0	3320	1314	4634		4 - 6 Volume	0	0	2298	2923	5221	
7 - 9 Peak Hour			07:15	07:00	07:15		4 - 6 Peak Hour			16:45	17:00	17:00	
7 - 9 Pk Volume	0	0	1798	710	2447		4 - 6 Pk Volume	0	0	1186	1598	2781	
Pk Hr Factor	0.000	0.000	0.935	0.879	0.951		Pk Hr Factor	0.000	0.000	0.904	0.960	0.979	

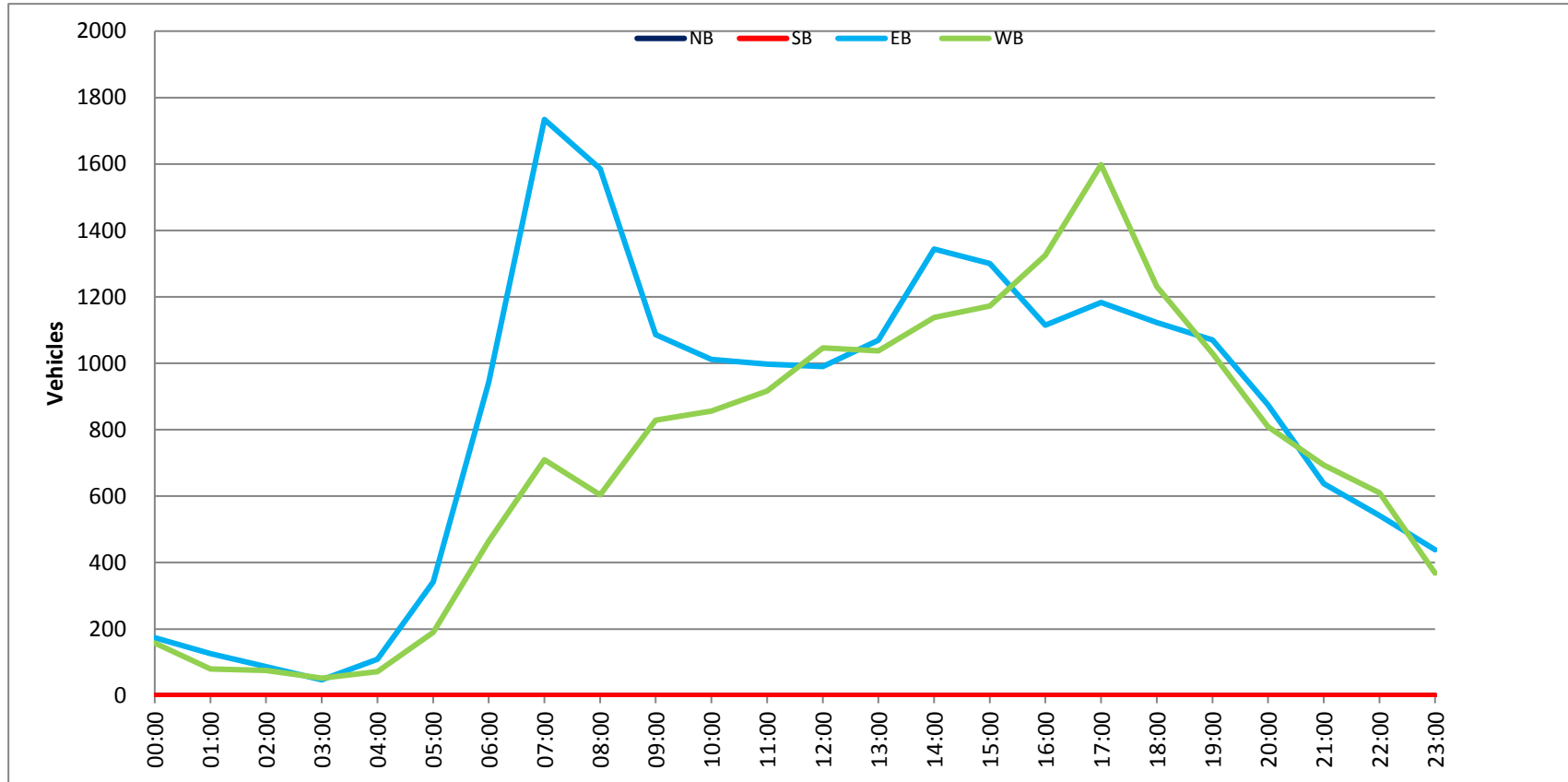
Prepared by NDS/ATD

Project #: CA16_4185_005

City: Pacific Beach

Location: Grand Ave W/O Mission Bay Dr

Date: 6/9/2016



VOLUME

Mission Bay Dr N/O Bunker Hill St

Day: Thursday
Date: 6/9/2016

City: Pacific Beach
Project #: CA16_4185_006

DAILY TOTALS					NB	SB	EB					WB	Total	
					16,198	14,092						0	0	30,290
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00	38	17			55		12:00	233	209			442		
00:15	34	35			69		12:15	226	252			478		
00:30	27	22			49		12:30	252	232			484		
00:45	20	119	21	95	41	214	12:45	256	967	235	928	491	1895	
01:00	18	20			38		13:00	267	217			484		
01:15	20	15			35		13:15	254	224			478		
01:30	19	24			43		13:30	261	237			498		
01:45	14	71	14	73	28	144	13:45	264	1046	237	915	501	1961	
02:00	8	14			22		14:00	253	276			529		
02:15	14	19			33		14:15	295	221			516		
02:30	10	12			22		14:30	288	256			544		
02:45	8	40	9	54	17	94	14:45	231	1067	256	1009	487	2076	
03:00	18	8			26		15:00	291	245			536		
03:15	7	7			14		15:15	249	259			508		
03:30	12	6			18		15:30	279	248			527		
03:45	15	52	6	27	21	79	15:45	282	1101	245	997	527	2098	
04:00	18	9			27		16:00	251	243			494		
04:15	24	20			44		16:15	263	228			491		
04:30	24	20			44		16:30	279	219			498		
04:45	46	112	15	64	61	176	16:45	282	1075	216	906	498	1981	
05:00	43	40			83		17:00	301	227			528		
05:15	52	43			95		17:15	274	228			502		
05:30	118	52			170		17:30	285	231			516		
05:45	126	339	56	191	182	530	17:45	274	1134	237	923	511	2057	
06:00	142	70			212		18:00	250	256			506		
06:15	196	87			283		18:15	250	246			496		
06:30	274	116			390		18:30	212	252			464		
06:45	261	873	124	397	385	1270	18:45	207	919	233	987	440	1906	
07:00	228	161			389		19:00	183	208			391		
07:15	250	209			459		19:15	191	193			384		
07:30	223	194			417		19:30	217	192			409		
07:45	237	938	228	792	465	1730	19:45	174	765	159	752	333	1517	
08:00	261	200			461		20:00	171	169			340		
08:15	235	206			441		20:15	171	167			338		
08:30	249	206			455		20:30	146	168			314		
08:45	276	1021	242	854	518	1875	20:45	160	648	127	631	287	1279	
09:00	252	203			455		21:00	123	140			263		
09:15	268	175			443		21:15	146	142			288		
09:30	223	188			411		21:30	131	125			256		
09:45	237	980	166	732	403	1712	21:45	112	512	123	530	235	1042	
10:00	227	194			421		22:00	133	123			256		
10:15	195	164			359		22:15	110	114			224		
10:30	230	158			388		22:30	94	104			198		
10:45	213	865	179	695	392	1560	22:45	85	422	85	426	170	848	
11:00	201	193			394		23:00	94	64			158		
11:15	212	216			428		23:15	63	52			115		
11:30	236	226			462		23:30	52	72			124		
11:45	217	866	236	871	453	1737	23:45	57	266	55	243	112	509	
TOTALS	6276		4845		11121		TOTALS	9922		9247		19169		
SPLIT %	56.4%		43.6%		36.7%		SPLIT %	51.8%		48.2%		63.3%		

DAILY TOTALS					NB	SB					EB	WB	Total	
					16,198	14,092					0	0	30,290	

AM Peak Hour	08:30	11:45			08:00	PM Peak Hour	16:45	14:30			15:00
AM Pk Volume	1045	929			1875	PM Pk Volume	1142	1016			2098
Pk Hr Factor	0.947	0.922			0.905	Pk Hr Factor	0.949	0.981			0.979
7 - 9 Volume	1959	1646	0	0	3605	4 - 6 Volume	2209	1829	0	0	4038
7 - 9 Peak Hour	08:00	08:00			08:00	4 - 6 Peak Hour	16:45	17:00			17:00
7 - 9 Pk Volume	1021	854	0	0	1875	4 - 6 Pk Volume	1142	923	0	0	2057
Pk Hr Factor	0.925	0.882	0.000	0.000	0.905	Pk Hr Factor	0.949	0.974	0.000	0.000	0.974

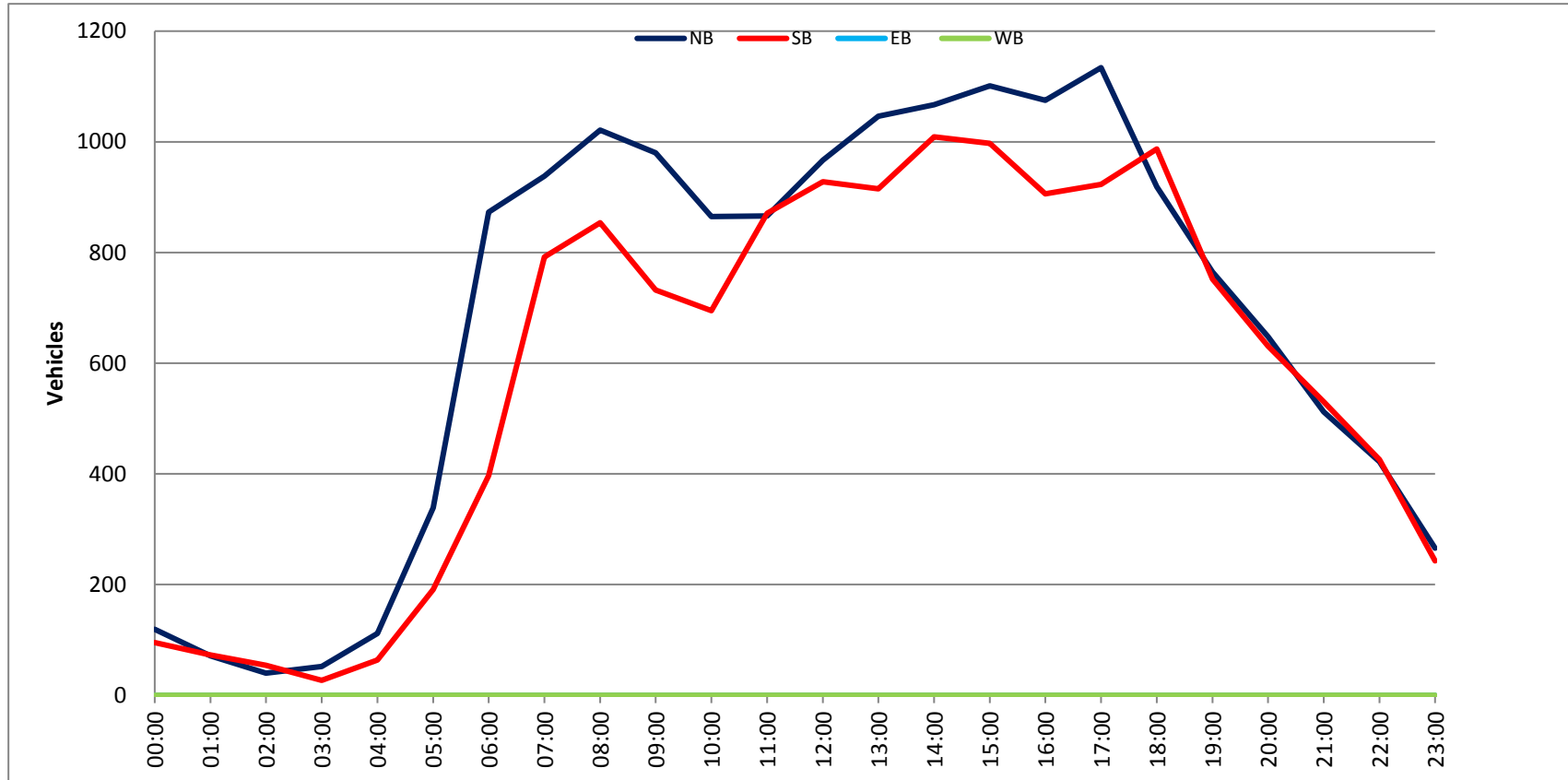
Prepared by NDS/ATD

Project #: CA16_4185_006

City: Pacific Beach

Location: Mission Bay Dr N/O Bunker Hill St

Date: 6/9/2016



VOLUME

Bunker Hill St E/O Mission Bay Dr

Day: Thursday
Date: 6/9/2016

City: Pacific Beach
Project #: CA16_4185_007

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	1,207					1,104	2,311
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			2	4	6		12:00			19	21	40	
00:15			3	4	7		12:15			23	24	47	
00:30			3	1	4		12:30			22	22	44	
00:45			0	8	1	10	12:45			22	86	16	83
01:00			4	0	4		13:00			20	21	41	
01:15			1	0	1		13:15			21	35	56	
01:30			1	1	2		13:30			30	38	68	
01:45			0	6	0	1	13:45			21	92	23	117
02:00			0	1	1		14:00			12	28	40	
02:15			0	0	0		14:15			21	22	43	
02:30			1	0	1		14:30			18	19	37	
02:45			0	1	0	1	14:45			20	71	21	90
03:00			2	0	2		15:00			15	16	31	
03:15			1	1	2		15:15			17	22	39	
03:30			1	1	2		15:30			24	31	55	
03:45			1	5	1	3	15:45			37	93	33	102
04:00			1	0	1		16:00			26	13	39	
04:15			0	0	0		16:15			26	23	49	
04:30			2	2	4		16:30			18	35	53	
04:45			4	7	5	3	16:45			19	89	26	97
05:00			2	4	6		17:00			22	21	43	
05:15			3	2	5		17:15			18	22	40	
05:30			4	11	15		17:30			17	13	30	
05:45			4	13	10	23	17:45			15	72	21	77
06:00			5	0	5		18:00			10	25	35	
06:15			16	2	18		18:15			9	12	21	
06:30			13	11	24		18:30			16	10	26	
06:45			11	45	12	25	18:45			7	42	7	54
07:00			19	13	32		19:00			16	9	25	
07:15			19	12	31		19:15			6	4	10	
07:30			23	15	38		19:30			2	9	11	
07:45			33	94	16	56	19:45			7	31	11	33
08:00			29	21	50		20:00			11	7	18	
08:15			29	16	45		20:15			6	13	19	
08:30			33	14	47		20:30			8	14	22	
08:45			47	138	16	67	20:45			9	34	3	37
09:00			40	21	61		21:00			2	12	14	
09:15			21	1	22		21:15			7	7	14	
09:30			21	0	21		21:30			6	13	19	
09:45			14	96	14	22	21:45			7	22	5	37
10:00			16	11	27		22:00			1	8	9	
10:15			20	23	43		22:15			1	4	5	
10:30			18	17	35		22:30			4	0	4	
10:45			12	66	30	135	22:45			6	12	7	19
11:00			21	15	36		23:00			5	2	7	
11:15			17	25	42		23:15			3	0	3	
11:30			20	16	36		23:30			3	0	3	
11:45			15	73	35	149	23:45			0	11	0	2
TOTALS			552	356	908		TOTALS			655	748	1403	
SPLIT %			60.8%	39.2%	39.3%		SPLIT %			46.7%	53.3%	60.7%	

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	1,207					1,104	2,311
AM Peak Hour			08:15	11:45	08:15		PM Peak Hour			15:30	13:15	15:30	
AM Pk Volume			149	87	216		PM Pk Volume			113	124	213	
Pk Hr Factor			0.793	0.906	0.857		Pk Hr Factor			0.764	0.816	0.761	
7 - 9 Volume	0	0	232	123	355		4 - 6 Volume	0	0	161	174	335	
7 - 9 Peak Hour			08:00	07:30	08:00		4 - 6 Peak Hour			16:00	16:15	16:15	
7 - 9 Pk Volume	0	0	138	68	205		4 - 6 Pk Volume	0	0	89	105	190	
Pk Hr Factor	0.000	0.000	0.734	0.810	0.813		Pk Hr Factor	0.000	0.000	0.856	0.750	0.896	

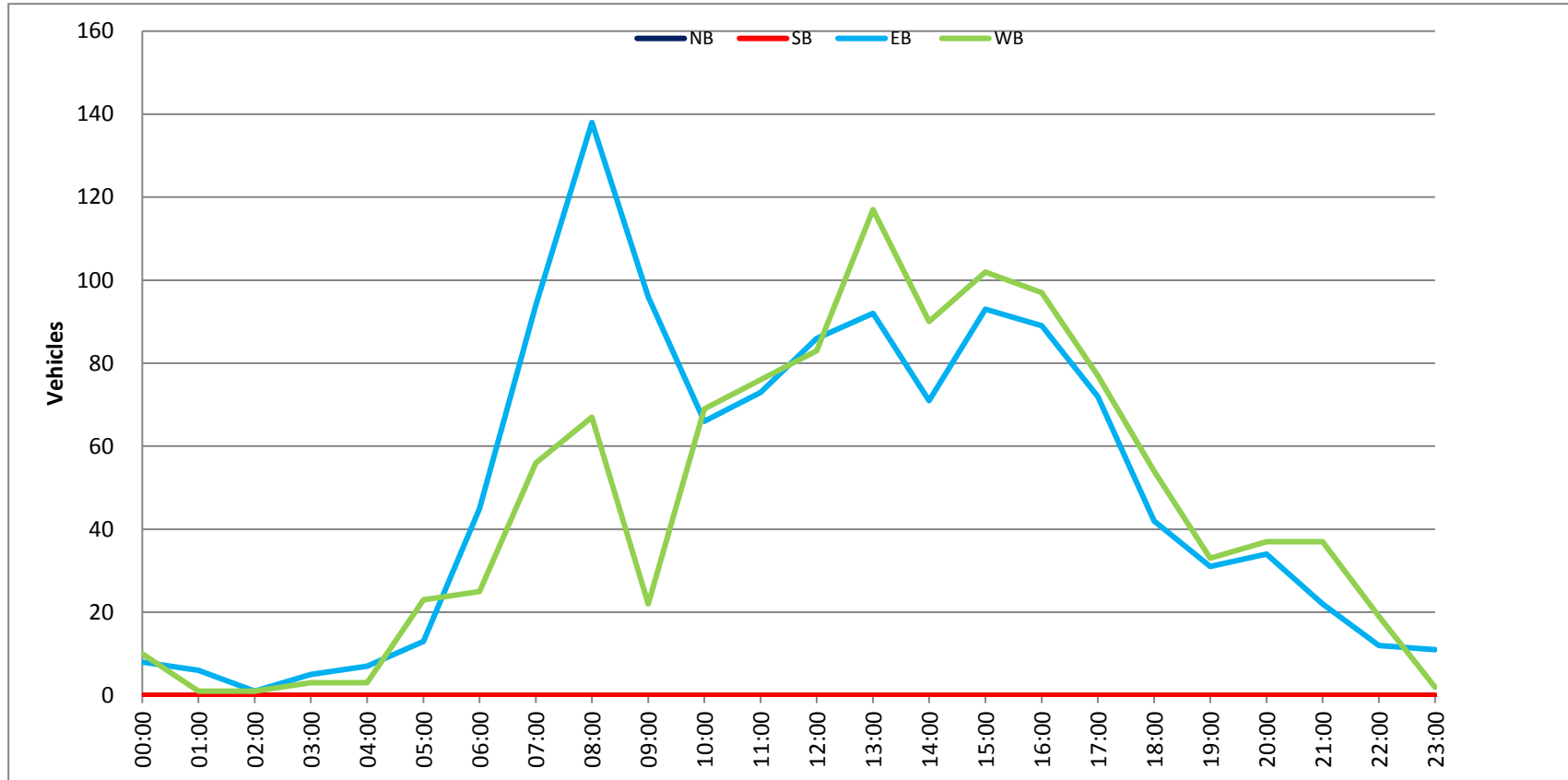
Prepared by NDS/ATD

Project #: CA16_4185_007

City: Pacific Beach

Location: Bunker Hill St E/O Mission Bay Dr

Date: 6/9/2016



VOLUME

Del Rey St N/O Rosewood St

Day: Thursday
Date: 6/9/2016

City: Pacific Beach
Project #: CA16_4185_008

DAILY TOTALS					NB	SB	EBWB					Total
					190	211						0
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00	0	0			0	12:00	3	5			8	
00:15	1	0			1	12:15	4	5			9	
00:30	1	1			2	12:30	1	5			6	
00:45	1	3	0	1	14	12:45	4	12	4	19	31	
01:00	0	1			1	13:00	0	2			2	
01:15	0	0			0	13:15	6	4			10	
01:30	0	0			0	13:30	7	4			11	
01:45	0	0	1		1	13:45	0	13	2	12	25	
02:00	0	0			0	14:00	0	3			3	
02:15	0	0			0	14:15	3	3			6	
02:30	0	0			0	14:30	1	1			2	
02:45	0	0			0	14:45	1	5	4	11	16	
03:00	0	0			0	15:00	3	5			8	
03:15	0	1			1	15:15	0	2			2	
03:30	0	0			0	15:30	1	0			1	
03:45	0	1	2		2	15:45	2	6	2	9	15	
04:00	0	0			0	16:00	4	5			9	
04:15	0	1			1	16:15	7	8			15	
04:30	0	0			0	16:30	1	3			4	
04:45	0	0	1		1	16:45	4	16	2	18	34	
05:00	0	1			1	17:00	3	1			4	
05:15	0	1			1	17:15	5	4			9	
05:30	0	0			0	17:30	4	1			5	
05:45	0	1	3		3	17:45	7	19	6	12	31	
06:00	0	2			2	18:00	1	3			4	
06:15	1	1			2	18:15	0	3			3	
06:30	0	1			1	18:30	4	4			8	
06:45	1	2	0	4	6	18:45	3	8	8	18	26	
07:00	0	2			2	19:00	3	4			7	
07:15	2	1			3	19:15	4	3			7	
07:30	2	0			2	19:30	2	4			6	
07:45	5	9	0	3	12	19:45	1	10	6	17	27	
08:00	2	4			6	20:00	2	3			5	
08:15	2	3			5	20:15	2	0			2	
08:30	5	1			6	20:30	2	7			9	
08:45	3	12	5	13	25	20:45	3	9	1	11	20	
09:00	6	9			15	21:00	2	3			5	
09:15	1	5			6	21:15	2	2			4	
09:30	3	4			7	21:30	3	4			7	
09:45	2	12	3	21	33	21:45	1	8	3	12	20	
10:00	4	1			5	22:00	0	0			0	
10:15	4	3			7	22:15	2	1			3	
10:30	5	3			8	22:30	4	1			5	
10:45	2	15	2	9	24	22:45	6	12	1	3	15	
11:00	2	3			5	23:00	0	0			0	
11:15	4	4			8	23:15	2	1			3	
11:30	3	0			3	23:30	0	2			2	
11:45	5	14	0	7	21	23:45	3	5	1	4	9	
TOTALS	67	65			132	TOTALS	123	146			269	
SPLIT %	50.8%	49.2%			32.9%	SPLIT %	45.7%	54.3%			67.1%	

DAILY TOTALS						NB	SB	EBWB						Total
						190	211							0
AM Peak Hour	08:15	08:45			08:45	PM Peak Hour	17:00	12:00					16:00	
AM Pk Volume	16	23			36	PM Pk Volume	19	19					34	
Pk Hr Factor	0.667	0.639			0.600	Pk Hr Factor	0.679	0.950					0.567	
7 - 9 Volume	21	16	0	0	37	4 - 6 Volume	35	30	0	0			65	
7 - 9 Peak Hour	07:45	08:00			08:00	4 - 6 Peak Hour	17:00	16:00					16:00	
7 - 9 Pk Volume	14	13	0	0	25	4 - 6 Pk Volume	19	18	0	0			34	
Pk Hr Factor	0.700	0.650	0.000	0.000	0.781	Pk Hr Factor	0.679	0.563	0.000	0.000			0.567	

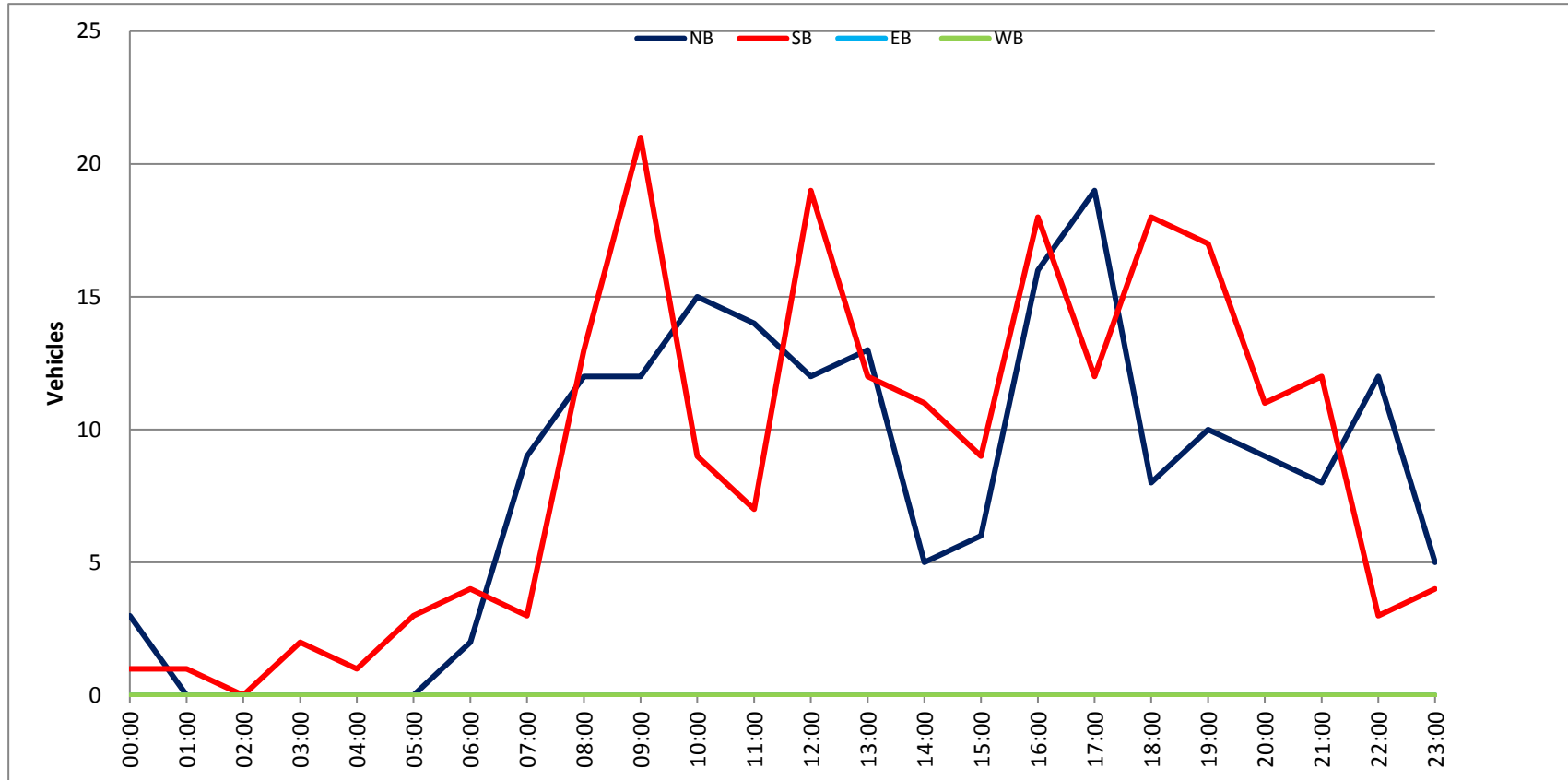
Prepared by NDS/ATD

Project #: CA16_4185_008

City: Pacific Beach

Location: Del Rey St N/O Rosewood St

Date: 6/9/2016



VOLUME

Glendora St E/O Mission Bay Dr

Day: Thursday
Date: 6/9/2016

City: Pacific Beach
Project #: CA16_4185_009

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						227	140	367
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			0	0	0		12:00			3	2	5		
00:15			2	0	2		12:15			6	6	12		
00:30			3	0	3		12:30			3	0	3		
00:45			1	6	2	2	12:45			7	19	4	12	
01:00			1		1		13:00			7		1	8	
01:15			0		1		13:15			6		4	10	
01:30			1		0		13:30			5		2	7	
01:45			0	2	0	2	13:45			3	21	3	10	
02:00			0		0		14:00			2		1	3	
02:15			0		0		14:15			1		4	5	
02:30			1		0		14:30			5		1	6	
02:45			1	2	0		14:45			4	12	1	7	
03:00			0		1		15:00			3		2	5	
03:15			0		0		15:15			1		1	2	
03:30			0		0		15:30			1		0	1	
03:45			0		0	1	15:45			2	7	1	4	
04:00			0		0		16:00			4		0	4	
04:15			1		1		16:15			2		2	4	
04:30			0		0		16:30			1		1	2	
04:45			0	1	1	2	16:45			5	12	2	5	
05:00			1		0		17:00			1		1	2	
05:15			0		0		17:15			2		1	3	
05:30			0		1		17:30			3		3	6	
05:45			1	2	0	1	17:45			3	9	2	7	
06:00			1		0		18:00			3		3	6	
06:15			2		0		18:15			2		2	4	
06:30			1		1		18:30			7		2	9	
06:45			2	6	0	1	18:45			9	21	2	9	
07:00			0		0		19:00			5		1	6	
07:15			2		2		19:15			2		2	4	
07:30			1		1		19:30			1		4	5	
07:45			3	6	1	4	19:45			1	9	3	10	
08:00			6		2		20:00			3		2	5	
08:15			7		1		20:15			1		1	2	
08:30			7		6		20:30			2		0	2	
08:45			11	31	6	15	20:45			2	8	1	4	
09:00			7		3		21:00			4		0	4	
09:15			0		0		21:15			1		1	2	
09:30			4		3		21:30			1		1	2	
09:45			6	17	4	10	21:45			0	6	2	4	
10:00			2		3		22:00			0		1	1	
10:15			2		1		22:15			2		2	4	
10:30			5		4		22:30			1		2	3	
10:45			4	13	2	10	22:45			1	4	0	5	
11:00			3		2		23:00			0		1	1	
11:15			1		1		23:15			0		0	0	
11:30			2		7		23:30			2		2	4	
11:45			3	9	2	12	23:45			2	4	0	3	
TOTALS	95				60	155	TOTALS	132				80	212	
SPLIT %	61.3%				38.7%	42.2%	SPLIT %	62.3%				37.7%	57.8%	

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	227					140	367	
AM Peak Hour			08:15	11:30	08:15		PM Peak Hour			12:45	12:00	12:45		
AM Pk Volume			32	17	48		PM Pk Volume			25	12	36		
Pk Hr Factor			0.727	0.607	0.706		Pk Hr Factor			0.893	0.500	0.818		
7 - 9 Volume	0	0	37	19	56		4 - 6 Volume	0	0	21	12	33		
7 - 9 Peak Hour			08:00	08:00	08:00		4 - 6 Peak Hour			16:00	16:45	16:45		
7 - 9 Pk Volume	0	0	31	15	46		4 - 6 Pk Volume	0	0	12	7	18		
Pk Hr Factor	0.000	0.000	0.705	0.625	0.676		Pk Hr Factor	0.000	0.000	0.600	0.583	0.643		

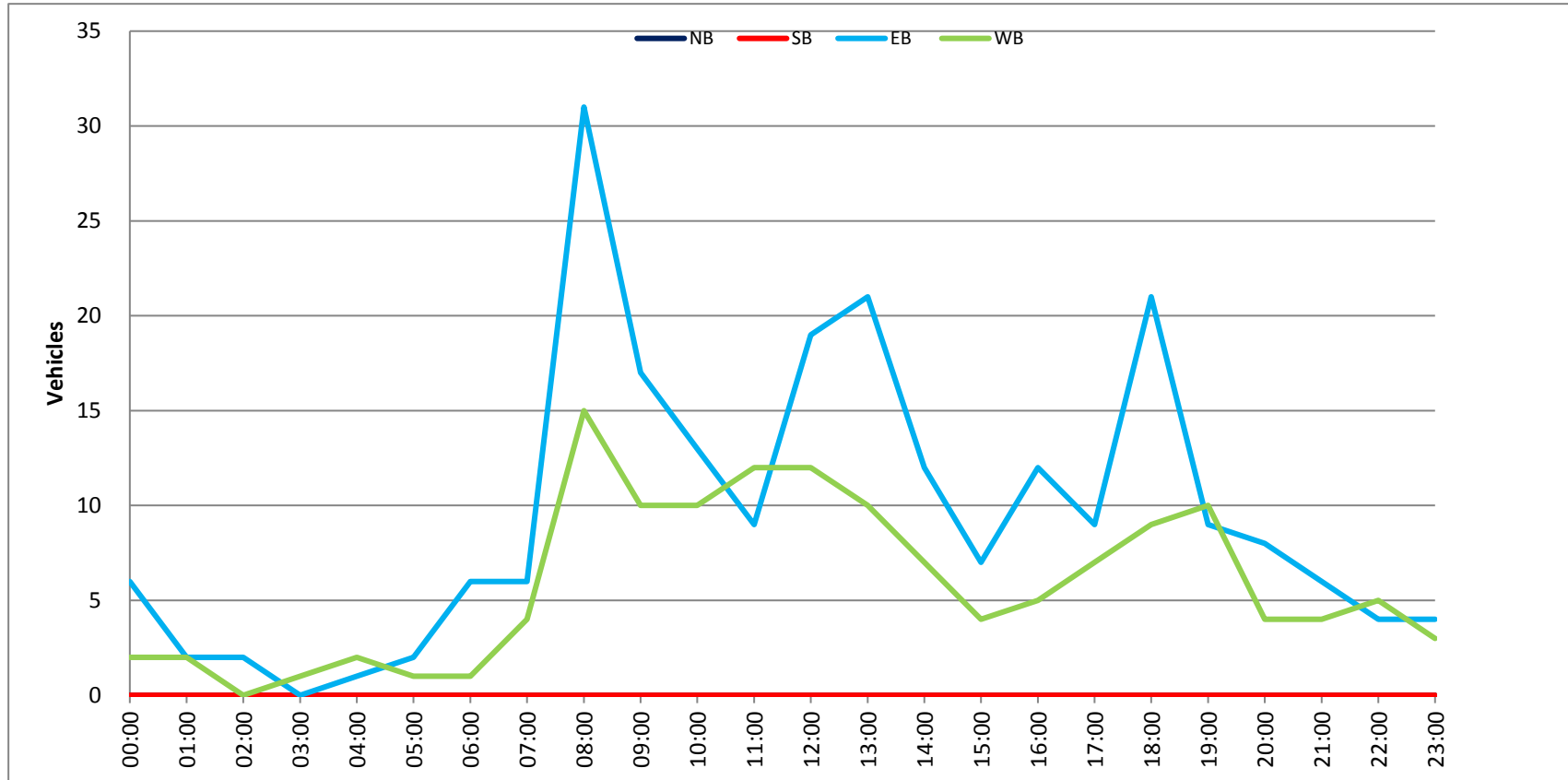
Prepared by NDS/ATD

Project #: CA16_4185_009

City: Pacific Beach

Location: Glendora St E/O Mission Bay Dr

Date: 6/9/2016



Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-001

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Morena Blvd			Morena Blvd			Jutland Dr			Jutland Dr			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 1	SL 0.5	ST 1.5	SR 0	EL 0	ET 0	ER 0	WL 1	WT 0	WR 1	TOTAL
7:00 AM	0	21	39	0	24	0	0	0	0	46	0	1	131
7:15 AM	0	16	78	1	17	0	0	0	0	37	0	4	153
7:30 AM	0	35	77	0	35	0	0	0	0	43	0	8	198
7:45 AM	0	72	107	3	48	0	0	0	0	45	0	6	281
8:00 AM	0	53	105	1	31	0	0	0	0	35	0	8	233
8:15 AM	0	35	89	0	15	0	0	0	0	39	0	6	184
8:30 AM	0	42	67	1	20	0	0	0	0	47	0	6	183
8:45 AM	0	72	82	3	38	0	0	0	0	42	0	14	251
TOTAL VOLUMES :	NL 0	NT 346	NR 644	SL 9	ST 228	SR 0	EL 0	ET 0	ER 0	WL 334	WT 0	WR 53	TOTAL 1614
APPROACH %'s :	0.00%	34.95%	65.05%	3.80%	96.20%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	86.30%	0.00%	13.70%	
PEAK HR START TIME :	730 AM												
PEAK HR VOL :	0	195	378	4	129	0	0	0	0	162	0	28	896
PEAK HR FACTOR :	0.800			0.652			0.000			0.931			0.797

CONTROL : 3-Way Stop (NB/SB/WB)

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
NB 0	SB 0	EB 0	WB 0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-001

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		PM												
		Morena Blvd			Morena Blvd			Jutland Dr			Jutland Dr			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 1	NR 1	SL 0.5	ST 1.5	SR 0	EL 0	ET 0	ER 0	WL 1	WT 0	WR 1	TOTAL
4:00 PM		0	45	56	4	64	0	0	0	0	119	0	3	291
4:15 PM		0	36	50	4	33	0	0	0	0	118	0	9	250
4:30 PM		0	33	74	6	61	0	0	0	0	103	0	3	280
4:45 PM		0	45	62	10	55	0	0	0	0	126	0	10	308
5:00 PM		0	25	57	8	66	0	0	0	0	170	0	3	329
5:15 PM		1	37	55	9	40	0	0	0	0	113	0	4	259
5:30 PM		1	28	68	8	72	0	0	0	0	130	0	7	314
5:45 PM		0	37	58	3	41	0	0	0	0	129	0	5	273
TOTAL VOLUMES :		NL 2	NT 286	NR 480	SL 52	ST 432	SR 0	EL 0	ET 0	ER 0	WL 1008	WT 0	WR 44	TOTAL 2304
APPROACH %'s :		0.26%	37.24%	62.50%	10.74%	89.26%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	95.82%	0.00%	4.18%	
PEAK HR START TIME :		445 PM												TOTAL
PEAK HR VOL :		2	135	242	35	233	0	0	0	0	539	0	24	1210
PEAK HR FACTOR :		0.886			0.838			0.000			0.814			0.919

CONTROL : 3-Way Stop (NB/SB/WB)

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
1	0	0	0
0	0	0	0
NB 2	SB 0	EB 0	WB 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-002

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM														
NS/EW Streets:	Morena Blvd			Morena Blvd			Costco Dwy			Costco Dwy				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 1.5	WT 0	WR 0.5	TOTAL	
7:00 AM	0	63	23	4	56	0	0	0	0	19	0	7	172	
7:15 AM	0	108	31	8	38	0	0	0	0	25	0	13	223	
7:30 AM	0	119	31	6	66	0	0	0	0	20	0	9	251	
7:45 AM	0	179	29	6	80	0	0	0	0	21	0	12	327	
8:00 AM	0	147	27	10	58	0	0	0	0	31	0	11	284	
8:15 AM	0	117	28	8	46	0	0	0	0	30	0	11	240	
8:30 AM	0	110	44	8	57	0	0	0	0	22	0	12	253	
8:45 AM	0	142	25	11	58	0	0	0	0	29	0	16	281	
TOTAL VOLUMES :	NL 0	NT 985	NR 238	SL 61	ST 459	SR 0	EL 0	ET 0	ER 0	WL 197	WT 0	WR 91	TOTAL 2031	
APPROACH %'s :	0.00%	80.54%	19.46%	11.73%	88.27%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	68.40%	0.00%	31.60%		
PEAK HR START TIME :	745 AM													TOTAL
PEAK HR VOL :	0	553	128	32	241	0	0	0	0	104	0	46	1104	
PEAK HR FACTOR :	0.819			0.794			0.000			0.893			0.844	

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-002

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Morena Blvd			Morena Blvd			Costco Dwy			Costco Dwy			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 1.5	WT 0	WR 0.5	TOTAL
4:00 PM	0	74	83	18	167	0	0	0	0	80	0	16	438
4:15 PM	0	66	98	18	129	0	0	0	0	82	0	14	407
4:30 PM	0	81	77	17	164	0	0	0	0	72	0	14	425
4:45 PM	0	69	83	12	178	0	0	0	0	98	0	14	454
5:00 PM	0	64	87	17	227	0	0	0	0	98	0	12	505
5:15 PM	0	66	104	18	148	0	0	0	0	95	0	20	451
5:30 PM	0	60	87	4	192	0	0	0	0	80	0	24	447
5:45 PM	0	70	84	22	132	0	0	0	0	80	0	13	401
TOTAL VOLUMES :	NL 0	NT 550	NR 703	SL 126	ST 1337	SR 0	EL 0	ET 0	ER 0	WL 685	WT 0	WR 127	TOTAL 3528
APPROACH %'s :	0.00%	43.89%	56.11%	8.61%	91.39%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	84.36%	0.00%	15.64%	
PEAK HR START TIME :	445 PM												
PEAK HR VOL :	0	259	361	51	745	0	0	0	0	371	0	70	1857
PEAK HR FACTOR :	0.912			0.816			0.000			0.959			0.919

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-003

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Morena Blvd			Morena Blvd			Avati Dr			Avati Dr			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 2	WT 0	WR 1	TOTAL
7:00 AM	0	86	14	3	67	0	0	0	0	53	0	5	228
7:15 AM	0	138	33	6	67	0	0	0	0	44	0	8	296
7:30 AM	0	152	20	3	80	0	0	0	0	56	0	9	320
7:45 AM	0	188	31	5	90	0	0	0	0	60	0	9	383
8:00 AM	0	180	35	5	74	0	0	0	0	58	0	8	360
8:15 AM	0	175	28	4	78	0	0	0	0	55	0	9	349
8:30 AM	0	171	25	3	70	0	0	0	0	50	0	7	326
8:45 AM	0	166	22	3	62	0	0	0	0	48	0	6	307
TOTAL VOLUMES :	NL 0	NT 1256	NR 208	SL 32	ST 588	SR 0	EL 0	ET 0	ER 0	WL 424	WT 0	WR 61	TOTAL 2569
APPROACH %'s :	0.00%	85.79%	14.21%	5.16%	94.84%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	87.42%	0.00%	12.58%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	714	119	17	312	0	0	0	0	223	0	33	1418
PEAK HR FACTOR :	0.951			0.866			0.000			0.928			0.926

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
NB 0	SB 0	EB 0	WB 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-003

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		PM												
		Morena Blvd			Morena Blvd			Avati Dr			Avati Dr			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 2	WT 0	WR 1	TOTAL
4:00 PM		1	155	44	12	215	0	0	0	0	29	0	8	464
4:15 PM		0	167	47	17	228	0	0	0	0	40	0	8	507
4:30 PM		1	149	53	11	243	0	0	0	0	50	0	13	520
4:45 PM		0	168	44	12	261	0	0	0	0	44	0	18	547
5:00 PM		1	139	44	16	325	0	0	0	0	46	0	12	583
5:15 PM		0	147	58	15	244	0	0	0	0	49	0	5	518
5:30 PM		0	126	48	12	292	0	0	0	0	53	0	9	540
5:45 PM		0	140	55	14	234	0	0	0	0	50	0	16	509
TOTAL VOLUMES :		NL 3	NT 1191	NR 393	SL 109	ST 2042	SR 0	EL 0	ET 0	ER 0	WL 361	WT 0	WR 89	TOTAL 4188
APPROACH %'s :		0.19%	75.05%	24.76%	5.07%	94.93%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	80.22%	0.00%	19.78%	
PEAK HR START TIME :		445 PM												TOTAL
PEAK HR VOL :		1	580	194	55	1122	0	0	0	0	192	0	44	2188
PEAK HR FACTOR :		0.914			0.863			0.000			0.952			0.938

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
1	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
3	0	0	0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-004

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Morena Blvd			Morena Blvd			Balboa Ave WB Ramps			Balboa Ave WB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 1	SL 0	ST 2	SR 1	EL 1	ET 0	ER 1	WL 0	WT 0	WR 0	TOTAL
7:00 AM	0	97	67	0	29	93	11	0	6	0	0	0	303
7:15 AM	0	171	83	0	36	79	8	0	15	0	0	0	392
7:30 AM	0	161	81	0	50	99	24	0	22	0	0	0	437
7:45 AM	0	220	89	0	55	101	27	0	28	0	0	0	520
8:00 AM	0	189	66	0	40	107	16	0	20	0	0	0	438
8:15 AM	0	175	65	0	51	82	18	0	21	0	0	0	412
8:30 AM	0	200	70	0	58	87	12	0	25	0	0	0	452
8:45 AM	0	195	71	0	48	77	29	0	36	0	0	0	456
TOTAL VOLUMES :	NL 0	NT 1408	NR 592	SL 0	ST 367	SR 725	EL 145	ET 0	ER 173	WL 0	WT 0	WR 0	TOTAL 3410
APPROACH %'s :	0.00%	70.40%	29.60%	0.00%	33.61%	66.39%	45.60%	0.00%	54.40%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	784	290	0	204	377	73	0	94	0	0	0	1822
PEAK HR FACTOR :	0.869			0.931			0.759			0.000			0.876

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

NB	SB	EB	WB
0	0	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-004

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Morena Blvd			Morena Blvd			Balboa Ave WB Ramps			Balboa Ave WB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 1	SL 0	ST 2	SR 1	EL 1	ET 0	ER 1	WL 0	WT 0	WR 0	TOTAL
4:00 PM	0	174	50	0	124	158	33	0	46	0	0	0	585
4:15 PM	0	177	30	0	124	124	33	0	45	0	0	0	533
4:30 PM	0	171	52	0	151	170	28	0	42	0	0	0	614
4:45 PM	0	159	50	0	150	160	24	0	55	0	0	0	598
5:00 PM	0	180	53	0	213	196	33	0	65	0	0	0	740
5:15 PM	1	197	49	0	157	132	27	0	51	0	0	0	614
5:30 PM	0	173	45	0	198	161	24	0	38	0	0	0	639
5:45 PM	0	181	50	0	154	140	27	0	51	0	0	0	603
TOTAL VOLUMES :	NL 1	NT 1412	NR 379	SL 0	ST 1271	SR 1241	EL 229	ET 0	ER 393	WL 0	WT 0	WR 0	TOTAL 4926
APPROACH %'s :	0.06%	78.79%	21.15%	0.00%	50.60%	49.40%	36.82%	0.00%	63.18%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	500 PM												
PEAK HR VOL :	1	731	197	0	722	629	111	0	205	0	0	0	2596
PEAK HR FACTOR :	0.940			0.826			0.806			0.000			0.877

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0

NB	SB	EB	WB
1	0	0	0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-005

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Morena Blvd			Morena Blvd			Balboa Ave EB Ramps			Balboa Ave EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 1	SL 1	ST 2	SR 0	EL 0	ET 0	ER 1	WL 0	WT 0	WR 1	TOTAL
7:00 AM	0	114	21	11	26	0	0	0	20	0	0	55	247
7:15 AM	0	167	37	10	42	0	0	0	27	0	0	77	360
7:30 AM	0	182	34	11	56	0	0	0	34	0	0	59	376
7:45 AM	0	226	55	10	76	0	0	0	30	0	0	78	475
8:00 AM	0	206	69	15	46	0	0	0	33	0	0	58	427
8:15 AM	0	184	42	9	55	0	0	0	40	0	0	54	384
8:30 AM	0	183	53	16	63	0	0	0	38	0	0	72	425
8:45 AM	0	196	48	13	79	0	0	0	45	0	0	79	460
TOTAL VOLUMES :	NL 0	NT 1458	NR 359	SL 95	ST 443	SR 0	EL 0	ET 0	ER 267	WL 0	WT 0	WR 532	TOTAL 3154
APPROACH %'s :	0.00%	80.24%	19.76%	17.66%	82.34%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	799	219	50	240	0	0	0	141	0	0	262	1711
PEAK HR FACTOR :	0.906			0.843			0.881			0.840			0.901

CONTROL : No Control

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-005

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Morena Blvd			Morena Blvd			Balboa Ave EB Ramps			Balboa Ave EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 1	SL 1	ST 2	SR 0	EL 0	ET 0	ER 1	WL 0	WT 0	WR 1	TOTAL
4:00 PM	0	90	32	23	154	0	0	0	93	0	0	126	518
4:15 PM	0	101	34	35	135	0	0	0	94	0	0	114	513
4:30 PM	0	96	23	28	167	0	0	0	66	0	0	108	488
4:45 PM	0	100	34	26	170	0	0	0	80	0	0	122	532
5:00 PM	0	90	31	39	232	0	0	0	86	0	0	125	603
5:15 PM	0	119	34	18	198	0	0	0	98	0	0	130	597
5:30 PM	0	82	29	55	187	0	0	0	57	0	0	139	549
5:45 PM	0	113	25	26	183	0	0	0	82	0	0	120	549
TOTAL VOLUMES :	NL 0	NT 791	NR 242	SL 250	ST 1426	SR 0	EL 0	ET 0	ER 656	WL 0	WT 0	WR 984	TOTAL 4349
APPROACH %'s :	0.00%	76.57%	23.43%	14.92%	85.08%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	
PEAK HR START TIME :	500 PM												
PEAK HR VOL :	0	404	119	138	800	0	0	0	323	0	0	514	2298
PEAK HR FACTOR :	0.855			0.865			0.824			0.924			0.953

CONTROL : No Control

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-006

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM														
NS/EW Streets:	Morena Blvd			Morena Blvd			Baker St			Baker St				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL 0	NT 1	NR 1	SL 1	ST 1	SR 0	EL 0	ET 0	ER 0	WL 0	WT 1	WR 0	TOTAL	
7:00 AM	0	130	1	2	43	0	0	0	0	3	0	6	185	
7:15 AM	0	190	1	5	75	0	0	0	0	2	0	10	283	
7:30 AM	0	188	2	6	83	0	0	0	0	6	0	9	294	
7:45 AM	0	269	8	5	105	0	0	0	0	4	0	5	396	
8:00 AM	0	239	3	3	71	0	0	0	0	3	0	10	329	
8:15 AM	0	231	2	3	94	0	0	0	0	3	0	5	338	
8:30 AM	0	207	6	6	84	0	0	0	0	13	0	9	325	
8:45 AM	0	220	7	11	106	0	0	0	0	3	0	25	372	
TOTAL VOLUMES :	NL 0	NT 1674	NR 30	SL 41	ST 661	SR 0	EL 0	ET 0	ER 0	WL 37	WT 0	WR 79	TOTAL 2522	
APPROACH %'s :	0.00%	98.24%	1.76%	5.84%	94.16%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	31.90%	0.00%	68.10%		
PEAK HR START TIME :	745 AM													TOTAL
PEAK HR VOL :	0	946	19	17	354	0	0	0	0	23	0	29	1388	
PEAK HR FACTOR :	0.871			0.843			0.000			0.591			0.876	

CONTROL : 1-Way Stop (WB)

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	2
0	1	0	0
NB 0	SB 1	EB 0	WB 2

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-006

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		PM												
		Morena Blvd			Morena Blvd			Baker St			Baker St			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 1	NR 1	SL 1	ST 1	SR 0	EL 0	ET 0	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM		1	115	6	11	213	0	0	0	0	5	0	9	360
4:15 PM		0	101	3	6	206	0	0	0	0	7	0	4	327
4:30 PM		1	113	4	8	218	0	0	0	0	4	0	4	352
4:45 PM		0	118	4	6	228	0	0	0	0	2	0	9	367
5:00 PM		1	107	2	13	285	0	0	0	0	1	0	7	416
5:15 PM		1	137	6	11	256	0	0	0	0	1	0	7	419
5:30 PM		0	109	3	5	231	0	0	0	0	6	0	4	358
5:45 PM		0	112	3	15	240	0	0	0	0	4	0	5	379
TOTAL VOLUMES :		NL 4	NT 912	NR 31	SL 75	ST 1877	SR 0	EL 0	ET 0	ER 0	WL 30	WT 0	WR 49	TOTAL 2978
APPROACH %'s :		0.42%	96.30%	3.27%	3.84%	96.16%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	37.97%	0.00%	62.03%	
PEAK HR START TIME :		500 PM												TOTAL
PEAK HR VOL :		2	465	14	44	1012	0	0	0	0	12	0	23	1572
PEAK HR FACTOR :		0.835			0.886			0.000			0.875			0.938

CONTROL : 1-Way Stop (WB)

UTURNS			
NB	SB	EB	WB
1	0	0	0
0	1	0	0
1	1	0	0
0	0	0	0
1	0	0	0
1	0	0	0
0	0	0	0
0	1	0	0

NB	SB	EB	WB
4	3	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-007

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Morena Blvd			Morena Blvd			Gesner St			Gesner St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 1	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 0	WT 1	WR 0	TOTAL
7:00 AM	0	126	14	8	47	0	0	0	0	1	0	9	205
7:15 AM	0	171	9	16	59	0	0	0	0	6	0	14	275
7:30 AM	0	177	6	19	68	0	0	0	0	5	0	12	287
7:45 AM	0	250	8	16	109	0	0	0	0	16	0	18	417
8:00 AM	0	229	13	11	68	0	0	0	0	3	0	7	331
8:15 AM	0	211	4	6	90	0	0	0	0	8	0	9	328
8:30 AM	0	205	15	13	84	0	0	0	0	5	0	13	335
8:45 AM	0	217	14	12	104	0	0	0	0	7	0	22	376
TOTAL VOLUMES :	NL 0	NT 1586	NR 83	SL 101	ST 629	SR 0	EL 0	ET 0	ER 0	WL 51	WT 0	WR 104	TOTAL 2554
APPROACH %'s :	0.00%	95.03%	4.97%	13.84%	86.16%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	32.90%	0.00%	67.10%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	895	40	46	351	0	0	0	0	32	0	47	1411
PEAK HR FACTOR :	0.906			0.794			0.000			0.581			0.846

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-007

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		PM												
		Morena Blvd			Morena Blvd			Gesner St			Gesner St			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 2	NR 1	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM		0	93	9	25	191	0	0	0	0	5	0	19	342
4:15 PM		0	100	10	22	201	0	0	0	0	8	0	16	357
4:30 PM		0	99	10	26	189	0	0	0	0	5	0	20	349
4:45 PM		0	107	7	28	206	0	0	0	0	3	0	13	364
5:00 PM		0	97	9	25	256	0	0	0	0	10	0	20	417
5:15 PM		0	127	12	26	241	0	0	0	0	11	0	19	436
5:30 PM		0	94	13	27	216	0	0	0	0	8	0	22	380
5:45 PM		0	98	9	23	215	0	0	0	0	7	0	23	375
TOTAL VOLUMES :		NL 0	NT 815	NR 79	SL 202	ST 1715	SR 0	EL 0	ET 0	ER 0	WL 57	WT 0	WR 152	TOTAL 3020
APPROACH %'s :		0.00%	91.16%	8.84%	10.54%	89.46%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	27.27%	0.00%	72.73%	
PEAK HR START TIME :		500 PM												TOTAL
PEAK HR VOL :		0	416	43	101	928	0	0	0	0	36	0	84	1608
PEAK HR FACTOR :		0.826			0.915			0.000			1.000			0.922

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-008

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Clairemont Dr			Clairemont Dr			Balboa Ave			Balboa Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 2	ET 2	ER 0	WL 2	WT 2	WR 0	TOTAL
7:00 AM	26	67	62	38	77	59	27	136	8	119	158	13	790
7:15 AM	33	79	74	22	59	80	49	174	11	62	177	20	840
7:30 AM	24	65	71	28	43	99	46	266	13	57	185	30	927
7:45 AM	31	75	69	43	42	91	46	185	6	48	215	31	882
8:00 AM	27	73	66	43	40	71	52	205	11	50	205	28	871
8:15 AM	22	67	66	35	54	80	64	195	14	85	185	23	890
8:30 AM	47	83	90	30	92	84	41	163	24	108	172	18	952
8:45 AM	43	99	110	44	85	75	51	252	20	94	206	21	1100
TOTAL VOLUMES :	NL 253	NT 608	NR 608	SL 283	ST 492	SR 639	EL 376	ET 1576	ER 107	WL 623	WT 1503	WR 184	TOTAL 7252
APPROACH %'s :	17.22%	41.39%	41.39%	20.01%	34.79%	45.19%	18.26%	76.54%	5.20%	26.97%	65.06%	7.97%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	139	322	332	152	271	310	208	815	69	337	768	90	3813
PEAK HR FACTOR :	0.787			0.890			0.845			0.931			0.867

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
3	1	1	0
3	0	5	0
3	1	0	0
6	0	1	0
3	1	0	1
5	0	3	0
6	0	3	1
4	0	1	0
NB 33	SB 3	EB 14	WB 2

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-008

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		PM												
		Clairemont Dr			Clairemont Dr			Balboa Ave			Balboa Ave			
NORTHBOUND				SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 2	ET 2	ER 0	WL 2	WT 2	WR 0	TOTAL	
4:00 PM	38	87	96	63	113	61	82	239	17	87	218	23	1124	
4:15 PM	17	55	84	49	94	65	85	285	29	78	262	25	1128	
4:30 PM	45	85	77	64	122	61	112	258	15	86	212	25	1162	
4:45 PM	24	86	86	58	140	73	92	231	19	94	227	23	1153	
5:00 PM	26	63	80	60	130	69	107	275	15	92	231	15	1163	
5:15 PM	16	92	81	71	128	73	83	289	15	104	271	31	1254	
5:30 PM	18	66	90	65	130	80	91	266	11	97	263	29	1206	
5:45 PM	23	85	85	54	116	69	98	253	16	117	255	29	1200	
TOTAL VOLUMES :	NL 207	NT 619	NR 679	SL 484	ST 973	SR 551	EL 750	ET 2096	ER 137	WL 755	WT 1939	WR 200	TOTAL 9390	
APPROACH %'s :	13.75%	41.13%	45.12%	24.10%	48.46%	27.44%	25.14%	70.26%	4.59%	26.09%	67.00%	6.91%		
PEAK HR START TIME :	500 PM													TOTAL
PEAK HR VOL :	83	306	336	250	504	291	379	1083	57	410	1020	104	4823	
PEAK HR FACTOR :	0.939			0.950			0.957			0.945			0.962	

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
5	1	3	2
5	0	1	0
5	1	6	1
2	0	6	0
2	0	0	1
3	0	2	0
3	0	2	0
3	3	1	3
NB 28	SB 5	EB 21	WB 7

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-009

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Moraga Ave			Moraga Ave			Balboa Ave			Balboa Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 1	ST 0	SR 1	EL 2	ET 3	ER 0	WL 0	WT 2	WR 1	TOTAL
7:00 AM	0	0	0	19	0	48	44	158	0	0	224	7	500
7:15 AM	0	0	0	14	0	53	61	212	0	0	305	12	657
7:30 AM	0	0	0	26	0	63	72	279	0	0	299	10	749
7:45 AM	0	0	0	22	0	62	83	260	0	0	322	16	765
8:00 AM	0	0	0	16	0	57	81	231	0	0	287	22	694
8:15 AM	0	0	0	32	0	58	70	242	0	0	257	25	684
8:30 AM	0	0	0	29	0	90	90	257	0	0	275	18	759
8:45 AM	0	0	0	37	0	46	73	262	0	0	289	29	736
TOTAL VOLUMES :	NL 0	NT 0	NR 0	SL 195	ST 0	SR 477	EL 574	ET 1901	ER 0	WL 0	WT 2258	WR 139	TOTAL 5544
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	29.02%	0.00%	70.98%	23.19%	76.81%	0.00%	0.00%	94.20%	5.80%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	0	0	99	0	267	324	990	0	0	1141	81	2902
PEAK HR FACTOR :	0.000			0.769			0.947			0.904			0.948

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	17	0
0	0	10	0
0	0	14	0
0	0	15	0
0	0	16	0
0	0	13	0
0	0	13	0
0	0	17	0
NB 0	SB 0	EB 115	WB 0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-009

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Moraga Ave			Moraga Ave			Balboa Ave			Balboa Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 1	ST 0	SR 1	EL 2	ET 3	ER 0	WL 0	WT 2	WR 1	TOTAL
4:00 PM	0	0	0	17	0	60	91	333	0	0	316	23	840
4:15 PM	0	0	0	19	0	69	87	361	0	0	288	25	849
4:30 PM	0	0	0	19	0	64	76	346	0	0	292	29	826
4:45 PM	0	0	0	28	0	85	84	322	0	0	305	26	850
5:00 PM	0	0	0	32	0	94	76	343	0	0	302	24	871
5:15 PM	0	0	0	22	0	61	87	350	0	0	324	18	862
5:30 PM	0	0	0	21	0	80	94	361	0	0	306	26	888
5:45 PM	0	0	0	25	0	64	99	318	0	0	347	23	876
TOTAL VOLUMES :	NL 0	NT 0	NR 0	SL 183	ST 0	SR 577	EL 694	ET 2734	ER 0	WL 0	WT 2480	WR 194	TOTAL 6862
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	24.08%	0.00%	75.92%	20.25%	79.75%	0.00%	0.00%	92.74%	7.26%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	0	100	0	299	356	1372	0	0	1279	91	3497
PEAK HR FACTOR :	0.000			0.792			0.949			0.926			0.985

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	26	0
0	0	25	0
0	0	19	0
0	0	23	0
0	0	19	0
0	0	18	0
0	0	28	0
0	0	25	0
NB 0	SB 0	EB 183	WB 0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-010

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Santa Fe St			Santa Fe St			Garnet Ave			Garnet Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 1	SL 0	ST 1	SR 0	EL 0	ET 2	ER 0	WL 0	WT 2.5	WR 0.5	TOTAL
7:00 AM	0	0	64	0	0	8	0	206	0	0	427	15	720
7:15 AM	0	0	38	0	0	7	0	276	0	0	466	16	803
7:30 AM	0	0	35	0	0	8	0	340	0	0	497	24	904
7:45 AM	0	0	48	0	0	10	0	351	0	0	502	45	956
8:00 AM	0	0	48	0	0	13	0	297	0	0	480	35	873
8:15 AM	0	0	64	0	0	15	0	293	0	0	404	19	795
8:30 AM	0	0	76	0	0	14	0	322	0	0	487	27	926
8:45 AM	0	0	86	0	0	13	0	315	0	0	423	27	864
TOTAL VOLUMES :	NL 0	NT 0	NR 459	SL 0	ST 0	SR 88	EL 0	ET 2400	ER 0	WL 0	WT 3686	WR 208	TOTAL 6841
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%	94.66%	5.34%	
PEAK HR START TIME :	745 AM												
PEAK HR VOL :	0	0	236	0	0	52	0	1263	0	0	1873	126	3550
PEAK HR FACTOR :	0.776			0.867			0.900			0.914			0.928

CONTROL : 1-Way Stop (SB)

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-010

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Santa Fe St			Santa Fe St			Garnet Ave			Garnet Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 1	SL 0	ST 1	SR 0	EL 0	ET 2	ER 0	WL 0	WT 2.5	WR 0.5	TOTAL
4:00 PM	0	0	227	0	0	37	0	385	0	0	490	18	1157
4:15 PM	0	0	224	0	0	27	0	350	0	0	515	11	1127
4:30 PM	0	0	218	0	0	27	0	296	0	0	476	10	1027
4:45 PM	0	0	215	0	0	32	0	344	0	0	518	16	1125
5:00 PM	0	0	232	0	0	40	0	346	0	0	548	9	1175
5:15 PM	0	0	234	0	0	31	0	341	0	0	551	19	1176
5:30 PM	0	0	224	0	0	32	0	338	0	0	522	16	1132
5:45 PM	0	0	206	0	0	23	0	322	0	0	515	19	1085
TOTAL VOLUMES :	NL 0	NT 0	NR 1780	SL 0	ST 0	SR 249	EL 0	ET 2722	ER 0	WL 0	WT 4135	WR 118	TOTAL 9004
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%	97.23%	2.77%	
PEAK HR START TIME :	445 PM												
PEAK HR VOL :	0	0	905	0	0	135	0	1369	0	0	2139	60	4608
PEAK HR FACTOR :	0.967			0.844			0.989			0.964			0.980

CONTROL : 1-Way Stop (SB)

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-011

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Garnet Ave			Garnet Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 2	NT 2	NR 1	SL 2	ST 1	SR 2	EL 2	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL
7:00 AM	138	114	32	38	63	110	220	127	95	34	150	48	1169
7:15 AM	92	98	43	44	46	91	211	189	109	68	182	60	1233
7:30 AM	95	97	63	47	34	97	174	242	111	38	159	43	1200
7:45 AM	78	89	62	56	53	110	202	255	132	33	160	61	1291
8:00 AM	103	86	57	60	52	101	169	189	100	48	178	57	1200
8:15 AM	102	98	41	53	49	99	195	201	109	47	185	43	1222
8:30 AM	115	89	49	65	54	94	176	217	126	37	170	67	1259
8:45 AM	104	93	55	73	54	117	156	213	107	40	196	56	1264
TOTAL VOLUMES :	NL 827	NT 764	NR 402	SL 436	ST 405	SR 819	EL 1503	ET 1633	ER 889	WL 345	WT 1380	WR 435	TOTAL 9838
APPROACH %'s :	41.50%	38.33%	20.17%	26.27%	24.40%	49.34%	37.34%	40.57%	22.09%	15.97%	63.89%	20.14%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	398	362	209	234	208	404	742	862	467	165	693	228	4972
PEAK HR FACTOR :	0.958			0.966			0.879			0.959			0.963

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	2
0	0	0	0
0	0	0	3
1	0	0	0
NB 1	SB 0	EB 0	WB 6

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-011

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Garnet Ave			Garnet Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 2	NT 2	NR 1	SL 2	ST 1	SR 2	EL 2	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL
4:00 PM	133	68	54	102	78	210	132	215	145	45	176	67	1425
4:15 PM	142	82	76	89	53	196	128	196	104	47	209	76	1398
4:30 PM	127	79	54	58	80	227	156	197	101	62	207	83	1431
4:45 PM	116	79	52	68	92	189	90	222	120	66	246	78	1418
5:00 PM	154	92	80	67	60	193	119	202	101	52	216	95	1431
5:15 PM	122	89	67	62	91	217	123	203	98	56	213	90	1431
5:30 PM	143	65	59	49	77	212	137	234	101	77	232	69	1455
5:45 PM	154	73	58	78	69	180	120	196	90	64	248	90	1420
TOTAL VOLUMES :	NL 1091	NT 627	NR 500	SL 573	ST 600	SR 1624	EL 1005	ET 1665	ER 860	WL 469	WT 1747	WR 648	TOTAL 11409
APPROACH %'s :	49.19%	28.27%	22.54%	20.49%	21.45%	58.06%	28.47%	47.17%	24.36%	16.38%	61.00%	22.63%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	573	319	264	256	297	802	499	835	390	249	909	344	5737
PEAK HR FACTOR :	0.887			0.916			0.913			0.934			0.986

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	2
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	1	0	0

NB	SB	EB	WB
0	1	0	3

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-012

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		AM													
		Bond St			Bond St			Garnet Ave			Garnet Ave				
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:		NL 0	NT 0	NR 1	SL 0	ST 1	SR 0	EL 0	ET 2	ER 0	WL 0	WT 2	WR 0	TOTAL	
7:00 AM		0	0	9	0	0	1	0	439	3	0	388	2	842	
7:15 AM		0	0	5	0	0	0	0	528	6	0	356	3	898	
7:30 AM		0	0	2	0	0	5	0	552	11	0	346	4	920	
7:45 AM		0	0	7	0	0	5	1	558	5	0	339	1	916	
8:00 AM		0	0	4	0	0	1	0	448	5	0	392	2	852	
8:15 AM		0	0	3	1	0	3	2	490	7	0	379	2	887	
8:30 AM		0	0	10	0	0	0	0	533	6	0	401	1	951	
8:45 AM		0	0	8	1	0	6	1	479	4	0	403	6	908	
TOTAL VOLUMES :		NL 0	NT 0	NR 48	SL 2	ST 0	SR 21	EL 4	ET 4027	ER 47	WL 0	WT 3004	WR 21	TOTAL 7174	
APPROACH %'s :		0.00%	0.00%	100.00%	8.70%	0.00%	91.30%	0.10%	98.75%	1.15%	0.00%	99.31%	0.69%		
PEAK HR START TIME :		745 AM													TOTAL
PEAK HR VOL :		0	0	24	1	0	9	3	2029	23	0	1511	6	3606	
PEAK HR FACTOR :		0.600			0.500			0.911			0.943			0.948	

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	0
NB 0	SB 0	EB 1	WB 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-012

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Bond St			Bond St			Garnet Ave			Garnet Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	1	0	1	0	0	2	0	0	2	0	
4:00 PM	0	0	13	0	0	3	0	486	15	1	541	5	1064
4:15 PM	0	0	8	0	0	4	2	423	8	0	574	3	1022
4:30 PM	0	0	6	2	0	5	0	443	11	0	560	7	1034
4:45 PM	0	0	6	0	0	5	4	403	14	0	505	3	940
5:00 PM	0	0	7	1	0	5	2	457	15	0	575	6	1068
5:15 PM	0	0	5	1	0	7	0	419	19	0	575	6	1032
5:30 PM	0	0	8	0	0	4	1	433	11	1	552	7	1017
5:45 PM	0	0	9	1	0	9	1	390	8	0	541	1	960
TOTAL VOLUMES :	NL 0	NT 0	NR 62	SL 5	ST 0	SR 42	EL 10	ET 3454	ER 101	WL 2	WT 4423	WR 38	TOTAL 8137
APPROACH %'s :	0.00%	0.00%	100.00%	10.64%	0.00%	89.36%	0.28%	96.89%	2.83%	0.04%	99.10%	0.85%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	29	3	0	25	4	1699	53	1	2243	20	4077
PEAK HR FACTOR :	0.806			0.700			0.926			0.974			0.954

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

NB	SB	EB	WB
0	0	0	0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-013

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Soledad Mountain Rd			Soledad Mountain Rd			Garnet Ave			Garnet Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 2	ST 0	SR 1	EL 2	ET 2	ER 0	WL 0	WT 2	WR 1	TOTAL
7:00 AM	0	0	0	115	0	7	12	346	0	0	225	168	873
7:15 AM	0	0	0	130	0	14	33	388	0	0	218	138	921
7:30 AM	0	0	0	167	0	11	33	391	0	0	208	146	956
7:45 AM	0	0	0	159	0	16	34	393	0	0	196	155	953
8:00 AM	0	0	0	163	0	11	22	285	0	0	210	179	870
8:15 AM	0	0	0	149	0	13	19	348	0	0	214	168	911
8:30 AM	0	0	0	184	0	12	20	333	0	0	224	156	929
8:45 AM	0	0	0	161	0	15	17	348	0	0	253	173	967
TOTAL VOLUMES :	NL 0	NT 0	NR 0	SL 1228	ST 0	SR 99	EL 190	ET 2832	ER 0	WL 0	WT 1748	WR 1283	TOTAL 7380
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	92.54%	0.00%	7.46%	6.29%	93.71%	0.00%	0.00%	57.67%	42.33%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	0	0	571	0	48	112	1518	0	0	847	607	3703
PEAK HR FACTOR :	0.000			0.869			0.954			0.925			0.968

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	0
NB 0	SB 0	EB 2	WB 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-013

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Soledad Mountain Rd			Soledad Mountain Rd			Garnet Ave			Garnet Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 2	ST 0	SR 1	EL 2	ET 2	ER 0	WL 0	WT 2	WR 1	TOTAL
4:00 PM	0	0	0	169	0	15	20	324	0	0	427	142	1097
4:15 PM	0	0	0	148	0	18	14	271	0	0	426	160	1037
4:30 PM	0	0	0	167	0	16	18	272	0	0	397	156	1026
4:45 PM	0	0	0	168	0	19	10	273	0	0	416	130	1016
5:00 PM	0	0	0	136	0	22	21	330	0	0	450	162	1121
5:15 PM	0	0	0	126	0	20	17	278	0	0	423	150	1014
5:30 PM	0	0	0	161	0	28	20	309	0	0	425	150	1093
5:45 PM	0	0	0	130	0	24	16	282	0	0	468	147	1067
TOTAL VOLUMES :	NL 0	NT 0	NR 0	SL 1205	ST 0	SR 162	EL 136	ET 2339	ER 0	WL 0	WT 3432	WR 1197	TOTAL 8471
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	88.15%	0.00%	11.85%	5.49%	94.51%	0.00%	0.00%	74.14%	25.86%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	0	553	0	94	74	1199	0	0	1766	609	4295
PEAK HR FACTOR :	0.000			0.856			0.907			0.965			0.958

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	1	1	0
0	0	0	0
0	0	1	0
0	0	0	0

NB	SB	EB	WB
0	1	3	0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-014

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Garnet Ave			Garnet Ave			Balboa Ave			Balboa Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 0	ST 2	SR 0	EL 0	ET 2	ER 0	WL 0	WT 1	WR 1	TOTAL
7:00 AM	0	0	0	224	0	0	0	160	0	0	44	166	594
7:15 AM	0	0	0	262	0	1	0	192	0	0	60	126	641
7:30 AM	0	0	0	216	0	1	0	167	0	0	51	122	557
7:45 AM	0	0	0	194	0	0	0	134	0	0	61	122	511
8:00 AM	0	0	0	208	0	0	0	137	0	0	76	139	560
8:15 AM	0	0	0	193	0	0	1	161	0	0	75	141	571
8:30 AM	0	0	0	214	0	0	0	165	0	0	83	157	619
8:45 AM	0	0	0	218	0	0	0	113	0	0	89	153	573
TOTAL VOLUMES :	NL 0	NT 0	NR 0	SL 1729	ST 0	SR 2	EL 1	ET 1229	ER 0	WL 0	WT 539	WR 1126	TOTAL 4626
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	99.88%	0.00%	0.12%	0.08%	99.92%	0.00%	0.00%	32.37%	67.63%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	0	0	833	0	0	1	576	0	0	323	590	2323
PEAK HR FACTOR :	0.000			0.955			0.874			0.943			0.938

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-014

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Garnet Ave			Garnet Ave			Balboa Ave			Balboa Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 0	ST 2	SR 0	EL 0	ET 2	ER 0	WL 0	WT 1	WR 1	TOTAL
4:00 PM	0	0	0	187	0	2	0	109	0	0	162	256	716
4:15 PM	0	0	0	188	0	0	0	109	0	0	166	249	712
4:30 PM	0	0	0	195	0	3	0	108	0	0	152	230	688
4:45 PM	0	0	0	190	0	2	0	106	0	0	162	263	723
5:00 PM	0	0	0	186	0	3	0	127	0	0	146	263	725
5:15 PM	0	0	0	195	0	1	0	103	0	0	181	244	724
5:30 PM	0	0	0	219	0	1	0	97	0	0	168	263	748
5:45 PM	0	0	0	153	0	1	0	114	0	0	179	264	711
TOTAL VOLUMES :	NL 0	NT 0	NR 0	SL 1513	ST 0	SR 13	EL 0	ET 873	ER 0	WL 0	WT 1316	WR 2032	TOTAL 5747
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	99.15%	0.00%	0.85%	0.00%	100.00%	0.00%	0.00%	39.31%	60.69%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	0	0	790	0	7	0	433	0	0	657	1033	2920
PEAK HR FACTOR :	0.000			0.906			0.852			0.980			0.976

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-015

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Olney St			Olney St			Garnet Ave			Garnet Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	12	6	7	21	14	2	0	196	6	0	150	5	419
7:15 AM	7	12	2	34	30	1	0	200	10	1	124	3	424
7:30 AM	2	28	5	18	17	3	2	208	11	2	107	1	404
7:45 AM	7	9	3	23	21	1	3	180	8	1	122	7	385
8:00 AM	8	7	6	24	20	0	4	158	11	2	132	1	373
8:15 AM	5	9	4	24	22	2	1	177	11	1	128	7	391
8:30 AM	7	7	5	22	11	3	1	192	8	5	139	14	414
8:45 AM	7	5	2	26	12	4	3	173	10	1	139	6	388
TOTAL VOLUMES :	NL 55	NT 83	NR 34	SL 192	ST 147	SR 16	EL 14	ET 1484	ER 75	WL 13	WT 1041	WR 44	TOTAL 3198
APPROACH %'s :	31.98%	48.26%	19.77%	54.08%	41.41%	4.51%	0.89%	94.34%	4.77%	1.18%	94.81%	4.01%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	28	55	17	96	82	7	5	784	35	4	503	16	1632
PEAK HR FACTOR :	0.714			0.712			0.932			0.844			0.962

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-015

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Olney St			Olney St			Garnet Ave			Garnet Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM	15	18	6	11	16	3	2	187	19	2	214	18	511
4:15 PM	13	11	7	11	15	4	2	169	6	2	242	12	494
4:30 PM	27	18	7	23	11	1	4	165	7	2	240	5	510
4:45 PM	11	15	5	17	17	3	3	169	4	4	228	7	483
5:00 PM	25	25	5	21	7	11	5	174	6	2	230	11	522
5:15 PM	23	24	4	24	9	5	2	173	11	3	265	8	551
5:30 PM	29	18	5	16	16	2	1	179	13	6	252	6	543
5:45 PM	28	16	7	10	12	4	4	161	13	7	242	9	513
TOTAL VOLUMES :	NL 171	NT 145	NR 46	SL 133	ST 103	SR 33	EL 23	ET 1377	ER 79	WL 28	WT 1913	WR 76	TOTAL 4127
APPROACH %'s :	47.24%	40.06%	12.71%	49.44%	38.29%	12.27%	1.56%	93.10%	5.34%	1.39%	94.84%	3.77%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	105	83	21	71	44	22	12	687	43	18	989	34	2129
PEAK HR FACTOR :	0.950			0.878			0.961			0.943			0.966

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-016

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM														
NS/EW Streets:	Olney St			Olney St			Balboa Ave			Balboa Ave				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	
7:00 AM	5	24	12	0	28	0	29	126	5	8	32	2	271	
7:15 AM	1	24	21	0	38	1	0	164	4	10	55	0	318	
7:30 AM	4	28	27	1	30	2	3	132	2	9	43	3	284	
7:45 AM	4	16	15	2	26	2	2	124	6	15	49	2	263	
8:00 AM	4	15	8	1	29	2	1	116	8	13	61	4	262	
8:15 AM	1	19	24	0	28	2	1	159	2	7	68	0	311	
8:30 AM	1	15	22	1	23	2	1	122	9	14	69	1	280	
8:45 AM	6	20	13	2	18	2	1	121	4	7	80	2	276	
TOTAL VOLUMES :	NL 26	NT 161	NR 142	SL 7	ST 220	SR 13	EL 38	ET 1064	ER 40	WL 83	WT 457	WR 14	TOTAL 2265	
APPROACH %'s :	7.90%	48.94%	43.16%	2.92%	91.67%	5.42%	3.33%	93.17%	3.50%	14.98%	82.49%	2.53%		
PEAK HR START TIME :	700 AM													TOTAL
PEAK HR VOL :	14	92	75	3	122	5	34	546	17	42	179	7	1136	
PEAK HR FACTOR :	0.767			0.833			0.888			0.864			0.893	

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	1
0	0	1	0
0	0	1	1
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	1
NB 0	SB 0	EB 3	WB 3

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-016

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		PM												
		Olney St			Olney St			Balboa Ave			Balboa Ave			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM		2	29	9	1	25	7	6	98	3	23	136	3	342
4:15 PM		5	29	10	1	12	4	3	110	2	15	153	3	347
4:30 PM		6	38	11	3	26	4	2	80	6	29	127	1	333
4:45 PM		8	41	9	3	23	3	3	109	2	20	144	2	367
5:00 PM		3	47	10	2	19	6	0	115	4	28	113	3	350
5:15 PM		4	41	13	0	26	4	5	77	10	29	150	6	365
5:30 PM		2	46	12	3	30	5	5	89	8	26	143	0	369
5:45 PM		7	43	9	4	24	7	6	92	6	27	151	1	377
TOTAL VOLUMES :		NL 37	NT 314	NR 83	SL 17	ST 185	SR 40	EL 30	ET 770	ER 41	WL 197	WT 1117	WR 19	TOTAL 2850
APPROACH %'s :		8.53%	72.35%	19.12%	7.02%	76.45%	16.53%	3.57%	91.56%	4.88%	14.78%	83.80%	1.43%	
PEAK HR START TIME :		500 PM												TOTAL
PEAK HR VOL :		16	177	44	9	99	22	16	373	28	110	557	10	1461
PEAK HR FACTOR :		0.988			0.855			0.876			0.915			0.969

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	2	1
0	0	0	0
0	0	0	0
0	0	1	1
0	0	0	0
0	0	3	1
0	0	1	1
0	0	4	0
NB 0	SB 0	EB 11	WB 4

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-017

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		AM												
		Olney St			Olney St			Grand Ave			Grand Ave			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM		2	16	75	19	7	0	2	248	1	12	116	12	510
7:15 AM		3	20	81	42	10	0	4	317	2	13	147	14	653
7:30 AM		2	38	86	26	16	0	0	336	3	17	124	16	664
7:45 AM		2	15	81	25	13	2	3	373	3	11	130	13	671
8:00 AM		3	13	57	35	12	2	5	304	3	12	96	14	556
8:15 AM		1	15	64	23	7	2	6	337	4	16	112	7	594
8:30 AM		1	21	58	35	16	5	5	267	3	14	134	15	574
8:45 AM		3	14	53	19	7	1	4	288	1	7	149	12	558
TOTAL VOLUMES :		NL 17	NT 152	NR 555	SL 224	ST 88	SR 12	EL 29	ET 2470	ER 20	WL 102	WT 1008	WR 103	TOTAL 4780
APPROACH %'s :		2.35%	20.99%	76.66%	69.14%	27.16%	3.70%	1.15%	98.05%	0.79%	8.41%	83.10%	8.49%	
PEAK HR START TIME :		715 AM												TOTAL
PEAK HR VOL :		10	86	305	128	51	4	12	1330	11	53	497	57	2544
PEAK HR FACTOR :		0.796			0.880			0.892			0.872			0.948

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	2
0	0	0	0
0	0	0	1
0	0	0	0
0	0	2	1
0	0	0	3
0	0	1	3
0	0	1	1
NB 0	SB 0	EB 4	WB 11

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-017

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		PM												
		Olney St			Olney St			Grand Ave			Grand Ave			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM		8	11	28	24	17	6	6	239	2	30	264	32	667
4:15 PM		1	10	32	13	18	9	7	211	4	23	216	26	570
4:30 PM		2	14	28	18	17	4	4	233	8	35	259	41	663
4:45 PM		3	18	29	23	19	5	3	230	8	33	289	32	692
5:00 PM		5	15	35	24	20	6	3	244	5	30	311	52	750
5:15 PM		3	12	27	22	25	5	2	266	8	29	301	40	740
5:30 PM		3	21	23	22	26	5	6	233	7	44	282	38	710
5:45 PM		2	22	40	21	31	8	4	238	8	35	318	46	773
TOTAL VOLUMES :		NL 27	NT 123	NR 242	SL 167	ST 173	SR 48	EL 35	ET 1894	ER 50	WL 259	WT 2240	WR 307	TOTAL 5565
APPROACH %'s :		6.89%	31.38%	61.73%	43.04%	44.59%	12.37%	1.77%	95.70%	2.53%	9.23%	79.83%	10.94%	
PEAK HR START TIME :		500 PM												TOTAL
PEAK HR VOL :		13	70	125	89	102	24	15	981	28	138	1212	176	2973
PEAK HR FACTOR :		0.813			0.896			0.928			0.956			0.962

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	2
0	0	1	1
0	0	1	3
0	0	2	2
0	0	0	1
0	0	1	1
0	0	0	3
0	0	1	0
NB 0	SB 0	EB 6	WB 13

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-018

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Culver St			Culver St			Grand Ave			Grand Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	0	0	0	19	0	6	11	339	0	0	157	10	542
7:15 AM	0	0	0	42	0	9	10	375	0	0	146	37	619
7:30 AM	0	0	0	42	0	14	25	472	0	1	134	48	736
7:45 AM	0	0	0	45	0	16	10	422	0	0	123	15	631
8:00 AM	0	0	0	20	0	0	3	414	0	1	120	10	568
8:15 AM	0	0	0	18	0	3	3	417	0	0	132	15	588
8:30 AM	0	0	0	12	0	1	5	369	0	1	142	5	535
8:45 AM	0	0	0	13	0	3	3	332	0	0	154	4	509
TOTAL VOLUMES :	NL 0	NT 0	NR 0	SL 211	ST 0	SR 52	EL 70	ET 3140	ER 0	WL 3	WT 1108	WR 144	TOTAL 4728
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	80.23%	0.00%	19.77%	2.18%	97.82%	0.00%	0.24%	88.29%	11.47%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	0	0	149	0	39	48	1683	0	2	523	110	2554
PEAK HR FACTOR :	0.000			0.770			0.871			0.867			0.868

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	1	0
0	0	5	0
0	0	3	1
0	0	4	0
0	0	1	1
0	0	1	0
0	0	5	1
0	0	2	0
NB 0	SB 0	EB 22	WB 3

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-018

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		PM												
		Culver St			Culver St			Grand Ave			Grand Ave			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 0	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM		0	0	0	23	0	4	5	284	0	0	297	12	625
4:15 PM		0	0	0	10	0	6	4	262	0	0	313	10	605
4:30 PM		0	0	0	15	0	5	1	268	0	0	311	17	617
4:45 PM		0	0	0	22	0	4	5	299	0	0	401	23	754
5:00 PM		0	0	0	13	0	6	2	329	0	0	355	13	718
5:15 PM		0	0	0	16	0	6	6	293	0	1	397	11	730
5:30 PM		0	0	0	17	0	8	3	288	0	0	371	15	702
5:45 PM		0	0	0	7	0	4	5	278	0	0	354	12	660
TOTAL VOLUMES :		NL 0	NT 0	NR 0	SL 123	ST 0	SR 43	EL 31	ET 2301	ER 0	WL 1	WT 2799	WR 113	TOTAL 5411
APPROACH %'s :		#DIV/0!	#DIV/0!	#DIV/0!	74.10%	0.00%	25.90%	1.33%	98.67%	0.00%	0.03%	96.09%	3.88%	
PEAK HR START TIME :		445 PM												TOTAL
PEAK HR VOL :		0	0	0	68	0	24	16	1209	0	1	1524	62	2904
PEAK HR FACTOR :		0.000			0.885			0.925			0.936			0.963

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	4	0
0	0	0	0
0	0	0	0
0	0	3	0
0	0	1	0
0	0	1	1
0	0	0	0
0	0	2	0
NB 0	SB 0	EB 11	WB 1

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-019

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM														
NS/EW Streets:	Lee St			Lee St			Grand Ave			Grand Ave				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL 0	NT 1	NR 0	SL 0	ST 0	SR 0	EL 0	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	
7:00 AM	14	0	15	0	0	0	0	347	14	46	155	0	591	
7:15 AM	29	0	16	0	0	0	0	408	12	55	159	0	679	
7:30 AM	2	0	4	0	0	0	0	529	3	11	180	0	729	
7:45 AM	1	0	7	0	0	0	0	452	5	11	141	0	617	
8:00 AM	2	0	3	0	0	0	0	423	5	12	107	0	552	
8:15 AM	5	0	4	0	0	0	0	435	4	11	149	0	608	
8:30 AM	1	0	0	0	0	0	0	385	3	9	164	0	562	
8:45 AM	3	0	2	0	0	0	0	324	9	3	150	0	491	
TOTAL VOLUMES :	NL 57	NT 0	NR 51	SL 0	ST 0	SR 0	EL 0	ET 3303	ER 55	WL 158	WT 1205	WR 0	TOTAL 4829	
APPROACH %'s :	52.78%	0.00%	47.22%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	98.36%	1.64%	11.59%	88.41%	0.00%		
PEAK HR START TIME :	700 AM													TOTAL
PEAK HR VOL :	46	0	42	0	0	0	0	1736	34	123	635	0	2616	
PEAK HR FACTOR :	0.489			0.000			0.832			0.886			0.897	

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-019

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		PM												
		Lee St			Lee St			Grand Ave			Grand Ave			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 1	NR 0	SL 0	ST 0	SR 0	EL 0	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM		10	0	33	0	0	0	0	323	2	7	285	0	660
4:15 PM		3	0	5	0	0	0	0	264	4	7	336	0	619
4:30 PM		2	0	3	0	0	0	0	285	2	9	319	0	620
4:45 PM		1	0	1	0	0	0	0	309	3	21	431	0	766
5:00 PM		7	0	7	0	0	0	0	324	8	25	344	0	715
5:15 PM		5	0	12	0	0	0	0	291	6	20	400	0	734
5:30 PM		3	0	5	0	0	0	0	301	11	22	398	0	740
5:45 PM		2	0	4	0	0	0	0	280	10	46	374	0	716
TOTAL VOLUMES :		NL 33	NT 0	NR 70	SL 0	ST 0	SR 0	EL 0	ET 2377	ER 46	WL 157	WT 2887	WR 0	TOTAL 5570
APPROACH %'s :		32.04%	0.00%	67.96%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	98.10%	1.90%	5.16%	94.84%	0.00%	
PEAK HR START TIME :		445 PM												TOTAL
PEAK HR VOL :		16	0	25	0	0	0	0	1225	28	88	1573	0	2955
PEAK HR FACTOR :		0.603			0.000			0.944			0.919			0.964

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-020

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Figueroa Blvd			Figueroa Blvd			Grand Ave			Grand Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 0	ST 0	SR 0	EL 1	ET 1	ER 0	WL 0	WT 2	WR 0	TOTAL
7:00 AM	0	0	0	0	0	0	11	360	0	0	206	5	582
7:15 AM	0	0	0	0	0	0	24	426	0	0	192	4	646
7:30 AM	0	0	0	0	0	0	21	490	0	0	144	3	658
7:45 AM	0	0	0	0	0	0	9	489	0	0	147	10	655
8:00 AM	0	0	0	0	0	0	9	428	0	0	125	11	573
8:15 AM	0	0	0	0	0	0	4	407	0	0	137	7	555
8:30 AM	0	0	0	0	0	0	10	401	0	0	157	11	579
8:45 AM	0	0	0	0	0	0	9	336	0	0	152	14	511

TOTAL VOLUMES :	NL 0	NT 0	NR 0	SL 0	ST 0	SR 0	EL 97	ET 3337	ER 0	WL 0	WT 1260	WR 65	TOTAL 4759
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	2.82%	97.18%	0.00%	0.00%	95.09%	4.91%	

PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	65	1765	0	0	689	22	2541
PEAK HR FACTOR :	0.000			0.000			0.895			0.842			0.965

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	8	0
0	0	14	0
0	0	10	0
0	0	1	0
0	0	1	0
0	0	1	0
0	0	2	0
0	0	1	0

NB	SB	EB	WB
0	0	38	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-020

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Figueroa Blvd			Figueroa Blvd			Grand Ave			Grand Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 0	ST 0	SR 0	EL 1	ET 1	ER 0	WL 0	WT 2	WR 0	TOTAL
4:00 PM	0	0	0	0	0	0	24	304	0	0	291	8	627
4:15 PM	0	0	0	0	0	0	16	263	0	0	319	7	605
4:30 PM	0	0	0	0	0	0	13	282	0	0	322	4	621
4:45 PM	0	0	0	0	0	0	20	275	0	0	382	9	686
5:00 PM	0	0	0	0	0	0	12	326	0	0	402	11	751
5:15 PM	0	0	0	0	0	0	13	281	0	0	388	11	693
5:30 PM	0	0	0	0	0	0	17	295	0	0	369	3	684
5:45 PM	0	0	0	0	0	0	19	281	0	0	414	5	719
TOTAL VOLUMES :	NL 0	NT 0	NR 0	SL 0	ST 0	SR 0	EL 134	ET 2307	ER 0	WL 0	WT 2887	WR 58	TOTAL 5386
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.49%	94.51%	0.00%	0.00%	98.03%	1.97%	

PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	61	1183	0	0	1573	30	2847
PEAK HR FACTOR :	0.000			0.000			0.920			0.956			0.948

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	11	0
0	0	10	0
0	0	6	0
0	0	10	0
0	0	2	0
0	0	6	0
0	0	7	0
0	0	9	0
NB 0	SB 0	EB 61	WB 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-021

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Grand Ave			Grand Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 2	NT 2	NR 0	SL 1	ST 1.5	SR 0.5	EL 1	ET 0	ER 1	WL 0	WT 1	WR 0	TOTAL
7:00 AM	166	142	5	0	132	49	71	0	256	0	0	2	823
7:15 AM	159	135	3	1	147	41	83	0	337	0	0	1	907
7:30 AM	125	151	4	0	158	28	91	0	393	0	0	0	950
7:45 AM	128	171	6	0	174	28	90	0	441	0	0	2	1040
8:00 AM	105	163	7	0	146	28	75	0	360	0	0	3	887
8:15 AM	121	172	9	0	157	28	70	0	346	0	0	5	908
8:30 AM	145	199	11	1	188	21	72	0	316	0	0	4	957
8:45 AM	145	193	10	0	162	27	63	0	301	0	0	3	904
TOTAL VOLUMES :	NL 1094	NT 1326	NR 55	SL 2	ST 1264	SR 250	EL 615	ET 0	ER 2750	WL 0	WT 0	WR 20	TOTAL 7376
APPROACH %'s :	44.20%	53.58%	2.22%	0.13%	83.38%	16.49%	18.28%	0.00%	81.72%	0.00%	0.00%	100.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	499	705	33	1	665	105	307	0	1463	0	0	14	3792
PEAK HR FACTOR :	0.871			0.918			0.833			0.700			0.912

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
1	0	0	0
3	1	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	1	0	0
0	0	0	0

NB	SB	EB	WB
5	2	0	0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-021

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Grand Ave			Grand Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 2	NT 2	NR 0	SL 1	ST 1.5	SR 0.5	EL 1	ET 0	ER 1	WL 0	WT 1	WR 0	TOTAL
4:00 PM	243	217	5	0	238	48	24	0	284	0	0	3	1062
4:15 PM	288	197	9	0	158	44	34	0	246	0	0	4	980
4:30 PM	267	220	4	0	165	68	23	0	268	0	0	2	1017
4:45 PM	308	237	5	0	193	75	24	0	252	0	2	0	1096
5:00 PM	372	214	3	2	184	49	34	0	276	0	0	2	1136
5:15 PM	337	252	5	0	184	70	34	0	277	0	0	6	1165
5:30 PM	276	224	6	0	179	92	19	0	244	0	0	2	1042
5:45 PM	355	219	3	0	136	61	33	0	256	0	0	3	1066
TOTAL VOLUMES :	NL 2446	NT 1780	NR 40	SL 2	ST 1437	SR 507	EL 225	ET 0	ER 2103	WL 0	WT 2	WR 22	TOTAL 8564
APPROACH %'s :	57.34%	41.73%	0.94%	0.10%	73.84%	26.05%	9.66%	0.00%	90.34%	0.00%	8.33%	91.67%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	1293	927	19	2	740	286	111	0	1049	0	2	10	4439
PEAK HR FACTOR :	0.942			0.948			0.932			0.500			0.953

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
2	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
2	2	0	0
0	0	0	0
0	0	0	0
0	0	0	0

NB	SB	EB	WB
5	2	0	0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-022

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM														
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Rosewood St			Rosewood St				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL 0	NT 3	NR 0	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 0	WT 1	WR 0	TOTAL	
7:00 AM	0	328	0	0	384	0	0	0	0	0	0	3	715	
7:15 AM	0	279	1	1	480	0	0	0	0	1	0	2	764	
7:30 AM	0	285	0	1	541	0	0	0	0	0	0	1	828	
7:45 AM	0	295	1	3	613	0	0	0	0	0	0	2	914	
8:00 AM	0	284	3	0	499	0	0	0	0	0	0	3	789	
8:15 AM	0	295	1	2	496	0	0	0	0	1	0	3	798	
8:30 AM	0	337	5	2	499	0	0	0	0	1	0	0	844	
8:45 AM	0	350	5	1	467	0	0	0	0	1	0	1	825	
TOTAL VOLUMES :	NL 0	NT 2453	NR 16	SL 10	ST 3979	SR 0	EL 0	ET 0	ER 0	WL 4	WT 0	WR 15	TOTAL 6477	
APPROACH %'s :	0.00%	99.35%	0.65%	0.25%	99.75%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	21.05%	0.00%	78.95%		
PEAK HR START TIME :	745 AM													TOTAL
PEAK HR VOL :	0	1211	10	7	2107	0	0	0	0	2	0	8	3345	
PEAK HR FACTOR :	0.893			0.858			0.000			0.625			0.915	

CONTROL : 1-Way Stop (WB)

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	1	0	0
0	0	0	0
0	2	0	0
0	0	0	0
0	0	0	0
0	1	0	0
0	1	0	0
NB 0	SB 5	EB 0	WB 0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-022

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		PM												
		Mission Bay Dr			Mission Bay Dr			Rosewood St			Rosewood St			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 3	NR 0	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM		0	461	4	2	506	0	0	0	0	1	0	2	976
4:15 PM		1	453	2	4	409	0	0	0	0	0	0	1	870
4:30 PM		0	499	2	1	437	0	0	0	0	1	0	2	942
4:45 PM		0	565	3	1	427	0	0	0	0	0	0	5	1001
5:00 PM		0	562	1	0	460	0	0	0	0	0	0	1	1024
5:15 PM		1	567	6	0	450	0	0	0	0	1	0	2	1027
5:30 PM		0	522	3	1	432	0	0	0	0	1	0	3	962
5:45 PM		0	582	1	0	397	0	0	0	0	1	0	1	982
TOTAL VOLUMES :		NL 2	NT 4211	NR 22	SL 9	ST 3518	SR 0	EL 0	ET 0	ER 0	WL 5	WT 0	WR 17	TOTAL 7784
APPROACH %'s :		0.05%	99.43%	0.52%	0.26%	99.74%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	22.73%	0.00%	77.27%	
PEAK HR START TIME :		445 PM												TOTAL
PEAK HR VOL :		1	2216	13	2	1769	0	0	0	0	2	0	11	4014
PEAK HR FACTOR :		0.971			0.963			0.000			0.650			0.977

CONTROL : 1-Way Stop (WB)

UTURNS			
NB	SB	EB	WB
0	0	0	0
1	1	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
NB 2	SB 1	EB 0	WB 0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-023

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM														
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Bunker Hill St			Bunker Hill St				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	
7:00 AM	1	200	18	22	179	0	0	0	0	9	1	10	440	
7:15 AM	2	202	15	24	168	0	0	0	0	16	0	8	435	
7:30 AM	2	207	25	20	180	0	0	0	0	16	0	4	454	
7:45 AM	4	221	26	19	180	0	1	0	0	10	0	6	467	
8:00 AM	2	209	15	31	163	0	0	0	1	9	0	14	444	
8:15 AM	7	214	20	24	177	0	0	0	0	6	0	7	455	
8:30 AM	2	230	22	30	201	0	0	0	0	8	0	7	500	
8:45 AM	0	230	33	34	183	1	0	0	0	13	0	7	501	
TOTAL VOLUMES :	NL 20	NT 1713	NR 174	SL 204	ST 1431	SR 1	EL 1	ET 0	ER 1	WL 87	WT 1	WR 63	TOTAL 3696	
APPROACH %'s :	1.05%	89.83%	9.12%	12.47%	87.47%	0.06%	50.00%	0.00%	50.00%	57.62%	0.66%	41.72%		
PEAK HR START TIME :	800 AM													TOTAL
PEAK HR VOL :	11	883	90	119	724	1	0	0	1	36	0	35	1900	
PEAK HR FACTOR :	0.935			0.913			0.250			0.772			0.948	

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
1	1	0	0
2	5	0	0
2	3	0	0
3	1	0	0
2	6	0	0
7	3	0	0
2	5	0	0
0	5	0	0
NB 19	SB 29	EB 0	WB 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-023

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

NS/EW Streets:		PM												
		Mission Bay Dr			Mission Bay Dr			Bunker Hill St			Bunker Hill St			
NORTHBOUND				SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	
4:00 PM	2	243	5	12	229	2	0	1	2	24	0	7	527	
4:15 PM	5	213	11	18	189	4	1	0	0	21	1	21	484	
4:30 PM	4	221	13	14	207	4	0	0	1	27	1	13	505	
4:45 PM	7	245	12	12	216	6	2	0	1	37	1	3	542	
5:00 PM	8	251	9	19	192	6	3	0	5	26	0	17	536	
5:15 PM	11	252	16	28	211	6	2	0	2	35	1	11	575	
5:30 PM	7	236	6	26	241	4	3	0	1	20	1	7	552	
5:45 PM	4	256	8	17	174	11	1	0	1	19	0	11	502	
TOTAL VOLUMES :	NL 48	NT 1917	NR 80	SL 146	ST 1659	SR 43	EL 12	ET 1	ER 13	WL 209	WT 5	WR 90	TOTAL 4223	
APPROACH %'s :	2.35%	93.74%	3.91%	7.90%	89.77%	2.33%	46.15%	3.85%	50.00%	68.75%	1.64%	29.61%		
PEAK HR START TIME :	445 PM													TOTAL
PEAK HR VOL :	33	984	43	85	860	22	10	0	9	118	3	38	2205	
PEAK HR FACTOR :	0.950			0.892			0.594			0.846			0.959	

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
1	0	0	0
1	4	0	0
4	3	0	0
6	4	0	0
5	2	0	0
7	3	0	0
3	9	0	0
2	4	0	0
NB 29	SB 29	EB 0	WB 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-024

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Magnolia Ave			Magnolia Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
7:00 AM	5	250	1	5	165	12	23	0	9	1	0	1	472
7:15 AM	6	213	0	4	193	16	21	0	9	0	1	1	464
7:30 AM	2	212	0	7	169	8	25	0	21	2	0	1	447
7:45 AM	0	223	0	9	191	9	17	0	21	0	1	0	471
8:00 AM	6	224	0	11	171	22	23	2	18	0	0	0	477
8:15 AM	8	226	0	7	180	14	17	1	19	4	1	1	478
8:30 AM	6	230	3	8	199	8	16	1	23	3	0	3	500
8:45 AM	11	232	4	11	171	13	18	2	29	2	0	1	494
TOTAL VOLUMES :	NL 44	NT 1810	NR 8	SL 62	ST 1439	SR 102	EL 160	ET 6	ER 149	WL 12	WT 3	WR 8	TOTAL 3803
APPROACH %'s :	2.36%	97.21%	0.43%	3.87%	89.77%	6.36%	50.79%	1.90%	47.30%	52.17%	13.04%	34.78%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	31	912	7	37	721	57	74	6	89	9	1	5	1949
PEAK HR FACTOR :	0.962			0.948			0.862			0.625			0.975

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
2	3	0	0
2	2	0	0
1	5	0	0
0	7	0	0
3	8	0	0
7	3	0	0
2	5	0	0
6	8	0	0
NB 23	SB 41	EB 0	WB 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-024

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Magnolia Ave			Magnolia Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM	10	263	1	11	226	22	13	2	33	1	0	1	583
4:15 PM	12	245	0	6	180	25	20	0	25	0	1	2	516
4:30 PM	9	256	1	9	194	27	16	0	22	1	1	3	539
4:45 PM	14	259	1	9	216	30	17	0	16	1	0	2	565
5:00 PM	17	276	1	10	170	27	15	1	32	2	1	1	553
5:15 PM	12	284	1	10	204	22	10	2	36	1	0	3	585
5:30 PM	10	253	0	8	203	34	11	0	31	3	0	1	554
5:45 PM	6	271	0	3	188	27	10	0	18	1	0	0	524
TOTAL VOLUMES :	NL 90	NT 2107	NR 5	SL 66	ST 1581	SR 214	EL 112	ET 5	ER 213	WL 10	WT 3	WR 13	TOTAL 4419
APPROACH %'s :	4.09%	95.69%	0.23%	3.55%	84.95%	11.50%	33.94%	1.52%	64.55%	38.46%	11.54%	50.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	53	1072	3	37	793	113	53	3	115	7	1	7	2257
PEAK HR FACTOR :	0.949			0.925			0.891			0.938			0.965

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
5	9	0	0
6	5	0	0
6	6	0	0
3	7	0	0
3	7	0	0
6	8	0	0
7	5	0	0
4	3	0	0
NB 40	SB 50	EB 0	WB 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-025

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Damon Ave			Damon Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 1	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 1	WT 0	WR 1	TOTAL
7:00 AM	0	342	29	12	188	0	0	0	0	8	0	10	589
7:15 AM	0	346	26	13	149	0	0	0	0	22	0	11	567
7:30 AM	0	308	17	14	182	0	0	0	0	22	0	13	556
7:45 AM	0	301	24	18	195	0	0	0	0	12	0	11	561
8:00 AM	0	328	25	14	175	0	0	0	0	22	0	12	576
8:15 AM	0	297	29	6	177	0	0	0	0	17	0	18	544
8:30 AM	0	299	36	12	207	0	0	0	0	22	0	10	586
8:45 AM	0	282	23	17	207	0	0	0	0	22	0	8	559
TOTAL VOLUMES :	NL 0	NT 2503	NR 209	SL 106	ST 1480	SR 0	EL 0	ET 0	ER 0	WL 147	WT 0	WR 93	TOTAL 4538
APPROACH %'s :	0.00%	92.29%	7.71%	6.68%	93.32%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	61.25%	0.00%	38.75%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	1297	96	57	714	0	0	0	0	64	0	45	2273
PEAK HR FACTOR :	0.936			0.905			0.000			0.779			0.965

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
2	0	0	0
3	0	0	0
2	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
NB 8	SB 0	EB 0	WB 0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-025

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Damon Ave			Damon Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 1	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 1	WT 0	WR 1	TOTAL
4:00 PM	0	293	34	20	356	0	0	0	0	31	0	26	760
4:15 PM	0	236	38	25	340	0	0	0	0	33	0	26	698
4:30 PM	0	255	36	12	322	0	0	0	0	30	0	23	678
4:45 PM	0	270	40	21	305	0	0	0	0	37	0	31	704
5:00 PM	0	316	53	20	314	0	0	0	0	35	0	56	794
5:15 PM	0	276	41	22	310	0	0	0	0	39	0	36	724
5:30 PM	0	239	31	16	284	0	0	0	0	44	0	33	647
5:45 PM	0	264	29	14	315	0	0	0	0	38	0	26	686
TOTAL VOLUMES :	NL 0	NT 2149	NR 302	SL 150	ST 2546	SR 0	EL 0	ET 0	ER 0	WL 287	WT 0	WR 257	TOTAL 5691
APPROACH %'s :	0.00%	87.68%	12.32%	5.56%	94.44%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	52.76%	0.00%	47.24%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	1117	170	75	1251	0	0	0	0	141	0	146	2900
PEAK HR FACTOR :	0.872			0.993			0.000			0.788			0.913

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

NB	SB	EB	WB
0	0	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-026

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Bluffside Ave			Bluffside Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 0	ST 2	SR 1	EL 1.5	ET 0	ER 0.5	WL 0	WT 0	WR 0	TOTAL
7:00 AM	18	327	0	0	173	45	155	0	24	0	0	0	742
7:15 AM	13	328	0	0	145	46	148	0	21	0	0	0	701
7:30 AM	16	308	0	0	179	43	154	0	22	0	0	0	722
7:45 AM	18	296	0	0	176	48	156	0	34	0	0	0	728
8:00 AM	22	340	0	0	165	58	120	0	22	0	0	0	727
8:15 AM	22	306	0	0	162	41	142	0	18	0	0	0	691
8:30 AM	19	302	0	0	202	53	158	0	31	0	0	0	765
8:45 AM	14	281	0	0	194	50	123	0	25	0	0	0	687
TOTAL VOLUMES :	NL 142	NT 2488	NR 0	SL 0	ST 1396	SR 384	EL 1156	ET 0	ER 197	WL 0	WT 0	WR 0	TOTAL 5763
APPROACH %'s :	5.40%	94.60%	0.00%	0.00%	78.43%	21.57%	85.44%	0.00%	14.56%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	81	1244	0	0	705	200	576	0	105	0	0	0	2911
PEAK HR FACTOR :	0.915			0.887			0.896			0.000			0.951

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
1	0	0	0
1	0	0	0
2	0	0	0
1	0	0	0
4	0	0	0
1	0	0	0
0	0	0	0
NB 10	SB 0	EB 0	WB 0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 16-4184-026

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Mission Bay Dr			Mission Bay Dr			Bluffsides Ave			Bluffsides Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 0	ST 2	SR 1	EL 1.5	ET 0	ER 0.5	WL 0	WT 0	WR 0	TOTAL
4:00 PM	41	275	0	0	348	116	77	0	44	0	0	0	901
4:15 PM	47	202	0	0	298	101	78	0	40	0	0	0	766
4:30 PM	56	236	0	0	317	125	64	0	24	0	0	0	822
4:45 PM	59	240	0	0	296	119	72	0	30	0	0	0	816
5:00 PM	93	273	0	0	278	133	55	0	33	0	0	0	865
5:15 PM	69	233	0	0	288	126	56	0	40	0	0	0	812
5:30 PM	71	213	0	0	255	111	63	0	23	0	0	0	736
5:45 PM	72	214	0	0	307	151	67	0	27	0	0	0	838
TOTAL VOLUMES :	NL 508	NT 1886	NR 0	SL 0	ST 2387	SR 982	EL 532	ET 0	ER 261	WL 0	WT 0	WR 0	TOTAL 6556
APPROACH %'s :	21.22%	78.78%	0.00%	0.00%	70.85%	29.15%	67.09%	0.00%	32.91%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	277	982	0	0	1179	503	247	0	127	0	0	0	3315
PEAK HR FACTOR :	0.860			0.951			0.917			0.000			0.958

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
4	0	0	0
1	0	0	0
3	0	0	0
2	0	0	0
3	0	0	0
2	0	0	0
1	0	0	0
1	0	0	0
NB 17	SB 0	EB 0	WB 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-027

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM													
NS/EW Streets:	Santa Fe St			Santa Fe St			Damon Ave			Damon Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 1	WL 0	WT 0	WR 0	TOTAL
7:00 AM	5	10	0	0	5	12	17	0	3	0	0	0	52
7:15 AM	2	7	0	0	8	17	14	0	9	0	0	0	57
7:30 AM	8	18	0	0	3	20	16	0	10	0	0	0	75
7:45 AM	3	30	0	0	6	18	21	0	12	0	0	0	90
8:00 AM	7	20	0	0	8	18	27	0	7	0	0	0	87
8:15 AM	3	20	0	0	8	14	20	0	9	0	0	0	74
8:30 AM	6	20	0	0	7	18	31	0	3	0	0	0	85
8:45 AM	3	19	0	0	3	14	21	0	3	0	0	0	63
TOTAL VOLUMES :	NL 37	NT 144	NR 0	SL 0	ST 48	SR 131	EL 167	ET 0	ER 56	WL 0	WT 0	WR 0	TOTAL 583
APPROACH %'s :	20.44%	79.56%	0.00%	0.00%	26.82%	73.18%	74.89%	0.00%	25.11%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	745 AM												
PEAK HR VOL :	19	90	0	0	29	68	99	0	31	0	0	0	336
PEAK HR FACTOR :	0.826			0.933			0.956			0.000			0.933

CONTROL : 3-Way Stop (NB/SB/EB)

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
NB 0	SB 0	EB 2	WB 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-027

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM													
NS/EW Streets:	Santa Fe St			Santa Fe St			Damon Ave			Damon Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 1	WL 0	WT 0	WR 0	TOTAL
4:00 PM	7	3	0	0	22	29	21	0	12	0	0	0	94
4:15 PM	2	9	0	0	11	31	21	0	8	0	0	0	82
4:30 PM	7	6	0	1	15	23	12	0	8	0	0	0	72
4:45 PM	15	17	0	0	11	19	23	0	8	0	0	0	93
5:00 PM	24	6	0	0	21	36	21	0	23	0	0	0	131
5:15 PM	20	5	0	0	15	30	22	0	15	0	0	0	107
5:30 PM	7	11	0	0	14	35	18	0	9	0	0	0	94
5:45 PM	5	8	0	0	9	20	17	0	10	0	0	0	69
TOTAL VOLUMES :	NL 87	NT 65	NR 0	SL 1	ST 118	SR 223	EL 155	ET 0	ER 93	WL 0	WT 0	WR 0	TOTAL 742
APPROACH %'s :	57.24%	42.76%	0.00%	0.29%	34.50%	65.20%	62.50%	0.00%	37.50%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	66	39	0	0	61	120	84	0	55	0	0	0	425
PEAK HR FACTOR :	0.820			0.794			0.790			0.000			0.811

CONTROL : 3-Way Stop (NB/SB/EB)

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	1	0	0
0	0	0	0
0	0	1	0
0	0	2	0
0	0	1	0
0	0	0	0
NB 0	SB 1	EB 4	WB 0

2016 Traffic Volumes on California State Highways

Dist	Route	County	Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
11	005	SD	2.312	SAN DIEGO, DAIRY MART ROAD	5100	62000	57000	6300	77000	76000
11	005	SD	3.1	SAN DIEGO, JCT. RTE. 905	6300	77000	76000	8900	115000	114000
11	005	SD	4.042	SAN DIEGO, CORONADO AVENUE	9400	122000	121000	10300	136000	135000
11	005	SD	4.632	JCT. RTE. 75 WEST	10300	136000	135000	12700	166000	160000
11	005	SD	5.404	SAN DIEGO, MAIN STREET	12700	166000	160000	13800	164000	162000
11	005	SD	6.056	CHULA VISTA, PALOMAR STREET	13800	164000	162000	13500	160000	158000
11	005	SD	6.807	CHULA VISTA, L STREET	13500	160000	158000	14600	172000	171000
11	005	SD	7.3	CHULA VISTA, J STREET	14600	172000	171000	14600	176000	175000
11	005	SD	7.812	CHULA VISTA, H STREET	14600	176000	175000	13800	185000	170000
11	005	SD	8.562	E STREET	13800	185000	170000	11300	138000	132000
11	005	SD	9.396	JCT. RTE. 54	11300	138000	132000	16100	197000	190000
11	005	SD	R 10.042	NATIONAL CITY, 24TH STREET	16100	197000	190000	16000	195000	189000
11	005	SD	R 10.749	NATIONAL CITY, 9TH STREET	16000	195000	189000	15100	188000	180000
11	005	SD	R 11.129	8TH STREET	15100	188000	180000	15400	212000	196000
11	005	SD	R 11.66	SAN DIEGO, DIVISION/MAIN STREETS	15400	212000	196000	16500	204000	203000
11	005	SD	R 12.647	JCT. RTE. 15 NORTH	16500	204000	203000	13300	177000	167000
11	005	SD	R 13.386	SAN DIEGO, 28TH STREET	13300	177000	167000	13300	177000	171000
11	005	SD	R 14.077	SAN DIEGO, JCT. RTE. 75 SOUTH	13300	177000	171000	13500	180000	173000
11	005	SD	R 14.74	J STREET	13500	180000	173000	13800	189000	178000
11	005	SD	R 15.036	SAN DIEGO, JCT. RTE. 94	13800	189000	178000	17700	245000	229000
11	005	SD	R 15.405	SAN DIEGO, PERSHING DRIVE	17700	245000	229000	17700	245000	229000
11	005	SD	R 16.069	SAN DIEGO, JCT. RTE. 163	17700	245000	229000	17100	237000	219000
11	005	SD	R 16.311	SAN DIEGO, SIXTH AVENUE	17100	237000	219000	17100	237000	219000
11	005	SD	R 16.589	SAN DIEGO, FIRST AVENUE	17100	237000	219000	13200	186000	174000
11	005	SD	R 16.912	SAN DIEGO, HAWTHORN STREET	13200	186000	174000	16300	226000	207000
11	005	SD	R 17.25	SAN DIEGO, INDIA/SASSAFRAS STREETS	16300	226000	207000	15800	218000	201000
11	005	SD	R 17.53	PACIFIC HIGHWAY VIADUCT	15800	218000	201000	13900	166000	158000
11	005	SD	R 17.77	SAN DIEGO, SASSAFRAS STREET	13900	166000	158000	12400	164000	154000
11	005	SD	R 18.283	SAN DIEGO, WASHINGTON STREET	12400	164000	154000	16300	218000	203000
11	005	SD	R 19.033	SAN DIEGO, OLD TOWN AVENUE	16300	218000	203000	16200	238000	205000
11	005	SD	R 20.056	JCT. RTE. 8/CAMINO DEL RIO	16200	238000	205000	16300	237000	207000
11	005	SD	R 20.818	SAN DIEGO, MISSION BAY DRIVE/SEA WORLD DRIVE	16300	237000	207000	17500	237000	222000
11	005	SD	R 22.262	CLAIREMONT DRIVE	17500	237000	222000	17000	210000	205000
11	005	SD	R 22.872	SAN DIEGO, DE ANZA ROAD	17000	210000	205000	13700	168000	163000
11	005	SD	R 23.476	SAN DIEGO, BALBOA AVENUE	13700	168000	163000	12600	153000	147000
11	005	SD	R 23.93	SAN DIEGO, MISSION BAY DRIVE	12600	153000	147000	15900	208000	201000
11	005	SD	R 25.947	JCT. RTE. 52 EAST	15900	208000	201000	13800	192000	187000

OTM32420			CALTRANS TRAFFIC VOLUMES																PAGE # 3									
10/27/2017			LATEST TRAFFIC YEAR SELECTED																									
11:17:51			PEAK HOUR VOLUME DATA																									
DI	RTE	CO	PRE	PM	CS	LEG	YR	Dir	AM PEAK				1 WAY	Dir	PM PEAK				1 WAY	Dir	PM	CS	LEG	YR	Dir			
									%	%	%	%			%	%	%	%										
									PHV	K	D	KD	HR	DAY	MNTH		PHV	K	D	KD	HR	DAY	MNTH					
04	004	CC		12.67	24	A	15	W	3859	8.46	53.73	4.54	7	TUE	DEC	E	3666	7.31	59.04	4.32	15	THU	DEC					
04	004	CC	R	20.10	416	A	15	W	6375	5.24	84.4	4.43	5	TUE	JUN	E	6028	6.77	61.85	4.18	17	TUE	MAR					
04	004	CC	R	41.96	486	B	15	E	772	8.25	65.37	5.39	11	WED	JUN	E	502	6.36	55.17	3.51	13	WED	JUN					
10	004	SJ		4.421	12	O	14	W	499	7.66	74.48	5.71	5	MON	JUN	E	595	10.64	63.91	6.8	16	THU	JUN					
10	004	SJ	T	14.05	54	A	16	W	832	7.53	75.29	5.67	6	MON	APR	E	1340	12.21	74.82	9.14	17	FRI	OCT					
10	004	SJ		15.91	113	B	15	W	907	7.09	69.4	4.92	6	TUE	OCT	E	1398	10.43	72.7	7.59	16	FRI	JUL					
10	004	SJ	T	15.32	116	A	14	W	912	9.13	56.93	5.2	7	THU	AUG	E	1266	9.93	72.68	7.22	16	WED	MAY					
10	004	SJ	R	16.06	58	B	14	W	920	7.76	67.6	5.24	6	THU	AUG	E	1266	9.93	72.68	7.21	16	WED	MAY					
10	004	SJ	R	16.06	59	A	16	E	3306	8.01	52.59	4.21	7	WED	SEP	E	3182	7.75	52.3	4.05	14	FRI	APR					
10	004	SJ		24.87	313	A	16	E	425	9.88	75.49	7.46	11	SAT	FEB	W	481	11.69	72.22	8.44	13	MON	FEB					
10	004	SJ		24.87	336	B	16	W	375	10.56	60.98	6.44	11	SUN	JUL	W	438	10.75	69.97	7.52	16	SUN	AUG					
11	005	SD	R	.878	501	A	16	S	1670	6.31	61.51	3.88	10	SAT	FEB	S	2892	9.14	73.48	6.72	15	WED	DEC					
11	005	SD		4.632	901	A	16	N	5840	4.9	74.38	3.64	6	TUE	OCT	S	7635	7.79	61.18	4.76	17	WED	MAY					
11	005	SD	R	11.13	952	A	16	N	8503	6.19	70.12	4.34	6	MON	NOV	S	9144	7.84	59.56	4.67	14	FRI	MAR					
11	005	SD	R	12.65	903	A	16	N	8527	6.55	77.97	5.11	6	WED	DEC	S	7990	7.86	60.91	4.79	14	THU	MAY					
11	005	SD	R	14.74	956	A	16	N	8302	7.72	60.38	4.66	7	THU	SEP	S	7364	7.04	58.76	4.14	17	TUE	MAY					
11	005	SD	R	17.53	896	A	16	N	8435	8.91	59.89	5.34	7	THU	OCT	N	6302	6.9	57.81	3.99	17	THU	AUG					
11	005	SD	R	22.26	801	B	16	N	8835	7.05	56.49	3.98	7	TUE	JUL	S	9410	7.79	54.42	4.24	15	THU	MAR					
11	005	SD	R	25.95	802	B	16	N	9647	7.6	63.25	4.81	7	TUE	SEP	S	9350	7.72	60.35	4.66	15	THU	SEP					
11	005	SD	R	30.68	502	A	16	N	8164	7.02	55.2	3.87	11	FRI	JUL	N	7816	6.98	53.13	3.71	13	FRI	SEP					
11	005	SD	R	30.68	803	B	16	S	5910	7.44	54.59	4.06	8	WED	JUL	N	6197	7.9	53.91	4.26	15	THU	NOV					
11	005	SD	R	36.27	898	A	16	S	9066	6.99	55.07	3.85	8	THU	APR	N	9269	7.33	53.72	3.94	15	WED	DEC					
11	005	SD	R	49.28	904	B	16	S	7367	5.61	65.43	3.67	6	WED	MAR	N	7623	6.71	56.55	3.8	16	TUE	MAR					
11	005	SD	R	51.20	905	A	16	N	7496	6.82	53.21	3.63	12	SUN	FEB	N	7560	6.89	53.1	3.66	13	SUN	MAR					
11	005	SD	R	53.93	906	B	16	N	6677	7.53	51.86	3.91	11	SUN	AUG	S	6616	7.07	54.71	3.87	15	FRI	APR					
12	005	ORA		.483	401	O	16	S	5886	7.63	54.8	4.18	12	SAT	FEB	N	5619	6.68	59.8	3.99	21	SUN	OCT					
12	005	ORA		4.995	901	A	14	N	10025	7.97	56.57	4.51	9	SAT	JUN	N	9973	7.88	56.88	4.48	16	FRI	JUN					
12	005	ORA	R	25.00	900	O	16	S	10647	7.1	55.33	3.93	7	THU	JUN	S	10820	6.64	60.07	3.99	17	MON	APR					
12	005	ORA		30.26	904	B	16	N	11223	6.93	57.74	4	7	WED	OCT	S	9871	5.7	61.78	3.52	17	THU	APR					
12	005	ORA		30.26	905	A	16	N	12681	6.72	55.61	3.74	7	TUE	MAY	S	11391	6.07	55.32	3.36	16	MON	MAY					
12	005	ORA		33.09	906	A	16	N	12558	5.81	58	3.37	7	THU	OCT	N	12093	6.05	53.64	3.25	16	MON	JAN					
07	005	LA		.7	475	A	15	S	5444	5.92	53.78	3.18	6	WED	NOV	S	5304	5.61	55.31	3.1	17	MON	OCT					
07	005	LA		15.33	27	O	16	N	7932	5.57	57.01	3.18	4	WED	MAR	S	7937	5.84	54.46	3.18	15	SUN	MAR					

Balboa Ave to 5 SB

meter ID	ML	Ramp	veh /cyc	SOV Lane	HOV Lane
16205	4	2	2	2	0

(PM)

RATE	Cyc/Min	Sec/Cyc	cyc/Hr	Veh/Hr
1	8.3	7.2	498	996
2	8.03	7.5	482	964
3	7.76	7.7	466	931
4	7.49	8.0	449	899
5	7.22	8.3	433	866
6	6.95	8.6	417	834
7	6.68	9.0	401	802
8	6.41	9.4	385	769
9	6.14	9.8	368	737
10	5.87	10.2	352	704
11	5.6	10.7	336	672
12	5.33	11.3	320	640
13	5.06	11.9	304	607
14	4.79	12.5	287	575
15	4.52	13.3	271	542

Mission Bay Dr to 5 NB

meter ID	ML	Ramp	veh /cyc	SOV Lane	HOV Lane
215	4	2	2	1	1

(AM)

RATE	Cyc/Min	Sec/Cyc	cyc/Hr	Veh/Hr
1	8.3	7.2	498	996
2	8.19	7.3	491	982.8
3	8.08	7.4	485	969.6
4	7.97	7.5	478	956.4
5	7.86	7.6	472	943.2
6	7.75	7.7	465	930
7	7.64	7.9	458	916.8
8	7.53	8.0	452	903.6
9	7.42	8.1	445	890.4
10	7.31	8.2	439	877.2
11	7.2	8.3	432	864
12	7.09	8.5	425	850.8
13	6.98	8.6	419	837.6
14	6.87	8.7	412	824.4
15	6.76	8.9	406	811.2

Mission Bay Dr/Grand Ave to 5 SB

meter ID	ML	Ramp	veh /cyc	SOV Lane	HOV Lane
16203	4	3	2	2	0

(PM)

RATE	Cyc/Min	Sec/Cyc	cyc/Hr	Veh/Hr
1	8.3	7.2	498	996
2	7.99	7.5	479	959
3	7.68	7.8	461	922
4	7.37	8.1	442	884
5	7.06	8.5	424	847
6	6.75	8.9	405	810
7	6.44	9.3	386	773
8	6.13	9.8	368	736
9	5.82	10.3	349	698
10	5.51	10.9	331	661
11	5.2	11.5	312	624
12	4.89	12.3	293	587
13	4.58	13.1	275	550
14	4.27	14.1	256	512
15	3.96	15.2	238	475

APPENDIX B

EXISTING CONDITIONS ANALYSIS SUPPORTING INFORMATION

Balboa Transit Station
1: Olney St & Garnet Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	5	853	4	541	104	192
v/c Ratio	0.01	0.63	0.01	0.21	0.38	0.79
Control Delay	5.2	10.3	8.0	6.9	37.8	63.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	10.3	8.0	6.9	37.8	63.8
Queue Length 50th (ft)	1	242	1	66	57	125
Queue Length 95th (ft)	5	453	m3	105	101	191
Internal Link Dist (ft)	374		899	244	450	
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	614	1364	351	2594	379	333
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.63	0.01	0.21	0.27	0.58
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
1: Olney St & Garnet Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Traffic Volume (vph)	5	784	35	4	503	16	28	55	17	96	82	7
Future Volume (vph)	5	784	35	4	503	16	28	55	17	96	82	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99	1.00	1.00	1.00	1.00	0.98	1.00	0.98	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.99	0.99	0.99	0.97	0.97	0.97
Satd. Flow (prot)	1770	1851	1770	3523	1770	3523	1794	1794	1807	1807	1807	1807
Flt Permitted	0.45	1.00	0.26	1.00	0.26	1.00	0.86	0.86	0.76	0.76	0.76	0.76
Satd. Flow (perm)	835	1851	476	3523	476	3523	1573	1573	1402	1402	1402	1402
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
Adj. Flow (vph)	5	817	36	4	524	17	29	57	18	100	85	7
RTOR Reduction (vph)	0	1	0	0	2	0	0	7	0	0	2	0
Lane Group Flow (vph)	5	852	0	4	539	0	0	97	0	0	190	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	2			6			8			4		4
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	78.0	78.0		78.0		78.0	18.2			18.2		18.2
Effective Green, g (s)	78.0	78.0		78.0		78.0	18.2			18.2		18.2
Actuated g/c Ratio	0.74	0.74		0.74		0.74	0.17			0.17		0.17
Clearance Time (s)	4.9	4.9		4.9		4.9	4.9			4.9		4.9
Vehicle Extension (s)	3.4	3.4		5.9		5.9	2.0			2.0		2.0
Lane Grp Cap (vph)	614	1362		350		2592	270			240		240
v/s Ratio Prot		c0.46		0.15								
v/c Ratio Perm	0.01	0.63		0.01		0.21	0.36			c0.14		c0.14
v/c Ratio	0.01	0.63		0.01		0.21	0.36			0.79		0.79
Uniform Delay, d1	3.7	6.9		3.7		4.4	38.7			42.1		42.1
Progression Factor	1.00	1.00		1.47		1.39	1.00			1.00		1.00
Incremental Delay, d2	0.0	2.2		0.1		0.2	0.3			0.3		0.3
Delay (s)	3.7	9.0		5.5		6.2	39.0			57.4		57.4
Level of Service	A	A		A		A	D			E		E
Approach Delay (s)		9.0		6.2			39.0			57.4		
Approach LOS		A		A			D			E		
Intersection Summary												
HCM 2000 Control Delay				15.4			HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio				0.66								
Actuated Cycle Length (s)				106.0			Sum of lost time (s)			9.8		
Intersection Capacity Utilization				68.3%			ICU Level of Service			C		
Analysis Period (min)				15								
c Critical Lane Group												

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Existing Conditions
Timing Plan: AM Peak Period

Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	614	658	314
v/c Ratio	1.03	0.48	0.22
Control Delay	67.1	7.6	0.3
Queue Delay	0.0	0.0	0.0
Total Delay	67.1	7.6	0.3
Queue Length 50th (ft)	-104	40	0
Queue Length 95th (ft)	#200	75	0
Internal Link Dist (ft)	936	284	899
Turn Bay Length (ft)			
Base Capacity (vph)	594	1382	1441
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.03	0.48	0.22
Intersection Summary			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	SBL	SBR
Lane Configurations	←	←	←	←	←
Traffic Volume (vph)	1	576	323	590	833
Future Volume (vph)	1	576	323	590	833
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	4.9	
Lane Util. Factor	0.95	0.91	0.91	0.97	
Frt	1.00	0.93	0.85	1.00	
Flt Protected	1.00	1.00	1.00	0.95	
Satd. Flow (prot)	3539	3148	1441	3433	
Flt Permitted	0.95	1.00	1.00	0.95	
Satd. Flow (perm)	3377	3148	1441	3433	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1	613	344	628	886
RTOR Reduction (vph)	0	0	196	0	0
Lane Group Flow (vph)	0	614	462	314	886
Turn Type	NA	NA	Free	Prot	Prot
Protected Phases		2	2		4
Permitted Phases				Free	
Actuated Green, G (s)		20.0	20.0	53.0	23.1
Effective Green, g (s)		20.0	20.0	53.0	23.1
Actuated g/C Ratio		0.38	0.38	1.00	0.44
Clearance Time (s)		5.0	5.0	4.9	
Vehicle Extension (s)		6.1	6.1	5.2	
Lane Grp Cap (vph)	1274	1187	1441	1496	
v/s Ratio Prot		0.15		c0.26	
v/c Ratio		c0.18		0.22	
Uniform Delay, d1		0.48	0.39	0.22	0.59
Progression Factor		12.6	12.0	0.0	11.4
Incremental Delay, d2		1.00	1.00	1.00	0.95
Delay (s)		0.8	0.6	0.3	1.4
Level of Service		B	B	A	B
Approach Delay (s)		13.4	8.7	12.2	
Approach LOS		B	A	B	
Intersection Summary					
HCM 2000 Control Delay		11.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio		0.54			
Actuated Cycle Length (s)		53.0		Sum of lost time (s)	9.9
Intersection Capacity Utilization		48.6%		ICU Level of Service	A
Analysis Period (min)		15			
c Critical Lane Group					

Balboa Transit Station
3: Garnet Ave & Soledad Mtn Rd

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Group							
Lane Group Flow (vph)	115	1565	873	626	589	49	
v/c Ratio	0.36	0.62	0.41	0.47	0.81	0.13	
Control Delay	67.1	12.8	6.0	1.4	65.5	11.6	
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	
Total Delay	67.1	12.8	6.0	1.5	65.5	11.6	
Queue Length 50th (ft)	55	375	136	13	286	0	
Queue Length 95th (ft)	88	525	234	15	334	35	
Internal Link Dist (ft)		770	806		594		
Turn Bay Length (ft)	200			200	225	225	
Base Capacity (vph)	322	2534	2112	1330	1249	372	
Starvation Cap Reductn	0	0	0	106	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.36	0.62	0.41	0.51	0.47	0.13	
Intersection Summary							

Balboa Transit Station
3: Garnet Ave & Soledad Mtn Rd

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR	
Movement							
Lane Configurations	↔	↔	↔	↔	↔	↔	
Traffic Volume (vph)	112	1518	847	607	571	48	
Future Volume (vph)	112	1518	847	607	571	48	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.4	5.5	4.9	5.4	5.4	5.4	
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	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)	3433	3539	3539	1583	3433	1583	
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	115	1565	873	626	589	49	
RTOR Reduction (vph)	0	0	0	0	0	39	
Lane Group Flow (vph)	115	1565	873	626	589	10	
Turn Type	Prot	NA	NA	pm-ov	Prot	custom	
Protected Phases	5	2	6	7	7	4	
Permitted Phases		2		6		7	
Actuated Green, G (s)	14.1	107.4	89.5	121.2	31.7	31.7	
Effective Green, g (s)	14.1	107.4	89.5	121.2	31.7	31.7	
Actuated g/c Ratio	0.09	0.72	0.60	0.81	0.21	0.21	
Clearance Time (s)	4.4	5.5	4.9	5.4	5.4	5.4	
Vehicle Extension (s)	2.0	5.6	8.0	2.0	2.0	3.0	
Lane Grp Cap (vph)	322	2533	2111	1336	725	334	
v/s Ratio Prot	0.03	c0.44	0.25	0.10	c0.17	0.01	
v/c Ratio Perm				0.30			
v/c Ratio	0.36	0.62	0.41	0.47	0.81	0.03	
Uniform Delay, d1	63.7	10.8	16.2	4.4	56.3	47.0	
Progression Factor	1.00	1.00	0.32	0.09	1.00	1.00	
Incremental Delay, d2	0.2	1.1	0.5	0.1	6.6	0.0	
Delay (s)	63.9	12.0	5.8	0.5	62.9	47.0	
Level of Service	E	B	A	A	E	D	
Approach Delay (s)		15.5	3.6		61.7		
Approach LOS		B	A		E		
Intersection Summary							
HCM 2000 Control Delay			18.6		HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.70				
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	18.7	
Intersection Capacity Utilization			67.3%		ICU Level of Service	C	
Analysis Period (min)			15				
c Critical Lane Group							

Balboa Transit Station
4: Bond St & Garnet Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBT	WBT	NBR	
Lane Group	EBT	WBT	NBR	
Lane Group Flow (vph)	2160	1591	25	
v/c Ratio	0.61	0.45	0.02	
Control Delay	0.8	0.8	0.0	
Queue Delay	0.0	0.0	0.0	
Total Delay	0.8	0.8	0.0	
Queue Length 50th (ft)	1	8	0	
Queue Length 95th (ft)	0	3	0	
Internal Link Dist (ft)	806	574		
Turn Bay Length (ft)				
Base Capacity (vph)	3532	3539	1611	
Starvation Cap Reductn	0	0	0	
Spillback Cap Reductn	37	0	17	
Storage Cap Reductn	0	0	0	
Reduced v/c Ratio	0.62	0.45	0.02	
Intersection Summary				

Balboa Transit Station
4: Bond St & Garnet Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4B			4A							
Traffic Volume (vph)	0	2029	23	0	1511	0	0	0	24	0	0	0
Future Volume (vph)	0	2029	23	0	1511	0	0	0	24	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9				4.9			
Lane Util. Factor		0.95			0.95				1.00			
Frt		1.00			1.00				0.86			
Flt Protected		1.00			1.00				1.00			
Satd. Flow (prot)		3533			3539				1611			
Flt Permitted		1.00			1.00				1.00			
Satd. Flow (perm)		3533			3539				1611			
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)	0	2136	24	0	1591	0	0	0	25	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2160	0	0	1591	0	0	0	25	0	0	0
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases		2			6							
Permitted Phases									2			6
Actuated Green, G (s)		150.0			150.0				150.0			
Effective Green, g (s)		150.0			150.0				150.0			
Actuated g/c Ratio		1.00			1.00				1.00			
Clearance Time (s)		4.9			4.9				4.9			
Vehicle Extension (s)		7.3			7.3				7.3			
Lane Grp Cap (vph)		3533			3539				1611			
v/s Ratio Prot		c0.61			0.45							
v/c Ratio		0.61			0.45				0.02			
Uniform Delay, d1		0.0			0.0				0.0			
Progression Factor		1.00			1.00				1.00			
Incremental Delay, d2		0.7			0.3				0.0			
Delay (s)		0.7			0.3				0.0			
Level of Service		A			A				A			
Approach Delay (s)		0.7			0.3				0.0			0.0
Approach LOS		A			A				A			A
Intersection Summary												
HCM 2000 Control Delay			0.5		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				7.9			
Intersection Capacity Utilization			77.5%		ICU Level of Service				D			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	773	898	486	172	722	238	415	377	218	244	217	421
v/c Ratio	0.94	0.75	0.51	0.82	0.93	0.39	0.80	0.34	0.28	0.71	0.44	0.28
Control Delay	72.0	57.8	16.1	92.4	75.6	24.7	81.2	32.2	22.1	91.5	42.9	11.5
Queue Delay	0.0	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.0	58.4	16.4	92.4	75.6	24.7	81.2	32.2	22.1	91.5	42.9	11.5
Queue Length 50th (ft)	393	442	169	166	366	112	182	135	80	130	135	34
Queue Length 95th (ft)	#503	533	281	#250	#478	181	245	153	139	177	215	99
Internal Link Dist (ft)	574			1151				461				376
Turn Bay Length (ft)	565	120	410	325	265			100	200			265
Base Capacity (vph)	839	1202	1008	248	792	722	666	1120	816	597	491	1542
Starvation Cap Reductn	0	79	150	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.80	0.57	0.69	0.91	0.33	0.62	0.34	0.27	0.41	0.44	0.27
Intersection Summary												
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	742	862	467	165	693	228	398	362	209	234	208	404
Future Volume (vph)	742	862	467	165	693	228	398	362	209	234	208	404
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.3
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
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
Adj. Flow (vph)	773	898	486	172	722	238	415	377	218	244	217	421
RTOR Reduction (vph)	0	0	132	0	0	55	0	0	46	0	0	30
Lane Group Flow (vph)	773	898	354	172	722	183	415	377	172	244	217	391
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8		4			6				2
Actuated Green, G (s)	35.8	51.0	73.6	17.9	33.1	48.1	22.6	47.5	65.4	15.0	39.5	75.3
Effective Green, g (s)	35.8	51.0	73.6	17.9	33.1	48.1	22.6	47.5	65.4	15.0	39.5	75.3
Actuated g/c Ratio	0.24	0.34	0.49	0.12	0.22	0.32	0.15	0.32	0.44	0.10	0.26	0.50
Clearance Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	819	1203	776	211	780	507	517	1120	690	343	490	1399
v/s Ratio Prot	c0.23	0.25	0.07	0.10	c0.20	0.04	c0.12	0.11	0.03	0.07	c0.12	0.07
v/s Ratio Perm			0.15			0.08			0.08			0.07
v/c Ratio	0.94	0.75	0.46	0.82	0.93	0.36	0.80	0.34	0.25	0.71	0.44	0.28
Uniform Delay, d1	56.1	43.8	25.1	64.4	57.2	39.1	61.5	39.2	26.8	65.4	46.1	21.6
Progression Factor	0.97	1.22	1.51	1.00	1.00	1.00	1.13	0.78	1.39	1.23	0.83	0.66
Incremental Delay, d2	16.1	2.2	0.1	20.0	17.1	0.2	7.9	0.8	0.1	5.6	2.8	0.0
Delay (s)	70.6	55.8	37.9	84.4	74.3	39.3	77.7	31.2	37.2	86.1	41.0	14.4
Level of Service	E	E	D	F	E	D	E	C	D	F	D	B
Approach Delay (s)	57.1			68.5			51.6			40.8		
Approach LOS	E			E			D			D		
Intersection Summary												
HCM 2000 Control Delay			55.7				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			78.5%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Movement	Existing Conditions										
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations		↔↔			↔↔↔				↔	↔	↔
Traffic Volume (veh/h)	0	1263	0	0	1873	126	0	0	236	0	0
Future Volume (Veh/h)	0	1263	0	0	1873	126	0	0	236	0	0
Sign Control		Free			Free			Yield		Stop	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	1358	0	0	2014	135	0	0	254	0	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage (veh)		1231									
Upstream signal (ft)		0.77		0.77	0.77	0.77	0.77	0.77	0.77	0.77	
pX, platoon unblocked	2149			1358			2085	3507	679	2760	3440
VC, conflicting volume											739
VC1, stage 1 conf vol											
VC2, stage 2 conf vol											
VCu, unblocked vol	2149			880			1819	3655	3	2691	3568
IC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5
IC, 2 stage (s)											
IF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			100			100	100	70	100	100
cM capacity (veh/h)	247			592			32	4	836	6	4
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	679	679	806	806	538	254	56				
Volume Left	0	0	0	0	0	0	0				
Volume Right	0	0	0	0	135	254	56				
cSH	1700	1700	1700	1700	836	360					
Volume to Capacity	0.40	0.40	0.47	0.47	0.32	0.30	0.16				
Queue Length 95th (ft)	0	0	0	0	0	32	14				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.2	16.8				
Lane LOS						B	C				
Approach Delay (s)	0.0		0.0			11.2	16.8				
Approach LOS						B	C				
Intersection Summary											
Average Delay				1.0							
Intersection Capacity Utilization				56.2%						B	
Analysis Period (min)				15							

Balboa Transit Station
7: Balboa EB Ramps & Balboa Ave

Movement	Existing Conditions										
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations		↔↔			↔↔				↔	↔	↔
Traffic Volume (veh/h)	0	1096	262	0	1408	0	0	0	269	0	0
Future Volume (Veh/h)	0	1096	262	0	1408	0	0	0	269	0	0
Sign Control		Free			Free			Stop		Stop	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1191	285	0	1530	0	0	0	292	0	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage (veh)											
Upstream signal (ft)											
pX, platoon unblocked	0.70						0.70	0.70	0.70	0.70	0.70
VC, conflicting volume	1530			1191			1956	2721	596	2126	2721
VC1, stage 1 conf vol											
VC2, stage 2 conf vol											
VCu, unblocked vol	910			1191			1516	2603	596	1757	2603
IC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5
IC, 2 stage (s)											
IF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			100			100	100	35	100	100
cM capacity (veh/h)	523			582			34	17	447	13	17
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1				
Volume Total	596	596	285	765	765	292	315				
Volume Left	0	0	0	0	0	0	0				
Volume Right	0	0	285	0	0	292	315				
cSH	1700	1700	1700	1700	1700	447	763				
Volume to Capacity	0.35	0.35	0.17	0.45	0.45	0.65	0.41				
Queue Length 95th (ft)	0	0	0	0	0	114	51				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	27.0	13.0				
Lane LOS						D	B				
Approach Delay (s)	0.0		0.0			27.0	13.0				
Approach LOS						D	B				
Intersection Summary											
Average Delay				3.3							
Intersection Capacity Utilization				63.5%						B	
Analysis Period (min)				15							

Balboa Transit Station
8: Balboa Ave & Moraga Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group						
Lane Group Flow (vph)	341	1042	1201	85	104	281
v/c Ratio	0.53	0.42	0.78	0.12	0.42	0.60
Control Delay	31.8	5.3	22.0	6.0	37.5	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	5.3	22.0	6.0	37.5	10.8
Queue Length 50th (ft)	69	82	226	6	42	0
Queue Length 95th (ft)	141	141	376	32	109	71
Internal Link Dist (ft)	554	3203			501	
Turn Bay Length (ft)	215			250	155	
Base Capacity (vph)	1469	3526	2947	1328	1010	1024
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.30	0.41	0.06	0.10	0.27
Intersection Summary						

Balboa Transit Station
8: Balboa Ave & Moraga Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Movement						
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	324	990	1141	81	99	267
Future Volume (vph)	324	990	1141	81	99	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Flt	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)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	341	1042	1201	85	104	281
RTOR Reduction (vph)	0	0	0	35	0	241
Lane Group Flow (vph)	341	1042	1201	50	104	40
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	13.7	50.9	32.0	32.0	10.3	10.3
Effective Green, g (s)	13.7	50.9	32.0	32.0	10.3	10.3
Actuated g/c Ratio	0.19	0.70	0.44	0.44	0.14	0.14
Clearance Time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Vehicle Extension (s)	2.0	4.8	3.9	3.9	2.0	2.0
Lane Grp Cap (vph)	648	2484	1562	698	251	224
v/s Ratio Prot	c0.10	0.29	c0.34		c0.06	
v/c Ratio	0.53	0.42	0.77	0.07	0.41	0.18
Uniform Delay, d1	26.5	4.6	17.1	11.7	28.4	27.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2	2.5	0.1	0.4	0.1
Delay (s)	26.8	4.8	19.6	11.7	28.8	27.5
Level of Service	C	A	B	B	C	C
Approach Delay (s)		10.2	19.1		27.8	
Approach LOS		B	B		C	
Intersection Summary						
HCM 2000 Control Delay			16.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			72.5		Sum of lost time (s)	16.5
Intersection Capacity Utilization			60.4%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
9: Claremont Dr & Balboa Ave

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	239	1016	387	986	160	370	382	175	667
v/c Ratio	0.63	0.85	0.72	0.74	0.68	0.51	0.54	0.70	0.82
Control Delay	69.5	50.7	65.4	41.0	75.8	52.9	26.0	74.8	50.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.5	50.7	65.4	41.0	75.8	52.9	26.0	74.8	50.0
Queue Length 50th (ft)	105	430	169	384	136	152	181	149	234
Queue Length 95th (ft)	181	639	271	571	252	248	327	271	368
Internal Link Dist (ft)	3203			630		1350			860
Turn Bay Length (ft)	240		220		200		100		120
Base Capacity (vph)	801	1654	801	1671	413	1101	817	413	1114
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.61	0.48	0.59	0.39	0.34	0.47	0.42	0.60
Intersection Summary									

Balboa Transit Station
9: Claremont Dr & Balboa Ave

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔	↔↔	↔	↔	↔↔	↔
Traffic Volume (vph)	208	815	69	337	768	90	139	322	332	152
Future Volume (vph)	208	815	69	337	768	90	139	322	332	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	4.4	6.4	6.4	4.4	5.3	4.4	4.4	5.3
Lane Util. Factor	0.97	0.95	0.97	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Frt	1.00	0.99	1.00	0.98	1.00	1.00	0.85	1.00	0.92	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95
Satd. Flow (prot)	3433	3498	3433	3484	1770	3539	1583	1770	3256	3256
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3498	3433	3484	1770	3539	1583	1770	3256	3256
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	239	937	79	387	883	103	160	370	382	175
RTOR Reduction (vph)	0	3	0	0	4	0	0	69	0	115
Lane Group Flow (vph)	239	1013	0	387	982	0	160	370	313	175
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	NA
Protected Phases	5	2	1	6	3	8	1	7	4	4
Permitted Phases							8			
Actuated Green, G (s)	15.0	46.3	21.3	51.9	18.0	28.0	49.3	19.2	29.2	29.2
Effective Green, g (s)	15.0	46.3	21.3	51.9	18.0	28.0	49.3	19.2	29.2	29.2
Actuated g/C Ratio	0.11	0.34	0.16	0.39	0.13	0.21	0.37	0.14	0.22	0.22
Clearance Time (s)	4.4	5.7	4.4	6.4	4.4	5.3	4.4	4.4	5.3	5.3
Vehicle Extension (s)	2.0	3.5	2.0	3.0	2.0	2.4	2.0	2.0	2.6	2.6
Lane Grp Cap (vph)	382	1203	543	1343	236	736	579	252	706	706
v/s Ratio Prot	0.07	c0.29	c0.11	0.28	0.09	0.10	0.09	c0.10	c0.17	c0.17
v/s Ratio Perm							0.11			
v/c Ratio	0.63	0.84	0.71	0.73	0.68	0.50	0.54	0.69	0.78	0.78
Uniform Delay, d1	57.1	40.8	53.7	35.4	55.5	47.1	33.7	54.9	49.7	49.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	5.6	3.7	2.1	6.0	0.4	0.6	6.5	5.5	5.5
Delay (s)	59.4	46.4	57.4	37.5	61.5	47.5	34.3	61.4	55.2	55.2
Level of Service	E	D	E	D	E	D	C	E	E	E
Approach Delay (s)		48.9		43.1		44.4		56.5		
Approach LOS		D		D		D		E		E
Intersection Summary										
HCM 2000 Control Delay		47.6		HCM 2000 Level of Service		D				
HCM 2000 Volume to Capacity ratio		0.79								
Actuated Cycle Length (s)		134.6		Sum of lost time (s)		20.5				
Intersection Capacity Utilization		76.0%		ICU Level of Service		D				
Analysis Period (min)		15								
c Critical Lane Group										

Balboa Transit Station
10: Olney St & Balboa Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	38	632	47	209	203	146
v/c Ratio	0.15	0.50	0.18	0.15	0.46	0.32
Control Delay	21.9	13.8	21.6	9.9	17.8	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	13.8	21.6	9.9	17.8	17.5
Queue Length 50th (ft)	9	68	11	11	40	31
Queue Length 95th (ft)	34	132	40	44	102	81
Internal Link Dist (ft)	1172		936	328	244	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	1326	3522	1326	3518	1527	1647
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.18	0.04	0.06	0.13	0.09
Intersection Summary						

Balboa Transit Station
10: Olney St & Balboa Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	34	546	17	42	179	7	14	92	75	3	122	5
Future Volume (vph)	34	546	17	42	179	7	14	92	75	3	122	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	5.0		4.9		4.9		4.9	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00		1.00	
Frt	1.00	1.00	1.00	1.00	0.99		0.94		0.94		0.99	
Flt Protected	0.95	1.00		0.95	1.00		1.00		1.00		1.00	
Satd. Flow (prot)	1770	3523		1770	3519		1752		1851		1851	
Flt Permitted	0.95	1.00		0.95	1.00		0.97		0.99		0.99	
Satd. Flow (perm)	1770	3523		1770	3519		1700		1837		1837	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	38	613	19	47	201	8	16	103	84	3	137	6
RTOR Reduction (vph)	0	2	0	0	2	0	0	18	0	0	1	0
Lane Group Flow (vph)	38	630	0	47	207	0	0	185	0	0	145	0
Turn Type	Prot	NA	NA	Prot	NA	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		8		4	
Permitted Phases												
Actuated Green, G (s)	2.2	15.8		3.5	17.2		10.5		10.5		10.5	
Effective Green, g (s)	2.2	15.8		3.5	17.2		10.5		10.5		10.5	
Actuated g/c Ratio	0.05	0.36		0.08	0.39		0.24		0.24		0.24	
Clearance Time (s)	4.4	5.1		4.4	5.0		4.9		4.9		4.9	
Vehicle Extension (s)	2.0	2.8		2.0	2.5		2.0		2.0		2.0	
Lane Grp Cap (vph)	88	1259		140	1369		403		436		436	
v/s Ratio Prot	0.02	c0.18		c0.03	0.06		c0.11		0.08		0.08	
v/c Ratio	0.43	0.50		0.34	0.15		0.46		0.33		0.33	
Uniform Delay, d1	20.4	11.1		19.3	8.8		14.4		14.0		14.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00		1.00	
Incremental Delay, d2	1.2	0.3		0.5	0.0		0.3		0.2		0.2	
Delay (s)	21.6	11.4		19.8	8.8		14.7		14.1		14.1	
Level of Service	C	B		B	A		B		B		B	
Approach Delay (s)		12.0			10.8		14.7		14.1		14.1	
Approach LOS		B			B		B		B		B	
Intersection Summary												
HCM 2000 Control Delay			12.4		HCM 2000 Level of Service		B					
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			44.2		Sum of lost time (s)		14.4					
Intersection Capacity Utilization			47.9%		ICU Level of Service		A					
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
11: Olney St & Grand Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	13	1412	56	583	423	193
v/c Ratio	0.14	0.77	0.43	0.28	0.72	1.11
Control Delay	51.1	25.4	51.6	12.7	29.0	137.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	25.4	51.6	12.7	29.0	137.6
Queue Length 50th (ft)	9	403	38	75	167	~150
Queue Length 95th (ft)	29	534	m80	173	285	#294
Internal Link Dist (ft)	276		1076	315	328	
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	185	1826	235	2080	590	174
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.77	0.24	0.28	0.72	1.11
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
11: Olney St & Grand Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	12	1330	11	53	497	57	10	86	305	128	51	4
Future Volume (vph)	12	1330	11	53	497	57	10	86	305	128	51	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	4.9		4.9	4.9				4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Flt	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.90	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	0.97	0.97
Satd. Flow (prot)	1770	3535	1770	3485	1670	1770	3485	1670	1770	3485	1670	1770
Flt Permitted	0.95	1.00	0.95	1.00	0.99	0.95	1.00	0.99	0.95	0.99	0.99	0.99
Satd. Flow (perm)	1770	3535	1770	3485	1657	1770	3485	1657	1770	3485	1657	1657
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)	13	1400	12	56	523	60	11	91	321	135	54	4
RTOR Reduction (vph)	0	0	0	0	0	7	0	107	0	0	1	0
Lane Group Flow (vph)	13	1412	0	56	576	0	0	316	0	0	192	0
Turn Type	Prot	NA	NA	Prot	NA	Prot	NA	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8					4
Permitted Phases								8				
Actuated Green, G (s)	1.4	53.9		6.8	59.5		30.9					30.9
Effective Green, g (s)	1.4	53.9		6.8	59.5		30.9					30.9
Actuated g/c Ratio	0.01	0.51		0.06	0.56		0.29					0.29
Clearance Time (s)	4.4	5.1		4.4	4.9		4.9					4.9
Vehicle Extension (s)	2.0	5.4		2.0	5.5		2.0					2.0
Lane Grp Cap (vph)	23	1797		113	1956		483					174
v/s Ratio Prot	0.01	c0.40		c0.03	0.17		0.19					c0.32
v/c Ratio	0.57	0.79		0.50	0.29		0.65					1.11
Uniform Delay, d1	52.0	21.3		47.9	12.2		32.9					37.6
Progression Factor	1.00	1.00		0.90	1.15		1.00					1.00
Incremental Delay, d2	17.6	3.5		1.2	0.4		2.4					99.2
Delay (s)	69.5	24.9		44.3	14.4		35.3					136.7
Level of Service	E	C		D	B		D					F
Approach Delay (s)		25.3			17.0		35.3					136.7
Approach LOS		C			B		D					F
Intersection Summary												
HCM 2000 Control Delay				32.9			HCM 2000 Level of Service					C
HCM 2000 Volume to Capacity ratio				0.87								
Actuated Cycle Length (s)				106.0			Sum of lost time (s)					14.4
Intersection Capacity Utilization				90.2%			ICU Level of Service					E
Analysis Period (min)				15								
c Critical Lane Group												

Balboa Transit Station
12: Grand Ave & Culver St

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	WBT	SBL
Lane Group	55	1934	727	216
Lane Group Flow (vph)	0.43	0.73	0.32	0.75
v/c Ratio	60.0	5.6	8.8	56.0
Control Delay	0.0	0.4	0.2	0.0
Queue Delay	60.0	6.0	9.0	56.0
Total Delay	39	156	112	134
Queue Length 50th (ft)	m52	m181	179	193
Queue Length 95th (ft)				
Internal Link Dist (ft)	55	1076	211	186
Turn Bay Length (ft)	185	2642	2256	434
Base Capacity (vph)	0	0	789	0
Starvation Cap Reductn	0	273	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0.30	0.82	0.50	0.50
Reduced v/c Ratio				
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
12: Grand Ave & Culver St

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	WBT	SBL
Movement	EBL	EBT	WBT	SBL
Lane Configurations	48	1683	0	523
Traffic Volume (vph)	48	1683	0	523
Future Volume (vph)	1900	1900	1900	1900
Ideal Flow (vphpl)	4.4	5.1	4.9	4.9
Total Lost time (s)	1.00	0.95	0.95	1.00
Lane Util. Factor	1.00	1.00	0.97	0.97
Flt Protected	0.95	1.00	1.00	0.96
Satd. Flow (prot)	1770	3539	3447	1741
Flt Permitted	0.95	1.00	1.00	0.96
Satd. Flow (perm)	1770	3539	3447	1741
Peak-hour factor, PHF	0.87	0.87	0.92	0.87
Adj. Flow (vph)	55	1934	0	601
RTOR Reduction (vph)	0	0	12	0
Lane Group Flow (vph)	55	1934	0	206
Turn Type	Prot	NA	Prot	Prot
Protected Phases	5	2	1	6
Permitted Phases				
Actuated Green, G (s)	6.8	79.1	68.1	16.9
Effective Green, g (s)	6.8	79.1	68.1	16.9
Actuated g/c Ratio	0.06	0.75	0.64	0.16
Clearance Time (s)	4.4	5.1	4.9	4.9
Vehicle Extension (s)	2.0	4.2	4.1	2.0
Lane Grp Cap (vph)	113	2640	2214	277
v/s Ratio Prot	0.03	c0.55	0.21	c0.12
v/c Ratio	0.49	0.73	0.32	0.74
Uniform Delay, d1	47.9	7.5	8.5	42.5
Progression Factor	1.15	0.50	0.91	1.00
Incremental Delay, d2	0.8	1.2	0.4	9.1
Delay (s)	55.8	5.0	8.2	51.6
Level of Service	E	A	A	D
Approach Delay (s)	6.4	8.2	51.6	
Approach LOS	A	A	D	
Intersection Summary				
HCM 2000 Control Delay		10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio		0.77		
Actuated Cycle Length (s)		106.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization		65.5%	ICU Level of Service	C
Analysis Period (min)		15		
c Critical Lane Group				

Balboa Transit Station
13: Lee St & Grand Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBT	WBL	WBT	NBL
Lane Group				
Lane Group Flow (vph)	1967	137	706	98
v/c Ratio	0.81	0.66	0.23	0.57
Control Delay	9.0	59.1	2.2	39.9
Queue Delay	0.3	0.0	0.0	0.0
Total Delay	9.4	59.1	2.2	39.9
Queue Length 50th (ft)	103	90	38	35
Queue Length 95th (ft)	#828	147	71	85
Internal Link Dist (ft)	211		1401	337
Turn Bay Length (ft)		400		
Base Capacity (vph)	2433	273	3023	545
Starvation Cap Reductn	105	0	0	0
Spillback Cap Reductn	0	0	40	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.84	0.50	0.24	0.18
Intersection Summary				
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.				

Balboa Transit Station
13: Lee St & Grand Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBT	EBR	WBL	WBT	NBL	NBR
Movement						
Lane Configurations	←←		←	←←	←	←
Traffic Volume (vph)	1736	34	123	635	46	42
Future Volume (vph)	1736	34	123	635	46	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.4	4.9		
Lane Util. Factor	0.95	1.00	0.95	1.00		
Frt	1.00	1.00	1.00	0.94		
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3529		1770	3539	1698	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3529		1770	3539	1698	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1929	38	137	706	51	47
RTOR Reduction (vph)	1	0	0	0	42	0
Lane Group Flow (vph)	1966	0	137	706	56	0
Turn Type	NA	Prot	NA	Prot	Prot	
Protected Phases	2		1	6	8	
Permitted Phases						
Actuated Green, G (s)	72.1		12.5	88.5	7.2	
Effective Green, g (s)	72.1		12.5	88.5	7.2	
Actuated g/c Ratio	0.68		0.12	0.83	0.07	
Clearance Time (s)	4.9		4.4	5.4	4.9	
Vehicle Extension (s)	4.0		2.0	4.4	2.0	
Lane Grp Cap (vph)	2400		208	2954	115	
v/s Ratio Prot	c0.56		c0.08	0.20	c0.03	
v/c Ratio						
v/c Ratio	0.82		0.66	0.24	0.49	
Uniform Delay, d1	12.2		44.7	1.8	47.6	
Progression Factor	0.42		1.00	1.00	1.00	
Incremental Delay, d2	2.3		5.6	0.2	1.2	
Delay (s)	7.4		50.3	2.0	48.8	
Level of Service	A		D	A	D	
Approach Delay (s)	7.4		9.9	48.8		
Approach LOS	A		A	D		
Intersection Summary						
HCM 2000 Control Delay		9.5				A
HCM 2000 Volume to Capacity ratio		0.77				
Actuated Cycle Length (s)		106.0				14.2
Intersection Capacity Utilization		72.8%				C
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	SBL	SBR
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	68	1839	741		
v/c Ratio	0.57	0.99	0.24		
Control Delay	85.1	20.2	1.6		
Queue Delay	0.0	0.0	0.0		
Total Delay	85.1	20.2	1.6		
Queue Length 50th (ft)	66	0	22		
Queue Length 95th (ft)	117	#211	67		
Internal Link Dist (ft)		605	773		
Turn Bay Length (ft)	90				
Base Capacity (vph)	259	1863	3129		
Starvation Cap Reductn	0	0	0		
Spillback Cap Reductn	0	0	0		
Storage Cap Reductn	0	0	0		
Reduced v/c Ratio	0.26	0.99	0.24		
Intersection Summary					
# 95th percentile volume exceeds capacity, queue may be longer.					
Queue shown is maximum after two cycles.					

Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔
Traffic Volume (vph)	65	1765	689	22	0
Future Volume (vph)	65	1765	689	22	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.3	5.3		
Lane Util. Factor	1.00	1.00	0.95		
Frt	1.00	1.00	1.00		
Flt Protected	0.95	1.00	1.00		
Satd. Flow (prot)	1770	1863	3523		
Flt Permitted	0.95	1.00	1.00		
Satd. Flow (perm)	1770	1863	3523		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	68	1839	718	23	0
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	68	1839	741	0	0
Turn Type	Prot	NA	NA		
Protected Phases	5	2	6		
Permitted Phases					
Actuated Green, G (s)	9.0	150.0	131.3		
Effective Green, g (s)	9.0	150.0	131.3		
Actuated g/c Ratio	0.06	1.00	0.88		
Clearance Time (s)	4.4	5.3	5.3		
Vehicle Extension (s)	2.0	4.4	4.4		
Lane Grp Cap (vph)	106	1863	3083		
v/s Ratio Prot	0.04	c0.99	0.21		
v/c Ratio	0.64	0.99	0.24		
Uniform Delay, d1	68.9	0.0	1.5		
Progression Factor	1.00	1.00	0.85		
Incremental Delay, d2	9.5	18.0	0.2		
Delay (s)	78.4	18.0	1.4		
Level of Service	E	B	A		
Approach Delay (s)		20.2	1.4	0.0	
Approach LOS		C	A	A	
Intersection Summary					
HCM 2000 Control Delay			14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			1.08		
Actuated Cycle Length (s)			150.0	Sum of lost time (s)	12.7
Intersection Capacity Utilization			97.3%	ICU Level of Service	F
Analysis Period (min)			15		
c Critical Lane Group					

Balboa Transit Station
15: Mission Bay Dr & Grand Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBR	NBL	NBT	SBT
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	337	1608	548	775	846
v/c Ratio	0.95	1.02	0.74	0.33	0.63
Control Delay	49.6	20.7	33.3	5.9	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	20.7	33.3	5.9	19.7
Queue Length 50th (ft)	156	-51	123	69	152
Queue Length 95th (ft)	m162	m#105	161	95	271
Internal Link Dist (ft)	773			526	478
Turn Bay Length (ft)	225		285		
Base Capacity (vph)	356	1583	1034	2349	1338
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.95	1.02	0.53	0.33	0.63
Intersection Summary					
~ Volume exceeds capacity, queue is theoretically infinite.					
Queue shown is maximum after two cycles.					
# 95th percentile volume exceeds capacity, queue may be longer.					
Queue shown is maximum after two cycles.					
m Volume for 95th percentile queue is metered by upstream signal.					

Balboa Transit Station
15: Mission Bay Dr & Grand Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBR	NBL	NBT	SBT	SBT
Movement	EBL	EBR	NBL	NBT	SBT	SBT
Lane Configurations	EBL	EBR	NBL	NBT	SBT	SBT
Traffic Volume (vph)	307	1463	499	705	0	665
Future Volume (vph)	307	1463	499	705	0	665
Ideal Flow (vphph)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.0	5.7	5.7	4.9	4.9
Lane Util. Factor	1.00	1.00	0.97	0.95	0.95	0.95
Frt	1.00	0.85	1.00	1.00	0.98	0.98
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	3433	3539	3467	3467
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	3433	3539	3467	3467
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.92	0.91
Adj. Flow (vph)	337	1608	548	775	0	731
RTOR Reduction (vph)	0	0	0	0	0	15
Lane Group Flow (vph)	337	1608	548	775	0	831
Turn Type	Prot	Free	Prot	NA	Prot	NA
Protected Phases	4		1	6	5	2
Permitted Phases		Free				
Actuated Green, G (s)	15.1	75.0	16.3	49.8	28.6	28.6
Effective Green, g (s)	15.1	75.0	16.3	49.8	28.6	28.6
Actuated g/c Ratio	0.20	1.00	0.22	0.66	0.38	0.38
Clearance Time (s)	4.4	5.7	5.7	5.7	4.9	4.9
Vehicle Extension (s)	2.0	2.0	4.6	4.6	3.6	3.6
Lane Grp Cap (vph)	356	1583	746	2349	1322	1322
v/s Ratio Prot	0.19		0.16	0.22	0.24	0.24
v/s Ratio Perm		c1.02				
v/c Ratio	0.95	1.02	0.73	0.33	0.63	0.63
Uniform Delay, d1	29.6	37.5	27.3	5.4	18.9	18.9
Progression Factor	1.00	1.00	1.00	1.00	0.92	0.92
Incremental Delay, d2	16.7	17.6	3.3	0.4	2.2	2.2
Delay (s)	46.3	55.1	30.6	5.8	19.6	19.6
Level of Service	D	E	C	A	B	B
Approach Delay (s)	53.6		16.1		19.6	
Approach LOS	D		B		B	
Intersection Summary						
HCM 2000 Control Delay						
HCM 2000 Volume to Capacity ratio						
Actuated Cycle Length (s)						
Intersection Capacity Utilization						
Analysis Period (min)						
c Critical Lane Group						

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	NBL	SBT	SBR
Lane Group	EBL	NBL	SBT	SBR
Lane Group Flow (vph)	717	85	1309	742
v/c Ratio	0.92	0.45	0.57	0.42
Control Delay	47.1	27.7	15.4	13.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	47.1	27.7	15.4	13.8
Queue Length 50th (ft)	162	54	340	114
Queue Length 95th (ft)	#263	90	368	174
Internal Link Dist (ft)	261		749	743
Turn Bay Length (ft)	270	205		70
Base Capacity (vph)	788	401	2305	1776
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.91	0.21	0.57	0.42
Intersection Summary				
# 95th percentile volume exceeds capacity, queue may be longer.				
Queue shown is maximum after two cycles.				

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	HT			HT	HT	HT
Traffic Volume (vph)	576	105	81	1244	705	200
Future Volume (vph)	576	105	81	1244	705	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		4.4	5.0	5.6	5.6
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3387		1770	3539	3539	1583
Flt Permitted	0.96		0.95	1.00	1.00	1.00
Satd. Flow (perm)	3387		1770	3539	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	606	111	85	1309	742	211
RTOR Reduction (vph)	21	0	0	0	0	78
Lane Group Flow (vph)	696	0	85	1309	742	133
Turn Type	Prot		Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases						6
Actuated Green, G (s)	16.7		7.1	48.9	36.8	36.8
Effective Green, g (s)	16.7		7.1	48.9	36.8	36.8
Actuated g/c Ratio	0.22		0.09	0.65	0.49	0.49
Clearance Time (s)	4.4		4.4	5.0	5.6	5.6
Vehicle Extension (s)	2.0		2.0	4.0	4.8	4.8
Lane Grp Cap (vph)	754		167	2307	1736	776
v/s Ratio Prot	0.21		0.05	0.37	0.21	
v/c Ratio	0.92		0.51	0.57	0.43	0.08
Uniform Delay, d1	28.5		32.3	7.2	12.3	10.6
Progression Factor	1.00		0.68	1.97	1.00	1.00
Incremental Delay, d2	16.6		0.8	0.9	0.8	0.5
Delay (s)	45.1		22.8	15.1	13.1	11.1
Level of Service	D		C	B	B	B
Approach Delay (s)	45.1		15.6	12.6		
Approach LOS	D		B	B		
Intersection Summary						
HCM 2000 Control Delay			21.6		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)	14.4
Intersection Capacity Utilization			61.9%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Existing Conditions
Timing Plan: AM Peak Period

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	47	1351	100	59	744
v/c Ratio	0.56	0.31	0.51	0.08	0.31	0.24
Control Delay	85.1	21.9	2.7	0.2	81.6	5.0
Queue Delay	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	85.1	21.9	3.0	0.2	81.6	5.0
Queue Length 50th (ft)	65	0	41	0	60	144
Queue Length 95th (ft)	116	42	m66	m0	m106	m188
Internal Link Dist (ft)	1169		376			749
Turn Bay Length (ft)		75		160	185	
Base Capacity (vph)	361	360	2637	1194	224	3074
Starvation Cap Reductn	0	0	619	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.13	0.67	0.08	0.26	0.24
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Existing Conditions
Timing Plan: AM Peak Period

	WBL	WBR	NBT	NBR	SBL	SBT
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	64	45	1297	96	57	714
Future Volume (vph)	64	45	1297	96	57	714
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Flt	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)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	67	47	1351	100	59	744
RTOR Reduction (vph)	0	44	0	15	0	0
Lane Group Flow (vph)	67	3	1351	85	59	744
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4		2		
Actuated Green, G (s)	10.1	10.1	110.9	110.9	15.2	130.3
Effective Green, g (s)	10.1	10.1	110.9	110.9	15.2	130.3
Actuated g/c Ratio	0.07	0.07	0.74	0.74	0.10	0.87
Clearance Time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Vehicle Extension (s)	2.0	2.0	3.8	3.8	2.0	3.5
Lane Grp Cap (vph)	119	106	2616	1170	179	3074
v/s Ratio Prot	c0.04		c0.38		c0.03	0.21
v/c Ratio Perm		0.00		0.05		
v/c Ratio	0.56	0.03	0.52	0.07	0.33	0.24
Uniform Delay, d1	67.8	65.4	8.2	5.4	62.7	1.6
Progression Factor	1.00	1.00	0.23	0.02	1.29	2.73
Incremental Delay, d2	3.6	0.0	0.6	0.1	0.4	0.2
Delay (s)	71.4	65.4	2.5	0.2	81.3	4.6
Level of Service	E	E	A	A	F	A
Approach Delay (s)	68.9		2.3			10.3
Approach LOS	E		A		B	
Intersection Summary						
HCM 2000 Control Delay			8.2		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.50			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	13.8
Intersection Capacity Utilization			54.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group						
Lane Group Flow (vph)	174	15	32	947	38	802
v/c Ratio	0.81	0.08	0.38	0.36	0.42	0.30
Control Delay	76.9	41.6	94.2	4.3	80.1	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	76.9	41.6	94.2	4.3	80.1	7.7
Queue Length 50th (ft)	136	9	33	54	38	94
Queue Length 95th (ft)	211	30	73	204	m76	183
Internal Link Dist (ft)	303	271	804			461
Turn Bay Length (ft)			65			50
Base Capacity (vph)	341	301	119	2614	111	2648
Starvation Cap Reductn	0	0	0	0	0	909
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.05	0.27	0.36	0.34	0.46
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Existing Conditions
Timing Plan: AM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		4		4			4	4		4	4	4
Traffic Volume (vph)	74	6	89	9	1	5	31	912	7	37	721	57
Future Volume (vph)	74	6	89	9	1	5	31	912	7	37	721	57
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		5.0	4.4		5.0
Lane Util. Factor	1.00			1.00			1.00		0.95	1.00		0.95
Frt	0.93			0.95			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)	1693			1727			1770		3535	1770		3500
Flt Permitted	0.85			0.78			0.95		1.00	0.95		1.00
Satd. Flow (perm)	1474			1393			1770		3535	1770		3500
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)	76	6	92	9	1	5	32	940	7	38	743	59
RTOR Reduction (vph)	0	30	0	0	4	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	144	0	0	11	0	32	947	0	38	799	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases		8		4		4	1	6		5		2
Permitted Phases	8			4					6			
Actuated Green, G (s)	18.9			18.9			5.1	110.0		6.8		111.7
Effective Green, g (s)	18.9			18.9			5.1	110.0		6.8		111.7
Actuated g/c Ratio	0.13			0.13			0.03	0.73		0.05		0.74
Clearance Time (s)	4.9			4.9			4.4	5.0		4.4		5.0
Vehicle Extension (s)	2.0			2.0			2.0	3.7		2.0		3.7
Lane Grp Cap (vph)	185			175			60	2592		80		2606
v/s Ratio Prot	c0.10			0.01			0.02	c0.27		c0.02		0.23
v/c Ratio	0.78			0.06			0.53	0.37		0.47		0.31
Uniform Delay, d1	63.5			57.7			71.3	7.3		69.9		6.3
Progression Factor	1.00			1.00			1.20	0.48		1.00		1.02
Incremental Delay, d2	17.1			0.1			4.2	0.4		1.4		0.3
Delay (s)	80.6			57.8			90.1	3.9		70.9		6.8
Level of Service	F			E			F	A		E		A
Approach Delay (s)	80.6			57.8			6.7			9.7		
Approach LOS	F			E			A			A		
Intersection Summary												
HCM 2000 Control Delay												B
HCM 2000 Volume to Capacity ratio												
Actuated Cycle Length (s)												14.3
Intersection Capacity Utilization												A
Analysis Period (min)												
c Critical Lane Group												

Balboa Transit Station
20: Mission Bay Dr & Rosewood St

Existing Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		W		W	W
Traffic Volume (veh/h)	2	8	1211	10	7	2107
Future Volume (Veh/h)	2	8	1211	10	7	2107
Sign Control	Stop		Free		Free	Free
Grade	0%		0%		0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	9	1316	11	8	2290
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						606
pX, platoon unblocked	0.83					
VC, conflicting volume	2482	444			1327	
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	2376	444			1327	
IC, single (s)	6.8	6.9			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	92	98			98	
CM capacity (veh/h)	24	561			516	
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2 SB 3
Volume Total	11	526	526	274	8	1145 1145
Volume Left	2	0	0	0	8	0 0
Volume Right	9	0	0	11	0	0 0
cSH	109	1700	1700	1700	516	1700 1700
Volume to Capacity	0.10	0.31	0.31	0.16	0.02	0.67 0.67
Queue Length 95th (ft)	8	0	0	0	1	0 0
Control Delay (s)	41.7	0.0	0.0	0.0	12.1	0.0 0.0
Lane LOS	E				B	
Approach Delay (s)	41.7	0.0			0.0	
Approach LOS	E					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			68.2%			C
Analysis Period (min)			15			







Balboa Transit Station
21: Santa Fe St & Damon Ave

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W	W	W	W	W	W
Sign Control	Stop		Stop		Stop	Stop
Traffic Volume (vph)	99	31	19	90	29	68
Future Volume (vph)	99	31	19	90	29	68
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	106	33	20	97	31	73
Direction, Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total (vph)	106	33	117	104		
Volume Left (vph)	106	0	20	0		
Volume Right (vph)	0	33	0	73		
Head (s)	0.23	-0.57	0.07	-0.39		
Departure Headway (s)	4.6	3.2	4.3	3.9		
Degree Utilization, x	0.14	0.03	0.14	0.11		
Capacity (veh/h)	746	1121	802	891		
Control Delay (s)	8.3	6.3	8.0	7.4		
Approach Delay (s)	7.9		8.0	7.4		
Approach LOS	A		A	A		
Intersection Summary						
Delay			7.8			
Level of Service			A			
Intersection Capacity Utilization			24.6%			A
Analysis Period (min)			15			

Balboa Transit Station
22: Morena Blvd & Jutland Dr

Existing Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Volume (vph)	162	28	195	378	4	129
Future Volume (vph)	162	28	195	378	4	129
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	203	35	244	473	5	161
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	203	35	244	473	59	107
Volume Left (vph)	203	0	0	0	5	0
Volume Right (vph)	0	35	0	473	0	0
Head (s)	0.53	-0.67	0.03	-0.67	0.08	0.03
Departure Headway (s)	7.0	5.8	5.6	4.9	6.2	6.2
Degree Utilization, x	0.39	0.06	0.38	0.64	0.10	0.18
Capacity (veh/h)	486	575	625	720	545	551
Control Delay (s)	13.2	7.9	10.8	15.1	8.8	9.4
Approach Delay (s)	12.4	13.7	9.2			
Approach LOS	B	B	B	A		
Intersection Summary						
Delay	12.7					
Level of Service	B					
Intersection Capacity Utilization	33.8%					
Analysis Period (min)	15					
ICU Level of Service						
A						

Balboa Transit Station
23: Morena Blvd & Costco Dwy

Existing Conditions
Timing Plan: AM Peak Period

Movement	WBL	NBT	SBL	SBT
Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	179	810	38	287
v/c Ratio	0.27	0.56	0.13	0.16
Control Delay	12.9	10.8	18.4	4.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.9	10.8	18.4	4.6
Queue Length 50th (ft)	9	41	6	12
Queue Length 95th (ft)	36	128	29	24
Internal Link Dist (ft)	195	3170		1658
Turn Bay Length (ft)			110	
Base Capacity (vph)	3095	3440	1472	3539
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.06	0.24	0.03	0.08
Intersection Summary				

Balboa Transit Station
23: Morena Blvd & Costco Dwy

Existing Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W<T>	W<T>	W<T>	W<T>	W<T>	W<T>
Traffic Volume (vph)	104	46	553	128	32	241
Future Volume (vph)	104	46	553	128	32	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.5	4.4	5.5	5.5
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00
Flt	0.95	0.97	1.00	1.00	1.00	1.00
Flt Protected	0.97	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3332	3440	1770	3539	1770	3539
Flt Permitted	0.97	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3332	3440	1770	3539	1770	3539
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	124	55	658	152	38	287
RTOR Reduction (vph)	42	0	15	0	0	0
Lane Group Flow (vph)	137	0	795	0	38	287
Turn Type	Prot	NA	NA	Prot	NA	NA
Protected Phases	8	2		1	6	
Permitted Phases						
Actuated Green, G (s)	7.0	15.4		2.1	21.9	
Effective Green, g (s)	7.0	15.4		2.1	21.9	
Actuated g/C Ratio	0.18	0.39		0.05	0.56	
Clearance Time (s)	4.9	5.5		4.4	5.5	
Vehicle Extension (s)	2.0	2.8		2.0	2.8	
Lane Grp Cap (vph)	593	1347		94	1972	
v/s Ratio Prot	c0.04	c0.23		c0.02	0.08	
v/s Ratio Perm						
v/c Ratio	0.23	0.59		0.40	0.15	
Uniform Delay, d1	13.8	9.5		18.0	4.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7		1.0	0.0	
Delay (s)	13.9	10.1		19.0	4.2	
Level of Service	B	B		B	A	
Approach Delay (s)	13.9	10.1		6.0		
Approach LOS	B	B		A		
Intersection Summary						
HCM 2000 Control Delay		9.6		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio		0.47				
Actuated Cycle Length (s)		39.3		Sum of lost time (s)		14.8
Intersection Capacity Utilization		39.5%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station
24: Morena Blvd & Avati Dr

Existing Conditions
Timing Plan: AM Peak Period

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	240	35	768	128	18	335
v/c Ratio	0.31	0.09	0.49	0.08	0.07	0.19
Control Delay	15.2	7.8	9.4	0.6	18.8	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	7.8	9.4	0.6	18.8	5.5
Queue Length 50th (ft)	18	0	44	0	3	16
Queue Length 95th (ft)	61	19	138	9	21	34
Internal Link Dist (ft)	317		2205			3170
Turn Bay Length (ft)		135		115	120	
Base Capacity (vph)	3017	1397	3592	1569	1481	3539
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.03	0.21	0.08	0.01	0.09
Intersection Summary						

Balboa Transit Station
24: Morena Blvd & Avati Dr

Existing Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↔	↔↔	↔	↔	↔↔
Traffic Volume (vph)	223	33	0	714	119	17	312
Future Volume (vph)	223	33	0	714	119	17	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)	-10%			-3%			0%
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	5.7	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95	
Flt	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)	3605	1662	3592	1607	1770	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3605	1662	3592	1607	1770	3539	
Peak-hour factor, PHF	0.93	0.93	0.92	0.93	0.93	0.93	
Adj. Flow (vph)	240	35	0	768	128	18	335
RTOR Reduction (vph)	0	28	0	0	51	0	0
Lane Group Flow (vph)	240	7	0	768	77	18	335
Turn Type	Prot	Prot	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	7	1	6	7	5	2
Permitted Phases					6		5
Actuated Green, G (s)	8.1	8.1		16.5	24.6	0.9	22.1
Effective Green, g (s)	8.1	8.1		16.5	24.6	0.9	22.1
Actuated g/C Ratio	0.20	0.20		0.40	0.60	0.02	0.54
Clearance Time (s)	4.9	4.9		6.0	4.9	4.4	5.7
Vehicle Extension (s)	2.0	2.0		5.2	2.0	2.0	5.0
Lane Grp Cap (vph)	715	329		1452	968	39	1916
v/s Ratio Prot	c0.07	0.00		c0.21	0.02	0.01	c0.09
v/s Ratio Perm					0.03		
v/c Ratio	0.34	0.02		0.53	0.08	0.46	0.17
Uniform Delay, d1	14.0	13.2		9.2	3.4	19.7	4.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		0.7	0.0	3.1	0.1
Delay (s)	14.1	13.2		9.9	3.4	22.8	4.8
Level of Service	B	B		A	A	C	A
Approach Delay (s)	14.0			9.0		5.7	
Approach LOS	B			A		A	
Intersection Summary							
HCM 2000 Control Delay			9.1		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.47				
Actuated Cycle Length (s)			40.8		Sum of lost time (s)		15.3
Intersection Capacity Utilization			35.2%		ICU Level of Service		A
Analysis Period (min)			15				
c. Critical Lane Group							

Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Existing Conditions
Timing Plan: AM Peak Period

Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	83	107	891	330	232	428
v/c Ratio	0.22	0.25	0.39	0.21	0.10	0.27
Control Delay	11.8	4.5	5.1	0.3	4.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	4.5	5.1	0.3	4.0	0.4
Queue Length 50th (ft)	13	0	39	0	8	0
Queue Length 95th (ft)	28	18	70	0	18	0
Internal Link Dist (ft)			933		2205	
Turn Bay Length (ft)		50		150		100
Base Capacity (vph)	878	839	2257	1583	2257	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.13	0.39	0.21	0.10	0.27
Intersection Summary						

Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	73	0	94	0	0	0	0	784	290	0	204	377
Traffic Volume (vph)	73	0	94	0	0	0	0	784	290	0	204	377
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00
Lane Util. Factor	1.00	0.85	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1583	3539	1583	3539	1583	3539	1583	3539	1583	1583
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1583	3539	1583	3539	1583	3539	1583	3539	1583	1583
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
Adj. Flow (vph)	83	0	107	0	0	0	0	891	330	0	232	428
RTOR Reduction (vph)	0	0	89	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	83	0	18	0	0	0	0	891	330	0	232	428
Turn Type	Perm	Perm	Perm	NA	Free	NA	Free	NA	Free	NA	Free	Free
Protected Phases	4	4	4	2	Free	2	Free	6	Free	6	Free	Free
Permitted Phases	4	4	4	2	Free	2	Free	6	Free	6	Free	Free
Actuated Green, G (s)	5.7	5.7	5.7	19.9	33.6	19.9	33.6	19.9	33.6	19.9	33.6	33.6
Effective Green, g (s)	5.7	5.7	5.7	19.9	33.6	19.9	33.6	19.9	33.6	19.9	33.6	33.6
Actuated g/C Ratio	0.17	0.17	0.17	0.59	1.00	0.59	1.00	0.59	1.00	0.59	1.00	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	300	268	268	2096	1583	2096	1583	2096	1583	2096	1583	1583
v/s Ratio Prot	0.05	0.01	0.01	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.27
v/s Ratio Perm	0.28	0.07	0.07	0.43	0.21	0.43	0.21	0.43	0.21	0.43	0.21	0.27
Uniform Delay, d1	12.2	11.7	11.7	3.7	0.0	3.7	0.0	3.0	0.0	3.0	0.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.1	0.1	0.1	0.3	0.1	0.3	0.0	0.4	0.0	0.4	0.4
Delay (s)	12.7	11.8	11.8	3.9	0.3	3.9	0.3	3.0	0.4	3.0	0.4	0.4
Level of Service	B	B	B	A	A	A	A	A	A	A	A	A
Approach Delay (s)	12.2	11.8	11.8	3.9	0.3	3.9	0.3	3.0	0.4	3.0	0.4	0.4
Approach LOS	B	B	B	A	A	A	A	A	A	A	A	A
Intersection Summary												
HCM 2000 Control Delay	3.3 HCM 2000 Level of Service											
HCM 2000 Volume to Capacity ratio	0.43											
Actuated Cycle Length (s)	33.6 Sum of lost time (s)											
Intersection Capacity Utilization	32.4% ICU Level of Service											
Analysis Period (min)	15											
c Critical Lane Group												

Balboa Transit Station
26: Morena Blvd & Balboa EB Ramps

Existing Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	141	0	0	262	0	799	219	50	240	0
Traffic Volume (veh/h)	0	0	141	0	0	262	0	799	219	50	240	0
Future Volume (Veh/h)	0	0	141	0	0	262	0	799	219	50	240	0
Sign Control	Yield	Yield	Yield	Yield	Yield	Yield	Free	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	157	0	0	291	0	888	243	56	267	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pk, platoon unblocked	1267	1267	134	1134	1267	888	267					
vc, conflicting volume												
vc1, stage 1 conf vol												
vc2, stage 2 conf vol												
vcu, unblocked vol	1267	1267	134	1134	1267	888	267					
ic, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1					
ic, 2 stage (s)												
if (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					
p0 queue free %	0	100	82	100	100	0	100					
dm capacity (veh/h)	0	155	891	122	155	287	1294					
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	157	291	888	243	56	134	134					
Volume Left	0	0	0	0	56	0	0					
Volume Right	157	291	0	243	0	0	0					
csh	891	287	1700	1700	758	1700	1700					
Volume to Capacity	0.18	1.01	0.52	0.14	0.07	0.08	0.08					
Queue Length 95th (ft)	16	268	0	0	6	0	0					
Control Delay (s)	9.9	96.7	0.0	0.0	10.1	0.0	0.0					
Lane LOS	A	F	A	B	B	A	A					
Approach Delay (s)	9.9	96.7	0.0	1.8								
Approach LOS	A	F										
Intersection Summary												
Average Delay	15.9											
Intersection Capacity Utilization	64.9% ICU Level of Service											
Analysis Period (min)	15											

Balboa Transit Station
27: Morena Blvd & Baker St

Existing Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑	↑	↓	↓
Traffic Volume (veh/h)	23	29	946	19	17	354
Future Volume (Veh/h)	23	29	946	19	17	354
Sign Control	Stopp		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)	26	33	1075	22	19	402
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
VC, conflicting volume	1314	1075			1097	
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	1314	1075			1097	
IC, single (s)	6.8	6.9			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	82	85			97	
CM capacity (veh/h)	145	215			632	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	59	1075	22	19	201	201
Volume Left	26	0	0	19	0	0
Volume Right	33	0	22	0	0	0
cSH	177	1700	1700	632	1700	1700
Volume to Capacity	0.33	0.63	0.01	0.03	0.12	0.12
Queue Length 95th (ft)	34	0	0	2	0	0
Control Delay (s)	35.1	0.0	0.0	10.9	0.0	0.0
Lane LOS	E			B		
Approach Delay (s)	35.1	0.0		0.5		
Approach LOS	E					
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			59.8%		ICU Level of Service	B
Analysis Period (min)			15			

Balboa Transit Station
28: Morena Blvd & Gesner St

Existing Conditions
Timing Plan: AM Peak Period

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	93	1053	47	54	413
v/c Ratio	0.29	0.51	0.05	0.18	0.16
Control Delay	15.4	10.8	6.8	23.5	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	10.8	6.8	23.5	3.5
Queue Length 50th (ft)	11	118	5	14	18
Queue Length 95th (ft)	47	197	20	45	36
Internal Link Dist (ft)	1333	298	95	95	3361
Turn Bay Length (ft)					
Base Capacity (vph)	1403	3485	1559	1233	3539
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.30	0.03	0.04	0.12
Intersection Summary					

Balboa Transit Station
28: Morena Blvd & Gesner St

Existing Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		W	W	W	W
Traffic Volume (vph)	32	47	895	40	46	351
Future Volume (vph)	32	47	895	40	46	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.9	4.4	6.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	
Ft	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)	1680	3539	1583	1770	3539	
Flt Permitted	0.98	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1680	3539	1583	1770	3539	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	
Adj. Flow (vph)	38	55	1053	47	54	413
RTOR Reduction (vph)	44	0	0	9	0	0
Lane Group Flow (vph)	49	0	1053	38	54	413
Turn Type	Prot	NA	Perm	Prot	NA	
Protected Phases	8	2		1	6	
Permitted Phases			2			
Actuated Green, G (s)	5.2	22.9	22.9	3.7	30.9	
Effective Green, g (s)	5.2	22.9	22.9	3.7	30.9	
Actuated g/C Ratio	0.11	0.49	0.49	0.08	0.66	
Clearance Time (s)	4.4	5.9	5.9	4.4	6.0	
Vehicle Extension (s)	2.0	4.4	4.4	2.0	4.2	
Lane Grp Cap (vph)	187	1742	779	140	2351	
v/s Ratio Prot	c0.03	c0.30		c0.03	0.12	
v/s Ratio Perm			0.02			
v/c Ratio	0.26	0.60	0.05	0.39	0.18	
Uniform Delay, d1	18.9	8.5	6.1	20.3	3.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.8	0.0	0.6	0.1	
Delay (s)	19.2	9.3	6.2	21.0	3.0	
Level of Service	B	A	A	C	A	
Approach Delay (s)	19.2	9.2		5.1		
Approach LOS	B	A		A		
Intersection Summary						
HCM 2000 Control Delay		8.6		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio		0.52				
Actuated Cycle Length (s)		46.5		Sum of lost time (s)		14.7
Intersection Capacity Utilization		45.0%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station
29: Balboa EB Ramps/Balboa WB Ramps & Garnet Ave

Existing Conditions
Timing Plan: AM Peak Period

Intersection Sign configuration not allowed in HCM analysis.

Balboa Transit Station

Existing Conditions
Timing Plan: AM Peak Period

Arterial Level of Service: EB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Olney St	II	30	12.1	10.3	22.4	0.09	13.8	E
Balboa Ave	II	30	23.5	12.3	35.8	0.19	18.6	D
Soledad Min Rd	II	35	27.4	12.8	40.2	0.23	20.6	D
Bond St	II	35	21.0	0.8	21.8	0.17	21.7	C
Mission Bay Dr	II	35	15.5	57.8	73.3	0.12	6.1	F
Miraga Ave	II	45	44.2	5.3	49.5	0.50	36.5	A
Claremont Dr	II	45	49.7	50.7	100.4	0.62	22.3	C
Total	II		193.4	150.0	343.4	1.92	20.1	D

Arterial Level of Service: WB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Claremont Dr	II	45	14.7	41.0	55.7	0.13	8.7	F
Miraga Ave	II	45	49.7	22.0	71.7	0.62	31.2	B
Mission Bay Dr	II	45	44.2	75.6	119.8	0.50	15.1	E
Bond St	II	35	15.5	0.8	16.3	0.12	27.4	C
Soledad Min Rd	II	35	21.0	6.0	27.0	0.17	22.4	C
Garnet Ave	II	35	27.4	0.3	27.7	0.23	29.9	B
Olney St	II	30	23.5	6.9	30.4	0.19	22.0	D
Total	II		196.0	152.6	348.6	1.97	20.3	D

Arterial Level of Service: NB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Grand Ave	III	35	37.4	5.9	43.3	0.31	25.9	B
Bunker Hill St	III	35	14.3	4.6	18.9	0.11	20.1	C
Magnolia Ave	III	35	21.4	4.3	25.7	0.17	23.5	C
Garnet Ave	III	35	13.8	32.2	46.0	0.10	8.0	F
Damon Ave	III	35	11.7	2.7	14.4	0.09	21.6	C
Bluffsides Av	III	35	20.1	15.4	35.5	0.16	15.9	D
Total	III		118.7	65.1	183.8	0.93	18.2	C

Arterial Level of Service: SB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bluffsides Av	III	35	20.0	13.8	33.8	0.16	16.6	D
Damon Ave	III	35	20.1	5.0	25.1	0.16	22.5	C
Garnet Ave	III	35	11.7	42.9	54.6	0.09	5.7	F
Magnolia Ave	III	35	13.8	7.5	21.3	0.10	17.3	D
Bunker Hill St	III	35	21.4	1.5	22.9	0.17	26.3	B
Grand Ave	III	35	14.3	19.7	34.0	0.11	11.2	E
Total	III		101.3	90.4	191.7	0.77	14.6	D

KHA
Arterial Level of Service

Synchro 9 Report
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Balboa Transit Station 1: Olney St & Garnet Ave

Existing Conditions
Timing Plan: PM Peak Period













Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	12	752	19	1055	216	141
v/c Ratio	0.04	0.63	0.06	0.46	0.71	0.50
Control Delay	6.6	11.2	8.4	10.2	35.5	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	11.2	8.4	10.2	35.5	25.9
Queue Length 50th (ft)	2	154	4	140	79	46
Queue Length 95th (ft)	9	338	m10	241	130	85
Internal Link Dist (ft)		374		899	244	450
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	284	1197	331	2283	463	423
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.63	0.06	0.46	0.47	0.33
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

KHA
Queues

Synchro 9 Report
Page 1

Balboa Transit Station
1: Olney St & Garnet Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	687	43	18	989	34	105	83	21	71	44	22
Future Volume (vph)	12	687	43	18	989	34	105	83	21	71	44	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	0.99	1.00	1.00	1.00	1.00	0.99	0.99	0.98	0.98	0.98	0.98
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.98	0.98	0.98	0.97	0.97	0.97
Satd. Flow (prot)	1770	1846	1770	3522	1770	3522	1792	1792	1776	1776	1776	1776
Flt Permitted	0.24	1.00	0.27	1.00	0.27	1.00	0.79	0.79	0.72	0.72	0.72	0.72
Satd. Flow (perm)	440	1846	512	3522	512	3522	1453	1453	1314	1314	1314	1314
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)	12	708	44	19	1020	35	108	86	22	73	45	23
RTOR Reduction (vph)	0	2	0	0	3	0	0	7	0	0	12	0
Lane Group Flow (vph)	12	750	0	19	1052	0	0	209	0	0	129	0
Turn Type	Perm	NA	NA	Perm	NA	NA	Perm	NA	Perm	NA	NA	NA
Protected Phases	2	2		6	6		8	8		4		4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.4	43.4	43.4	43.4	43.4	43.4	13.8	13.8	13.8	13.8	13.8	13.8
Effective Green, g (s)	43.4	43.4	43.4	43.4	43.4	43.4	13.8	13.8	13.8	13.8	13.8	13.8
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.65	0.65	0.21	0.21	0.21	0.21	0.21	0.21
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Vehicle Extension (s)	3.4	3.4	3.4	5.9	5.9	5.9	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	285	1195	331	2281	2281	2281	299	299	270	270	270	270
v/s Ratio Prot	0.03	0.41		0.30			0.04		0.14		0.10	
v/s Ratio Perm	0.04	0.63	0.06	0.46	0.06	0.46	0.70	0.70	0.48	0.48	0.48	0.48
v/c Ratio	4.3	7.0	4.3	5.9	4.3	5.9	24.7	24.7	23.4	23.4	23.4	23.4
Uniform Delay, d1	1.00	1.00	1.30	1.41	1.00	1.41	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.3	2.5	0.3	0.6	0.3	0.6	5.7	5.7	0.5	0.5	0.5	0.5
Incremental Delay, d2	4.6	9.5	5.9	8.9	4.6	8.9	30.3	30.3	23.9	23.9	23.9	23.9
Delay (s)	A	A	A	A	A	A	C	C	C	C	C	C
Level of Service	A	A	A	A	A	A	C	C	C	C	C	C
Approach Delay (s)	9.4			8.9			30.3			23.9		
Approach LOS	A			A			C			C		
Intersection Summary												
HCM 2000 Control Delay	12.1										B	
HCM 2000 Volume to Capacity ratio	0.64											
Actuated Cycle Length (s)	67.0										9.8	
Intersection Capacity Utilization	61.0%										B	
Analysis Period (min)	15											
Critical Lane Group												

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Existing Conditions
Timing Plan: PM Peak Period

Lane Group	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	442	1186	538	813
v/c Ratio	0.23	0.62	0.37	0.76
Control Delay	8.8	8.3	0.7	33.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.8	8.3	0.7	33.8
Queue Length 50th (ft)	47	104	0	189
Queue Length 95th (ft)	72	167	0	244
Internal Link Dist (ft)	936	329		899
Turn Bay Length (ft)				
Base Capacity (vph)	1914	1910	1441	1135
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.23	0.62	0.37	0.72
Intersection Summary				

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		←	←	←	←	←
Traffic Volume (vph)	0	433	657	1033	790	7
Future Volume (vph)	0	433	657	1033	790	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	4.0	4.9	
Lane Util. Factor		0.95	0.91	0.91	0.97	
Flt		1.00	0.93	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3539	3169	1441	3439	
Flt Permitted		1.00	1.00	1.00	0.95	
Satd. Flow (perm)		3539	3169	1441	3439	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	442	670	1054	806	7
RTOR Reduction (vph)	0	0	196	0	1	0
Lane Group Flow (vph)	0	442	990	538	812	0
Turn Type	NA	NA	Free	Prot	Prot	
Protected Phases	2	2		4		
Permitted Phases			Free			
Actuated Green, G (s)		36.2	36.2	67.0	20.9	
Effective Green, g (s)		36.2	36.2	67.0	20.9	
Actuated g/C Ratio		0.54	0.54	1.00	0.31	
Clearance Time (s)		5.0	5.0	4.9		
Vehicle Extension (s)		6.1	6.1	5.2		
Lane Grp Cap (vph)	1912	1712	1441	1072		
v/s Ratio Prot	0.12	0.31		0.24		
v/s Ratio Perm		0.23	0.58	0.37	0.76	
Uniform Delay, d1		8.1	10.3	0.0	20.8	
Progression Factor		1.00	1.00	1.00	1.42	
Incremental Delay, d2		0.3	1.4	0.7	3.1	
Delay (s)		8.4	11.7	0.7	32.7	
Level of Service		A	B	A	C	
Approach Delay (s)		8.4	8.3	32.7		
Approach LOS		A	A	C		
Intersection Summary						
HCM 2000 Control Delay			15.0	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			67.0	Sum of lost time (s)		9.9
Intersection Capacity Utilization			60.2%	ICU Level of Service		B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
3: Garnet Ave & Soledad Mtn Rd

Existing Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	77	1249	1840	634	576	98
v/c Ratio	0.27	0.48	0.82	0.47	0.84	0.25
Control Delay	75.8	10.3	34.5	5.5	77.3	10.1
Queue Delay	0.0	0.0	1.1	0.3	0.0	0.0
Total Delay	75.8	10.3	35.7	5.8	77.3	10.1
Queue Length 50th (ft)	42	274	1033	225	322	0
Queue Length 95th (ft)	72	375	1170	321	373	51
Internal Link Dist (ft)		724	806		594	
Turn Bay Length (ft)	200		200	225	225	
Base Capacity (vph)	284	2608	2236	1352	860	392
Starvation Cap Reductn	0	0	188	264	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.48	0.90	0.58	0.67	0.25
Intersection Summary						

Balboa Transit Station
3: Garnet Ave & Soledad Mtn Rd

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	74	1199	1766	609	553	94
Future Volume (vph)	74	1199	1766	609	553	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Flt	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)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	77	1249	1840	634	576	98
RTOR Reduction (vph)	0	0	0	0	0	79
Lane Group Flow (vph)	77	1249	1840	634	576	19
Turn Type	Prot	NA	NA	pm-ov	Prot	custom
Protected Phases	5	2	6	7	7	4
Permitted Phases		2		6		7
Actuated Green, G (s)	14.1	125.3	107.4	141.2	33.8	33.8
Effective Green, g (s)	14.1	125.3	107.4	141.2	33.8	33.8
Actuated g/C Ratio	0.08	0.74	0.63	0.83	0.20	0.20
Clearance Time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Vehicle Extension (s)	2.0	5.6	8.0	2.0	2.0	3.0
Lane Grp Cap (vph)	284	2608	2235	1365	682	314
v/s Ratio Prot	0.02	c0.35	c0.52	0.09	c0.17	0.01
v/s Ratio Perm				0.31		
v/c Ratio	0.27	0.48	0.82	0.46	0.84	0.06
Uniform Delay, d1	73.1	9.1	24.0	4.0	65.6	55.2
Progression Factor	1.00	1.00	1.25	1.59	1.00	1.00
Incremental Delay, d2	0.2	0.6	2.8	0.1	9.0	0.1
Delay (s)	73.3	9.7	32.9	6.4	74.6	55.3
Level of Service	E	A	C	A	E	E
Approach Delay (s)		13.4	26.1		71.8	
Approach LOS		B	C		E	
Intersection Summary						
HCM 2000 Control Delay			29.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.82			
Actuated Cycle Length (s)			170.0		Sum of lost time (s)	18.7
Intersection Capacity Utilization			73.2%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
4: Bond St & Garnet Ave

Existing Conditions
Timing Plan: PM Peak Period

Lane Group	EBT	WBT	NBR
Lane Group Flow (vph)	1844	2361	31
v/c Ratio	0.52	0.67	0.02
Control Delay	0.6	1.1	0.0
Queue Delay	0.0	0.3	0.0
Total Delay	0.6	1.4	0.0
Queue Length 50th (ft)	2	12	0
Queue Length 95th (ft)	0	0	0
Internal Link Dist (ft)	806	574	
Turn Bay Length (ft)			
Base Capacity (vph)	3522	3539	1611
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	85	528	39
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.54	0.78	0.02
Intersection Summary			

Balboa Transit Station
4: Bond St & Garnet Ave

Movement	Existing Conditions											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4B			4B							
Traffic Volume (vph)	0	1699	53	0	2243	0	0	0	29	0	0	0
Future Volume (vph)	0	1699	53	0	2243	0	0	0	29	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9			4.9					4.9			
Lane Util. Factor	0.95			0.95					1.00			
Flt	1.00			1.00					0.86			
Flt Protected	1.00			1.00					1.00			
Satd. Flow (prot)	3523			3539					1611			
Flt Permitted	1.00			1.00					1.00			
Satd. Flow (perm)	3523			3539					1611			
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)	0	1788	56	0	2361	0	0	0	31	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1844	0	0	2361	0	0	0	31	0	0	0
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases	2			6					2			6
Permitted Phases												
Actuated Green, G (s)	170.0			170.0					170.0			170.0
Effective Green, g (s)	170.0			170.0					170.0			170.0
Actuated g/C Ratio	1.00			1.00					1.00			1.00
Clearance Time (s)	4.9			4.9					4.9			4.9
Vehicle Extension (s)	7.3			7.3					7.3			7.3
Lane Grp Cap (vph)	3523			3539					1611			
v/s Ratio Prot	0.52			d0.67					0.02			0.02
v/s Ratio Perm	0.52			0.67					0.02			0.02
Uniform Delay, d1	0.0			0.0					0.0			0.0
Progression Factor	1.00			1.00					1.00			1.00
Incremental Delay, d2	0.5			0.7					0.0			0.0
Delay (s)	0.5			0.7					0.0			0.0
Level of Service	A			A					A			A
Approach Delay (s)	0.5			0.7				0.0	0.0			0.0
Approach LOS	A			A				A	A			A
Intersection Summary												
HCM 2000 Control Delay			0.6			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)			7.9			
Intersection Capacity Utilization			69.3%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Lane Group	Existing Conditions											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	504	843	394	252	918	347	579	322	267	259	300	810
v/c Ratio	0.85	0.66	0.40	0.89	0.75	0.43	0.90	0.34	0.35	0.75	0.88	0.73
Control Delay	65.1	52.9	24.1	101.6	55.5	23.0	76.2	60.8	13.0	89.9	73.9	53.8
Queue Delay	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.5	0.0	4.6	1.2
Total Delay	65.1	53.3	24.4	101.6	55.5	23.0	76.2	60.8	13.4	89.9	78.5	55.0
Queue Length 50th (ft)	280	470	246	275	496	182	329	179	108	151	301	519
Queue Length 95th (ft)	315	557	344	#411	#651	282	361	240	184	200	#472	572
Internal Link Dist (ft)	574		120	410	1151		265		100	200		376
Turn Bay Length (ft)	565		1270	1004	313	1218	927	708	959	628	368	2186
Base Capacity (vph)	700	107	201	0	0	0	0	0	221	0	31	182
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	31	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.72	0.49	0.81	0.75	0.37	0.82	0.35	0.46	0.41	0.89	0.81
Intersection Summary												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	499	835	390	249	909	344	573	319	264	256	297	802
Future Volume (vph)	499	835	390	249	909	344	573	319	264	256	297	802
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	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2187
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2187
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	504	843	394	252	918	347	579	322	267	259	300	810
RTOR Reduction (vph)	0	0	71	0	0	58	0	0	47	0	0	26
Lane Group Flow (vph)	504	843	323	252	918	289	579	322	220	259	300	784
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	29.6	61.0	92.9	27.1	58.5	75.7	31.9	46.1	73.2	17.2	31.0	60.6
Effective Green, g (s)	29.6	61.0	92.9	27.1	58.5	75.7	31.9	46.1	73.2	17.2	31.0	60.6
Actuated g/C Ratio	0.17	0.36	0.55	0.16	0.34	0.45	0.19	0.27	0.43	0.10	0.18	0.36
Clearance Time (s)	4.4	4.9	4.4	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	597	1269	865	282	1217	704	644	959	681	347	339	993
v/s Ratio Prot	c0.15	0.24	0.07	0.14	c0.26	0.04	c0.17	0.09	0.05	0.08	c0.16	0.14
v/s Ratio Perm			0.13			0.14			0.09			0.14
v/c Ratio	0.84	0.66	0.37	0.89	0.75	0.41	0.90	0.34	0.32	0.75	0.88	0.79
Uniform Delay, d1	68.0	45.9	22.0	70.0	49.4	32.0	67.5	49.7	32.0	74.3	67.8	49.0
Progression Factor	0.78	1.05	1.88	1.00	1.00	1.00	0.88	1.21	0.63	1.05	0.72	1.20
Incremental Delay, d2	9.0	2.4	0.1	27.4	4.4	0.1	14.1	0.3	0.1	6.8	21.4	3.6
Delay (s)	62.2	50.7	41.5	97.4	53.8	32.1	73.8	60.6	20.1	84.7	70.3	62.1
Level of Service	E	D	D	F	D	C	E	E	C	F	E	E
Approach Delay (s)	51.9			56.1				57.9			68.2	
Approach LOS	D			E				E			E	
Intersection Summary												
HCM 2000 Control Delay			58.0				HCM 2000 Level of Service				E	
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			170.0				Sum of lost time (s)				19.0	
Intersection Capacity Utilization			87.2%				ICU Level of Service				E	
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	0	1369	0	0	2139	60	0	0	905	0	0	135
Future Volume (Veh/h)	0	1369	0	0	2139	60	0	0	905	0	0	135
Sign Control		Free			Free			Yield				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	1397	0	0	2183	61	0	0	923	0	0	138
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		1231										
pK, platoon unblocked				0.80			0.80	0.80	0.80	0.80	0.80	0.80
vC, conflicting volume	2244			1397			2263	3641	698	2912	3610	758
VC1, stage 1 conf vol												
VC2, stage 2 conf vol												
VCU, unblocked vol	2244			994			2077	3802	120	2890	3764	758
IC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
IC, 2 stage (s)												
IF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	0	0	100	61
dM capacity (veh/h)	227			553			15	3	726	0	3	349
Direction, Lane #												
	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 3	SB 1				
Volume Total	698	698	873	873	498	923	138					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	0	0	61	923	138					
cSH	1700	1700	1700	1700	1700	726	349					
Volume to Capacity	0.41	0.41	0.51	0.51	0.29	1.27	0.39					
Queue Length 95th (ft)	0	0	0	0	0	865	46					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	151.9	21.9					
Lane LOS						F	C					
Approach Delay (s)	0.0		0.0			151.9	21.9					
Approach LOS						F	C					
Intersection Summary												
Average Delay						30.5						
Intersection Capacity Utilization						100.5%						G
Analysis Period (min)						15						

Balboa Transit Station
7: Balboa EB Ramps & Balboa Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔		↔↔					↔	↔	↔
Traffic Volume (veh/h)	0	1437	514	0	1578	0	0	0	0	257	0	0
Future Volume (Veh/h)	0	1437	514	0	1578	0	0	0	0	257	0	0
Sign Control		Free	Free		Free			Stop		Stop		Stop
Grade		0%	0%		0%			0%		0%		0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1562	559	0	1715	0	0	0	0	279	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					634							
pX, platoon unblocked	0.68						0.68	0.68		0.68	0.68	0.68
VC, conflicting volume	1715			1562			2420	3277	781	24%	3277	858
VC1, stage 1 conf vol												
VC2, stage 2 conf vol												
VCu, unblocked vol	1107			1562			2145	3408	781	2257	3408	0
IC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
IC, 2 stage (s)												
IF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	17	100	100	71
CM capacity (veh/h)	425			419			13	5	338	3	5	736
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	781	781	559	858	858	279	214					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	559	0	0	279	214					
cSH	1700	1700	1700	1700	1700	338	736					
Volume to Capacity	0.46	0.46	0.33	0.50	0.50	0.83	0.29					
Queue Length 95th (ft)	0	0	0	0	0	180	30					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	50.7	11.9					
Lane LOS						F	B					
Approach Delay (s)	0.0			0.0		50.7	11.9					
Approach LOS						F	B					
Intersection Summary												
Average Delay				3.9								
Intersection Capacity Utilization				62.5%						B		
Analysis Period (min)				15								

Balboa Transit Station
8: Balboa Ave & Moraga Ave

Existing Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	363	1400	1305	93	102	305
v/c Ratio	0.57	0.55	0.79	0.12	0.44	0.64
Control Delay	35.2	6.0	22.4	6.1	41.9	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	6.0	22.4	6.1	41.9	11.8
Queue Length 50th (ft)	82	133	272	8	46	0
Queue Length 95th (ft)	160	214	429	36	115	79
Internal Link Dist (ft)		554	3203			501
Turn Bay Length (ft)	215			250	155	
Base Capacity (vph)	1346	3480	2756	1246	925	973
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.40	0.47	0.07	0.11	0.31
Intersection Summary						

Balboa Transit Station
8: Balboa Ave & Moraga Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	356	1372	1279	91	100	299
Future Volume (vph)	356	1372	1279	91	100	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	6.5	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Flt	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)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	363	1400	1305	93	102	305
RTOR Reduction (vph)	0	0	0	33	0	265
Lane Group Flow (vph)	363	1400	1305	60	102	40
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	14.8	57.3	37.3	37.3	10.5	10.5
Effective Green, g (s)	14.8	57.3	37.3	37.3	10.5	10.5
Actuated g/C Ratio	0.19	0.72	0.47	0.47	0.13	0.13
Clearance Time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Vehicle Extension (s)	2.0	4.8	3.9	3.9	2.0	2.0
Lane Grp Cap (vph)	642	2563	1668	746	234	210
v/s Ratio Prot	0.11	c0.40	c0.37		c0.06	
v/s Ratio Perm				0.04		0.03
v/c Ratio	0.57	0.55	0.78	0.08	0.44	0.19
Uniform Delay, d1	29.2	5.0	17.5	11.5	31.6	30.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.4	2.6	0.1	0.5	0.2
Delay (s)	29.9	5.4	20.1	11.5	32.0	30.7
Level of Service	C	A	C	B	C	C
Approach Delay (s)		10.4	19.5		31.0	
Approach LOS		B	B		C	
Intersection Summary						
HCM 2000 Control Delay			16.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			79.1		Sum of lost time (s)	16.5
Intersection Capacity Utilization			65.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
9: Clairmont Dr & Balboa Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	395	1187	427	1171	86	319
Future Volume (vph)	395	1187	427	1171	86	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	6.5	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Flt	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)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	363	1400	1305	93	102	305
RTOR Reduction (vph)	0	0	0	33	0	265
Lane Group Flow (vph)	363	1400	1305	60	102	40
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	14.8	57.3	37.3	37.3	10.5	10.5
Effective Green, g (s)	14.8	57.3	37.3	37.3	10.5	10.5
Actuated g/C Ratio	0.19	0.72	0.47	0.47	0.13	0.13
Clearance Time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Vehicle Extension (s)	2.0	4.8	3.9	3.9	2.0	2.0
Lane Grp Cap (vph)	642	2563	1668	746	234	210
v/s Ratio Prot	0.11	c0.40	c0.37		c0.06	
v/s Ratio Perm				0.04		0.03
v/c Ratio	0.57	0.55	0.78	0.08	0.44	0.19
Uniform Delay, d1	29.2	5.0	17.5	11.5	31.6	30.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.4	2.6	0.1	0.5	0.2
Delay (s)	29.9	5.4	20.1	11.5	32.0	30.7
Level of Service	C	A	C	B	C	C
Approach Delay (s)		10.4	19.5		31.0	
Approach LOS		B	B		C	
Intersection Summary						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						

Balboa Transit Station
9: Clairemont Dr & Balboa Ave

Balboa Transit Station
10: Olney St & Balboa Ave

Balboa Transit Station
Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	379	1083	57	410	1020	104	83	306	336	250	504	291
Future Volume (vph)	379	1083	57	410	1020	104	83	306	336	250	504	291
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	6.4	6.4	4.4	5.3	4.4	4.4	4.4	5.3	5.3
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.95
Flt	1.00	0.99	1.00	0.99	1.00	0.99	1.00	1.00	0.85	1.00	0.95	0.95
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3513	3433	3490	3433	3490	1770	3539	1583	1770	3345	3345
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3513	3433	3490	3433	3490	1770	3539	1583	1770	3345	3345
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
Adj. Flow (vph)	395	1128	59	427	1062	108	86	319	350	260	525	303
RTOR Reduction (vph)	0	2	0	0	4	0	0	0	37	0	43	0
Lane Group Flow (vph)	395	1185	0	427	1167	0	86	319	313	260	785	0
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	NA
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	22.1	59.3	23.3	59.8		12.0	24.4	47.7	26.7	39.1		
Effective Green, g (s)	22.1	59.3	23.3	59.8		12.0	24.4	47.7	26.7	39.1		
Actuated g/C Ratio	0.14	0.39	0.15	0.39		0.08	0.16	0.31	0.17	0.25		
Clearance Time (s)	4.4	5.7	4.4	6.4	6.4	4.4	5.3	4.4	4.4	5.3		
Vehicle Extension (s)	2.0	3.5	2.0	3.0	3.0	2.0	2.4	2.0	2.0	2.6		
Lane Grp Cap (vph)	494	1357	521	1359		138	562	491	307	852		
v/s Ratio Prot	0.12	c0.34	c0.12	0.33		0.05	0.09	0.10	c0.15	c0.23		
v/s Ratio Perm								0.10				
v/c Ratio	0.80	0.87	0.82	0.86		0.62	0.57	0.64	0.85	0.92		
Uniform Delay, d1	63.6	43.6	63.1	43.0		68.6	59.7	45.5	61.4	55.7		
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	8.3	6.7	9.3	5.6		6.2	1.0	2.0	18.3	15.1		
Delay (s)	71.8	50.3	72.3	48.6		74.7	60.7	47.5	79.7	70.8		
Level of Service	E	D	E	D		E	D	E	D	E		
Approach Delay (s)	55.7		55.0			56.2				72.9		
Approach LOS	E		D			E				E		
Intersection Summary												
HCM 2000 Control Delay		59.2				HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio		0.89										
Actuated Cycle Length (s)		153.5				Sum of lost time (s)				20.5		
Intersection Capacity Utilization		87.8%				ICU Level of Service				E		
Analysis Period (min)		15										
c Critical Lane Group												

Balboa Transit Station
10: Olney St & Balboa Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	16	373	28	110	557	10	16	177	44	9	99
Future Volume (vph)	16	373	28	110	557	10	16	177	44	9	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	5.0		4.9				4.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00				1.00
Flt	1.00	0.99		1.00	1.00		0.97				0.98
Flt Protected	0.95	1.00		0.95	1.00		1.00				1.00
Satd. Flow (prot)	1770	3502		1770	3530		1810				1813
Flt Permitted	0.95	1.00		0.95	1.00		0.97				0.97
Satd. Flow (perm)	1770	3502		1770	3530		1770				1764
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
Adj. Flow (vph)	16	385	29	113	574	10	16	182	45	9	102
RTOR Reduction (vph)	0	5	0	0	1	0	0	6	0	0	5
Lane Group Flow (vph)	16	409	0	113	583	0	0	237	0	0	129
Turn Type	Prot	NA	NA	Prot	NA	NA	Perm	NA	Perm	NA	NA
Protected Phases	5	2		1	6		8		4		4
Permitted Phases							8		4		
Actuated Green, G (s)	0.9	15.4		6.7	21.3		11.9		11.9		11.9
Effective Green, g (s)	0.9	15.4		6.7	21.3		11.9		11.9		11.9
Actuated g/C Ratio	0.02	0.32		0.14	0.44		0.25		0.25		0.25
Clearance Time (s)	4.4	5.1		4.4	5.0		4.9		4.9		4.9
Vehicle Extension (s)	2.0	2.8		2.0	2.5		2.0		2.0		2.0
Lane Grp Cap (vph)	32	1114		245	1553		435		433		433
v/s Ratio Prot	0.01	0.12		c0.06	c0.17		c0.13		0.07		0.07
v/s Ratio Perm									0.54		0.30
Uniform Delay, d1	23.5	12.7		19.2	9.1		15.9		14.8		14.8
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	4.4	0.2		0.5	0.1		0.7		0.1		0.1
Delay (s)	27.9	12.9		19.7	9.2		16.6		15.0		15.0
Level of Service	C	B		B	A		B		B		B
Approach Delay (s)		13.5			10.9		16.6		15.0		
Approach LOS		B			B		B		B		
Intersection Summary											
HCM 2000 Control Delay			12.9			HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.48								
Actuated Cycle Length (s)			48.4			Sum of lost time (s)			14.4		
Intersection Capacity Utilization			47.6%			ICU Level of Service			A		
Analysis Period (min)			15								
c Critical Lane Group											

Balboa Transit Station
11: Olney St & Grand Ave

Existing Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	16	1051	144	1446	217	224
v/c Ratio	0.21	0.53	0.72	0.62	0.54	0.98
Control Delay	67.6	20.3	68.5	13.3	40.2	105.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.6	20.3	68.5	13.3	40.2	105.8
Queue Length 50th (ft)	14	292	123	292	127	191
Queue Length 95th (ft)	39	391	193	370	212	# 361
Internal Link Dist (ft)		276		1076	315	328
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	146	1980	278	2349	412	234
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.53	0.52	0.62	0.53	0.96
Intersection Summary						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						

Balboa Transit Station
11: Olney St & Grand Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	15	981	28	138	1212	176	13	70	125	89	102	24
Future Volume (vph)	15	981	28	138	1212	176	13	70	125	89	102	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	4.9		4.9					4.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00					1.00
Flt	1.00	1.00		1.00	0.98		0.92					0.98
Flt Protected	0.95	1.00		0.95	1.00		1.00					0.98
Satd. Flow (prot)	1770	3525		1770	3472		1707					1797
Flt Permitted	0.95	1.00		0.95	1.00		0.98					0.56
Satd. Flow (perm)	1770	3525		1770	3472		1670					1036
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
Adj. Flow (vph)	16	1022	29	144	1262	183	14	73	130	93	106	25
RTOR Reduction (vph)	0	1	0	0	7	0	0	41	0	0	3	0
Lane Group Flow (vph)	16	1050	0	144	1439	0	0	176	0	0	221	0
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8				4	
Permitted Phases												
Actuated Green, G (s)	2.8	75.2		15.2	87.8		29.2				29.2	
Effective Green, g (s)	2.8	75.2		15.2	87.8		29.2				29.2	
Actuated g/C Ratio	0.02	0.56		0.11	0.66		0.22				0.22	
Clearance Time (s)	4.4	5.1		4.4	4.9		4.9				4.9	
Vehicle Extension (s)	2.0	5.4		2.0	5.5		2.0				2.0	
Lane Grp Cap (vph)	36	1978		200	2274		363				225	
v/s Ratio Prot	0.01	0.30		c0.08	c0.41		0.11				c0.21	
v/s Ratio Perm							0.49				0.98	
Uniform Delay, d1	64.8	18.4		57.3	13.6		45.8				52.1	
Progression Factor	1.00	1.00		0.92	0.94		1.00				1.00	
Incremental Delay, d2	3.2	1.0		8.2	1.1		0.4				54.4	
Delay (s)	68.0	19.4		60.7	13.9		46.2				106.5	
Level of Service	E	B		E	B		D				F	
Approach Delay (s)	20.1			18.2			46.2				106.5	
Approach LOS	C			B			D				F	
Intersection Summary												
HCM 2000 Control Delay			27.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			134.0			Sum of lost time (s)			14.4			
Intersection Capacity Utilization			82.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
12: Grand Ave & Culver St

Existing Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	17	1259	1653	96
v/c Ratio	0.22	0.42	0.58	0.63
Control Delay	79.4	1.9	5.0	69.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	79.4	1.9	5.0	69.6
Queue Length 50th (ft)	15	55	66	72
Queue Length 95th (ft)	m29	m81	435	128
Internal Link Dist (ft)		1076	211	186
Turn Bay Length (ft)	55			
Base Capacity (vph)	146	2986	2854	344
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.12	0.42	0.58	0.28
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
12: Grand Ave & Culver St

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (vph)	16	1209	0	1524	62	68	24
Future Volume (vph)	16	1209	0	1524	62	68	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	0.96	0.96
Fit	1.00	1.00	0.99	0.99	0.96	0.96	0.96
Fit Protected	0.95	1.00	1.00	1.00	0.96	0.96	0.96
Satd. Flow (prot)	1770	3539	3518	3518	1733	1733	1733
Fit Permitted	0.95	1.00	1.00	1.00	0.96	0.96	0.96
Satd. Flow (perm)	1770	3539	3518	3518	1733	1733	1733
Peak-hour factor, PHF	0.96	0.96	0.92	0.96	0.96	0.96	0.96
Adj. Flow (vph)	17	1259	0	1588	65	71	25
RTOR Reduction (vph)	0	0	0	1	0	11	0
Lane Group Flow (vph)	17	1259	0	1652	0	85	0
Turn Type	Prot	NA	Prot	NA	Prot	Prot	Prot
Protected Phases	5	2	1	6		4	
Permitted Phases							
Actuated Green, G (s)	2.8	113.1		106.1		10.9	
Effective Green, g (s)	2.8	113.1		106.1		10.9	
Actuated g/C Ratio	0.02	0.84		0.79		0.08	
Clearance Time (s)	4.4	5.1		4.9		4.9	
Vehicle Extension (s)	2.0	4.2		4.1		2.0	
Lane Grp Cap (vph)	36	2987		2785		140	
v/s Ratio Prot	0.01	cd.36		cd.47		cd.05	
v/s Ratio Perm							
v/c Ratio	0.47	0.42		0.59		0.61	
Uniform Delay, d1	64.9	2.5		5.5		59.5	
Progression Factor	1.20	0.54		0.72		1.00	
Incremental Delay, d2	3.0	0.4		0.8		5.0	
Delay (s)	80.9	1.7		4.8		64.5	
Level of Service	F	A		A		E	
Approach Delay (s)		2.8		4.8		64.5	
Approach LOS		A		A		E	
Intersection Summary							
HCM 2000 Control Delay			5.8		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.60				
Actuated Cycle Length (s)			134.0		Sum of lost time (s)		14.4
Intersection Capacity Utilization			57.5%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

Balboa Transit Station
13: Lee St & Grand Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBT	WBT	NBL
Lane Group Flow (vph)	1305	92	1639
v/c Ratio	0.48	0.61	0.52
Control Delay	2.9	75.5	2.4
Queue Delay	0.1	0.0	0.0
Total Delay	3.0	75.5	2.5
Queue Length 50th (ft)	93	79	113
Queue Length 95th (ft)	119	134	181
Internal Link Dist (ft)	211	400	337
Turn Bay Length (ft)	2737	166	3178
Base Capacity (vph)	344	0	0
Starvation Cap Reductn	0	0	123
Spillback Cap Reductn	0	0	32
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.55	0.55	0.11
Intersection Summary			

Balboa Transit Station
13: Lee St & Grand Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←↑↱	↱	↱	↱↱	↱	↱
Traffic Volume (vph)	1225	28	88	1573	16	25
Future Volume (vph)	1225	28	88	1573	16	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.4	4.9		
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Flt	1.00	1.00	1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3527		1770	3539	1678	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3527		1770	3539	1678	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1276	29	92	1639	17	26
RTOR Reduction (vph)	1	0	0	0	25	0
Lane Group Flow (vph)	1304	0	92	1639	18	0
Turn Type	NA	Prot	Prot	NA	Prot	
Protected Phases	2	1	6	8		
Permitted Phases						
Actuated Green, G (s)	103.0	11.4	118.3	5.4		
Effective Green, g (s)	103.0	11.4	118.3	5.4		
Actuated g/C Ratio	0.77	0.09	0.88	0.04		
Clearance Time (s)	4.9	4.4	5.4	4.9		
Vehicle Extension (s)	4.0	2.0	4.4	2.0		
Lane Grp Cap (vph)	2711	150	3124	67		
v/s Ratio Prot	0.37	0.05	0.46	0.01		
v/s Ratio Perm						
v/c Ratio	0.48	0.61	0.52	0.27		
Uniform Delay, d1	5.7	59.2	1.7	62.4		
Progression Factor	0.37	1.00	1.00	1.00		
Incremental Delay, d2	0.6	5.1	0.6	0.8		
Delay (s)	2.7	64.3	2.3	63.2		
Level of Service	A	E	A	E		
Approach Delay (s)	2.7		5.6	63.2		
Approach LOS	A		A	E		
Intersection Summary						
HCM 2000 Control Delay		5.2		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio		0.53				
Actuated Cycle Length (s)		134.0		Sum of lost time (s)		14.2
Intersection Capacity Utilization		55.4%		ICU Level of Service		B
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Existing Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBT	WBL
Lane Group Flow (vph)	64	1245	1688	
v/c Ratio	0.59	0.67	0.54	
Control Delay	97.7	1.9	0.8	
Queue Delay	0.0	0.0	0.8	
Total Delay	97.7	1.9	1.6	
Queue Length 50th (ft)	71	0	24	
Queue Length 95th (ft)	125	0	26	
Internal Link Dist (ft)		605	773	
Turn Bay Length (ft)	90			
Base Capacity (vph)	249	1863	3109	
Starvation Cap Reductn	0	0	982	
Spillback Cap Reductn	0	0	0	
Storage Cap Reductn	0	0	0	
Reduced v/c Ratio	0.26	0.67	0.79	
Intersection Summary				

Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↑	↔	↔	↔	↔
Traffic Volume (vph)	61	1183	1573	30	0	0
Future Volume (vph)	61	1183	1573	30	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.3	5.3			
Lane Util. Factor	1.00	1.00	0.95			
Flt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	1863	3529			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1770	1863	3529			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	64	1245	1656	32	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	64	1245	1688	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	10.5	170.0	149.8			
Effective Green, g (s)	10.5	170.0	149.8			
Actuated g/C Ratio	0.06	1.00	0.88			
Clearance Time (s)	4.4	5.3	5.3			
Vehicle Extension (s)	2.0	4.4	4.4			
Lane Grp Cap (vph)	109	1863	3109			
v/s Ratio Prot	0.04	cd.67	0.48			
v/s Ratio Perm						
v/c Ratio	0.59	0.67	0.54			
Uniform Delay, d1	77.6	0.0	2.3			
Progression Factor	1.00	1.00	0.19			
Incremental Delay, d2	5.1	1.9	0.3			
Delay (s)	82.8	1.9	0.7			
Level of Service	F	A	A			
Approach Delay (s)		5.9	0.7	0.0		
Approach LOS		A	A	A		
Intersection Summary						
HCM 2000 Control Delay			3.0	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			170.0	Sum of lost time (s)		12.7
Intersection Capacity Utilization			66.7%	ICU Level of Service		C
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
15: Mission Bay Dr & Grand Ave

Existing Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	117	1104	1361	976	1080
v/c Ratio	0.72	0.70	0.94	0.33	0.79
Control Delay	92.9	1.9	59.6	3.2	51.1
Queue Delay	0.0	0.0	0.0	0.0	1.5
Total Delay	92.9	1.9	59.6	3.2	52.6
Queue Length 50th (ft)	129	0	735	97	540
Queue Length 95th (ft)	m192	0	834	148	723
Internal Link Dist (ft)	773		285	526	478
Turn Bay Length (ft)	225		285		
Base Capacity (vph)	240	1583	1490	3003	1369
Starvation Cap Reductn	0	0	0	0	136
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.70	0.91	0.33	0.88
Intersection Summary					
m Volume for 95th percentile queue is metered by upstream signal.					

Balboa Transit Station
15: Mission Bay Dr & Grand Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	111	1049	1293	927	0	740
Traffic Volume (vph)	111	1049	1293	927	0	740
Future Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.4	4.0	5.7	5.7	4.9	4.9
Total Lost time (s)	1.00	1.00	0.97	0.95	0.95	0.95
Lane Util. Factor	1.00	0.85	1.00	1.00	0.96	0.96
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	3433	3539	3391	3391
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	3433	3539	3391	3391
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.92	0.95
Adj. Flow (vph)	117	1104	1361	976	0	779
RTOR Reduction (vph)	0	0	0	0	0	22
Lane Group Flow (vph)	117	1104	1361	976	0	1058
Turn Type	Prot	Free	Prot	NA	Prot	NA
Protected Phases	4		1	6	5	2
Permitted Phases		Free				
Actuated Green, G (s)	15.6	17.00	71.9	144.3		67.5
Effective Green, g (s)	15.6	17.00	71.9	144.3		67.5
Actuated g/C Ratio	0.09	1.00	0.42	0.85		0.40
Clearance Time (s)	4.4	4.0	5.7	5.7	4.9	4.9
Vehicle Extension (s)	2.0	2.0	4.6		3.6	
Lane Grp Cap (vph)	162	1583	1451	3003		1346
v/s Ratio Prot	0.07		c0.40	0.28		c0.31
v/s Ratio Perm		c0.70				
v/c Ratio	0.72	0.70	0.94	0.33		0.79
Uniform Delay, d1	75.1	0.0	46.9	2.7		44.9
Progression Factor	1.00	1.00	1.00	1.00		1.04
Incremental Delay, d2	9.5	1.9	11.6	0.3		4.5
Delay (s)	84.6	1.9	58.5	3.0		51.3
Level of Service	F	A	E	A		D
Approach Delay (s)	9.8		35.3			51.3
Approach LOS	A		D			D
Intersection Summary						
HCM 2000 Control Delay			32.3		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			170.0		Sum of lost time (s)	15.0
Intersection Capacity Utilization			85.1%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	111	1049	1293	927	0	740
Traffic Volume (vph)	111	1049	1293	927	0	740
Future Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.4	4.0	5.7	5.7	4.9	4.9
Total Lost time (s)	1.00	1.00	0.97	0.95	0.95	0.95
Lane Util. Factor	1.00	0.85	1.00	1.00	0.96	0.96
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	3433	3539	3391	3391
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	3433	3539	3391	3391
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.92	0.95
Adj. Flow (vph)	117	1104	1361	976	0	779
RTOR Reduction (vph)	0	0	0	0	0	22
Lane Group Flow (vph)	117	1104	1361	976	0	1058
Turn Type	Prot	Free	Prot	NA	Prot	NA
Protected Phases	4		1	6	5	2
Permitted Phases		Free				
Actuated Green, G (s)	15.6	17.00	71.9	144.3		67.5
Effective Green, g (s)	15.6	17.00	71.9	144.3		67.5
Actuated g/C Ratio	0.09	1.00	0.42	0.85		0.40
Clearance Time (s)	4.4	4.0	5.7	5.7	4.9	4.9
Vehicle Extension (s)	2.0	2.0	4.6		3.6	
Lane Grp Cap (vph)	162	1583	1451	3003		1346
v/s Ratio Prot	0.07		c0.40	0.28		c0.31
v/s Ratio Perm		c0.70				
v/c Ratio	0.72	0.70	0.94	0.33		0.79
Uniform Delay, d1	75.1	0.0	46.9	2.7		44.9
Progression Factor	1.00	1.00	1.00	1.00		1.04
Incremental Delay, d2	9.5	1.9	11.6	0.3		4.5
Delay (s)	84.6	1.9	58.5	3.0		51.3
Level of Service	F	A	E	A		D
Approach Delay (s)	9.8		35.3			51.3
Approach LOS	A		D			D
Intersection Summary						
#						
95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W	W	W	W	W	W
Traffic Volume (vph)	247	127	277	982	1179	503
Future Volume (vph)	247	127	277	982	1179	503
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	1.00	0.95	0.95	1.00
Flt	0.95	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.97	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3320	1770	3539	3539	3539	1583
Flt Permitted	0.97	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3320	1770	3539	3539	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	257	132	289	1023	1228	524
RTOR Reduction (vph)	82	0	0	0	0	128
Lane Group Flow (vph)	307	0	289	1023	1228	396
Turn Type	Prot	Prot	Prot	NA	NA	Perm
Protected Phases	4	5	2	2	6	
Permitted Phases					6	
Actuated Green, G (s)	10.6	24.4	65.0	35.6	35.6	
Effective Green, g (s)	10.6	24.4	65.0	35.6	35.6	
Actuated g/C Ratio	0.12	0.29	0.76	0.42	0.42	
Clearance Time (s)	4.4	4.4	5.0	5.6	5.6	
Vehicle Extension (s)	2.0	2.0	4.0	4.8	4.8	
Lane Grp Cap (vph)	414	508	2706	1482	662	
v/s Ratio Prot	c0.09	c0.16	0.29	c0.35	0.25	
v/s Ratio Perm					0.60	
v/c Ratio	0.74	0.57	0.38	0.83	0.60	
Uniform Delay, d1	35.9	25.8	3.3	22.0	19.2	
Progression Factor	1.00	0.87	0.31	1.00	1.00	
Incremental Delay, d2	6.1	0.7	0.3	5.5	4.0	
Delay (s)	42.0	23.2	1.4	27.5	23.1	
Level of Service	D	C	A	C	C	
Approach Delay (s)	42.0		6.2	26.2		
Approach LOS	D		A	C		
Intersection Summary						
HCM 2000 Control Delay			20.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			85.0	Sum of lost time (s)	14.4	
Intersection Capacity Utilization			71.0%	ICU Level of Service	C	
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Existing Conditions
Timing Plan: PM Peak Period

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	155	160	1227	187	82	1375
v/c Ratio	0.78	0.57	0.56	0.18	0.25	0.47
Control Delay	97.1	30.9	12.1	4.3	48.2	0.7
Queue Delay	0.0	0.0	0.5	0.0	0.0	0.3
Total Delay	97.1	30.9	12.6	4.3	48.2	1.1
Queue Length 50th (ft)	171	50	208	14	68	10
Queue Length 95th (ft)	245	127	264	m41	m85	25
Internal Link Dist (ft)	1169		376			749
Turn Bay Length (ft)		75		160	185	
Base Capacity (vph)	391	437	2204	1021	322	2937
Starvation Cap Reductn	0	0	479	0	0	856
Spillback Cap Reductn	0	0	0	0	0	429
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.37	0.71	0.18	0.25	0.66
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	141	146	1117	170	75	1251
Traffic Volume (vph)	141	146	1117	170	75	1251
Future Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.4	4.4	5.0	5.0	4.4	5.2
Total Lost time (s)	1.00	1.00	0.95	1.00	1.00	0.95
Lane Util. Factor	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)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	155	160	1227	187	82	1375
RTOR Reduction (vph)	0	99	0	35	0	0
Lane Group Flow (vph)	155	61	1227	152	82	1375
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4		2		
Actuated Green, G (s)	19.3	19.3	105.9	105.9	31.0	141.1
Effective Green, g (s)	19.3	19.3	105.9	105.9	31.0	141.1
Actuated g/C Ratio	0.11	0.11	0.62	0.62	0.18	0.83
Clearance Time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Vehicle Extension (s)	2.0	2.0	3.8	3.8	2.0	3.5
Lane Grp Cap (vph)	200	179	2204	986	322	2937
v/s Ratio Prot	c0.09		c0.35		0.05	c0.39
v/s Ratio Perm		0.04		0.10		
v/c Ratio	0.78	0.34	0.56	0.15	0.25	0.47
Uniform Delay, d1	73.2	69.5	18.5	13.4	59.6	4.0
Progression Factor	1.00	1.00	0.58	0.55	0.78	0.09
Incremental Delay, d2	15.6	0.4	0.9	0.3	0.1	0.3
Delay (s)	88.8	69.9	11.6	7.7	46.6	0.7
Level of Service	F	E	B	A	D	A
Approach Delay (s)	79.2		11.1		3.3	
Approach LOS	E		B		A	
Intersection Summary						
HCM 2000 Control Delay			14.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			170.0		Sum of lost time (s)	13.8
Intersection Capacity Utilization			54.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Existing Conditions
Timing Plan: PM Peak Period

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	178	15	55	1120	39	944
v/c Ratio	0.83	0.10	0.55	0.41	0.46	0.36
Control Delay	79.6	43.9	108.6	4.5	71.9	9.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.3
Total Delay	79.6	43.9	108.6	4.5	71.9	9.6
Queue Length 50th (ft)	138	8	64	54	42	165
Queue Length 95th (ft)	220	32	109	288	m65	260
Internal Link Dist (ft)	303	271		804		461
Turn Bay Length (ft)			65		50	
Base Capacity (vph)	345	265	137	2720	167	2645
Starvation Cap Reductn	0	0	0	410	0	982
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.06	0.40	0.48	0.23	0.57
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↖↗		↗	↖↗	
Traffic Volume (vph)	53	3	115	7	1	7	53	1072	3	37	793	113
Future Volume (vph)	53	3	115	7	1	7	53	1072	3	37	793	113
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	5.0		4.4	5.0	
Lane Util. Factor	1.00			1.00			1.00	0.95		1.00	0.95	
Flt Protected	0.98			0.98			0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1667			1706			1770	3538		1770	3473	
Flt Permitted	0.89			0.74			0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1508			1300			1770	3538		1770	3473	
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
Adj. Flow (vph)	55	3	120	7	1	7	55	1117	3	39	826	118
RTOR Reduction (vph)	0	49	0	0	6	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	129	0	0	9	0	55	1120	0	39	940	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	8			4			1	6		5		2
Permitted Phases	8			4				6				
Actuated Green, G (s)	18.7			18.7			8.6	129.8		7.2	128.4	
Effective Green, g (s)	18.7			18.7			8.6	129.8		7.2	128.4	
Actuated g/C Ratio	0.11			0.11			0.05	0.76		0.04	0.76	
Clearance Time (s)	4.9			4.9			4.4	5.0		4.4	5.0	
Vehicle Extension (s)	2.0			2.0			2.0	3.7		2.0	3.7	
Lane Grp Cap (vph)	165			143			89	2701		74	2623	
v/s Ratio Prot	0.09			0.01			0.03	0.32		0.02	0.27	
v/s Ratio Perm	0.78			0.06			0.62	0.41		0.53	0.36	
Uniform Delay, d1	73.7			67.8			79.1	7.0		79.7	7.0	
Progression Factor	1.00			1.00			1.17	0.51		0.75	1.15	
Incremental Delay, d2	19.6			0.1			8.1	0.4		2.5	0.3	
Delay (s)	93.3			67.9			100.2	4.0		61.9	8.3	
Level of Service	F			E			F	A		E	A	
Approach Delay (s)	93.3			67.9			8.5			10.4		
Approach LOS	F			E			A			B		
Intersection Summary												
HCM 2000 Control Delay	16.1			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.47											
Actuated Cycle Length (s)	170.0			Sum of lost time (s)			14.3					
Intersection Capacity Utilization	56.4%			ICU Level of Service			B					
Analysis Period (min)	15											
Critical Lane Group												

Balboa Transit Station
19: Mission Bay Dr & Bunker Hill St

Existing Conditions
Timing Plan: PM Peak Period

Lane Group	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	163	1070	89	896
v/c Ratio	0.65	0.46	0.48	0.32
Control Delay	21.0	7.4	36.9	2.3
Queue Delay	0.7	0.0	0.0	0.1
Total Delay	21.6	7.4	36.9	2.4
Queue Length 50th (ft)	9	113	49	57
Queue Length 95th (ft)	63	170	69	74
Internal Link Dist (ft)	514	478	90	804
Turn Bay Length (ft)	406	2337	208	2828
Base Capacity (vph)	0	0	0	0
Starvation Cap Reductn	74	0	0	461
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	0.46	0.43	0.38
Intersection Summary				

Balboa Transit Station
19: Mission Bay Dr & Bunker Hill St

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Traffic Volume (vph)	0	0	0	118	0	38	0	984	43	85	860	0
Future Volume (vph)	0	0	0	118	0	38	0	984	43	85	860	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9			4.9			5.0			4.4	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	
Flt	0.97			0.97			0.99			1.00	1.00	
Flt Protected	0.96			0.96			1.00			0.95	1.00	
Satd. Flow (prot)	1736			1736			3517			1770	3539	
Flt Permitted	0.78			0.78			1.00			0.95	1.00	
Satd. Flow (perm)	1403			1403			3517			1770	3539	
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
Adj. Flow (vph)	0	0	0	123	0	40	0	1025	45	89	896	0
RTOR Reduction (vph)	0	0	0	134	0	0	2	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	29	0	0	0	1068	0	89	896	0
Turn Type				Perm	NA	NA	Prot	NA	Prot	Prot	NA	
Protected Phases	4	4		4			1	6		5	2	
Permitted Phases												
Actuated Green, G (s)				4		7.2		55.5		8.0	67.9	
Effective Green, g (s)				7.2		7.2		55.5		8.0	67.9	
Actuated g/C Ratio				0.08		0.08		0.65		0.09	0.80	
Clearance Time (s)				4.9		4.9		5.0		4.4	5.0	
Vehicle Extension (s)				2.0		2.0		3.2		2.0	3.2	
Lane Grp Cap (vph)				118		118		2296		166	2827	
v/s Ratio Prot				c0.02		c0.02		c0.30		c0.05	0.25	
v/c Ratio				0.25		0.25		0.46		0.54	0.32	
Uniform Delay, d1				36.4		36.4		7.4		36.7	2.3	
Progression Factor				1.00		1.00		0.85		0.81	0.80	
Incremental Delay, d2				0.4		0.4		0.6		1.6	0.3	
Delay (s)				36.8		36.8		6.9		31.5	2.1	
Level of Service				D		D		A		C	A	
Approach Delay (s)	0.0			36.8		36.8		6.9		4.8		
Approach LOS	A			D		D		A		A		
Intersection Summary												
HCM 2000 Control Delay			8.2			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			85.0			Sum of lost time (s)				14.3		
Intersection Capacity Utilization			54.1%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												








Balboa Transit Station
20: Mission Bay Dr & Rosewood St

Existing Conditions
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←	←	←	←	←	←
Traffic Volume (veh/h)	2	11	2216	13	2	1769
Future Volume (Veh/h)	2	11	2216	13	2	1769
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	2	11	2261	13	2	1805
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)			None		None	
Median type						
Median storage (veh)						
Upstream signal (ft)					606	
pK, platoon unblocked	0.75					
vC, conflicting volume	3174	760			2274	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3231	760			2274	
IC, single (s)	6.8	6.9			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	63	97			99	
dM capacity (veh/h)	5	348			221	
Direction, Lane #						
	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2 SB 3
Volume Total	13	904	904	465	2	902 902
Volume Left	2	0	0	0	2	0 0
Volume Right	11	0	0	13	0	0 0
cSH	33	1700	1700	1700	221	1700 1700
Volume to Capacity	0.40	0.53	0.53	0.27	0.01	0.53 0.53
Queue Length 95th (ft)	33	0	0	0	1	0 0
Control Delay (s)	176.0	0.0	0.0	0.0	21.5	0.0 0.0
Lane LOS	F				C	
Approach Delay (s)	176.0	0.0			0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			58.9%		ICU Level of Service	B
Analysis Period (min)			15			








Balboa Transit Station
21: Santa Fe St & Damon Ave

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control						
Traffic Volume (vph)	84	55	66	39	61	120
Future Volume (vph)	84	55	66	39	61	120
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	104	68	81	48	75	148
Direction, Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total (vph)	104	68	129	223		
Volume Left (vph)	104	0	81	0		
Volume Right (vph)	0	68	0	148		
Head (s)	0.23	-0.57	0.16	-0.36		
Departure Headway (s)	4.9	3.2	4.6	4.0		
Degree Utilization, x	0.14	0.06	0.16	0.24		
Capacity (veh/h)	683	1121	760	874		
Control Delay (s)	8.7	6.4	8.4	8.2		
Approach Delay (s)	7.8	8.4	8.2			
Approach LOS	A	A	A	A		
Intersection Summary						
Delay	8.1					
Level of Service	A					
Intersection Capacity Utilization	30.9%					
Analysis Period (min)	15					
	ICU Level of Service					
	A					

Balboa Transit Station
22: Morena Blvd & Jutland Dr

Existing Conditions
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control						
Traffic Volume (vph)	539	24	135	242	35	233
Future Volume (vph)	539	24	135	242	35	233
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	586	26	147	263	38	253
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	586	26	147	263	122	169
Volume Left (vph)	586	0	0	0	38	0
Volume Right (vph)	0	26	0	263	0	0
Head (s)	0.53	-0.67	0.03	-0.67	0.19	0.03
Departure Headway (s)	7.0	5.8	7.0	6.3	7.3	7.1
Degree Utilization, x	1.14	0.04	0.29	0.46	0.25	0.33
Capacity (veh/h)	507	599	506	563	483	495
Control Delay (s)	108.3	7.9	11.6	13.4	11.5	12.5
Approach Delay (s)	104.1		12.7		12.1	
Approach LOS	F		B		B	
Intersection Summary						
Delay	55.2					
Level of Service	F					
Intersection Capacity Utilization	54.4%					
Analysis Period (min)	15					
ICU Level of Service						
A						

Balboa Transit Station
23: Morena Blvd & Costco Dwy

Existing Conditions
Timing Plan: PM Peak Period

Movement	WBL	NBT	SBL	SBT
Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	479	674	55	810
v/c Ratio	0.51	0.53	0.21	0.49
Control Delay	16.3	9.4	21.5	8.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.3	9.4	21.5	8.7
Queue Length 50th (ft)	52	41	13	61
Queue Length 95th (ft)	107	96	44	114
Internal Link Dist (ft)	195	3170		1658
Turn Bay Length (ft)			110	
Base Capacity (vph)	2975	3231	1295	3539
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.21	0.04	0.23
Intersection Summary				

Balboa Transit Station
23: Morena Blvd & Costco Dwy

Existing Conditions
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	371	70	259	361	51	745
Future Volume (vph)	371	70	259	361	51	745
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.5	4.4	5.5		
Lane Util. Factor	0.97	0.95	1.00	0.95		
Frt	0.98	0.91	1.00	1.00		
Flt Protected	0.96		1.00	0.95	1.00	
Satd. Flow (prot)	3385		3230	1770	3539	
Flt Permitted	0.96		1.00	0.95	1.00	
Satd. Flow (perm)	3385		3230	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	403	76	282	392	55	810
RTOR Reduction (vph)	11	0	202	0	0	0
Lane Group Flow (vph)	468	0	472	0	55	810
Turn Type	Prot	NA	NA	Prot	NA	NA
Protected Phases	8		2	1	6	
Permitted Phases						
Actuated Green, G (s)	11.9		14.4	3.8	22.6	
Effective Green, g (s)	11.9		14.4	3.8	22.6	
Actuated g/c Ratio	0.27		0.32	0.08	0.50	
Clearance Time (s)	4.9		5.5	4.4	5.5	
Vehicle Extension (s)	2.0		2.8	2.0	2.8	
Lane Grp Cap (vph)	897		1035	149	1781	
v/s Ratio Prot	0.14		0.15	0.03	0.23	
v/c Ratio	0.52		0.46	0.37	0.45	
Uniform Delay, d1	14.1		12.1	19.4	7.2	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.3		0.3	0.6	0.2	
Delay (s)	14.3		12.4	20.0	7.3	
Level of Service	B		B	B	A	
Approach Delay (s)	14.3		12.4		8.2	
Approach LOS	B		B		A	
Intersection Summary						
HCM 2000 Control Delay			11.0		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			44.9		Sum of lost time (s)	14.8
Intersection Capacity Utilization			47.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
24: Morena Blvd & Avati Dr

Existing Conditions
Timing Plan: PM Peak Period

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group						
Lane Group Flow (vph)	204	47	617	206	59	1194
v/c Ratio	0.31	0.14	0.43	0.16	0.22	0.61
Control Delay	18.4	8.0	12.5	1.0	20.9	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	8.0	12.5	1.0	20.9	7.9
Queue Length 50th (ft)	24	0	66	0	14	85
Queue Length 95th (ft)	54	22	123	15	45	149
Internal Link Dist (ft)	317		2304			3170
Turn Bay Length (ft)	135			115	120	
Base Capacity (vph)	2432	1135	3539	1564	1254	3539
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.04	0.17	0.13	0.05	0.34
Intersection Summary						

Balboa Transit Station
24: Morena Blvd & Avati Dr

Existing Conditions
Timing Plan: PM Peak Period

	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Movement							
Lane Configurations	W	W		W	W	W	W
Traffic Volume (vph)	192	44	0	580	194	55	1122
Future Volume (vph)	192	44	0	580	194	55	1122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		6.0	4.9	4.4	5.7
Lane Util. Factor	0.97	1.00		0.95	1.00	1.00	0.95
Flt	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)	3433	1583		3539	1583	1770	3539
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583		3539	1583	1770	3539
Peak-hour factor, PHF	0.94	0.94	0.92	0.94	0.94	0.94	0.94
Adj. Flow (vph)	204	47	0	617	206	59	1194
RTOR Reduction (vph)	0	38	0	0	87	0	0
Lane Group Flow (vph)	204	9	0	617	119	59	1194
Turn Type	Prot	Prot	Prot	NA	ph+ov	Prot	NA
Protected Phases	7	7	1	6	7	5	2
Permitted Phases					6		5
Actuated Green, G (s)	8.5	8.5		17.8	26.3	4.1	26.6
Effective Green, g (s)	8.5	8.5		17.8	26.3	4.1	26.6
Actuated g/c Ratio	0.19	0.19		0.39	0.38	0.09	0.38
Clearance Time (s)	4.9	4.9		6.0	4.9	4.4	5.7
Vehicle Extension (s)	2.0	2.0		5.2	2.0	2.0	5.0
Lane Grp Cap (vph)	638	294		1378	911	158	2059
v/s Ratio Prot	c0.06	0.01		0.17	0.02	0.03	c0.34
v/c Ratio Perm					0.05		
v/c Ratio	0.32	0.03		0.45	0.13	0.37	0.58
Uniform Delay, d1	16.1	15.2		10.3	4.5	19.6	6.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		0.5	0.0	0.5	0.6
Delay (s)	16.2	15.2		10.8	4.5	20.1	6.7
Level of Service	B	B		B	A	C	A
Approach Delay (s)	16.0			9.2		7.3	
Approach LOS	B			A		A	
Intersection Summary							
HCM 2000 Control Delay			8.9				A
HCM 2000 Volume to Capacity ratio			0.60				
Actuated Cycle Length (s)			45.7				15.3
Intersection Capacity Utilization			52.3%				A
Analysis Period (min)			15				
c Critical Lane Group							

Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	126	233	831	224	820	715					
v/c Ratio	0.26	0.48	0.41	0.22	0.40	0.45					
Control Delay	10.5	10.5	6.7	2.0	6.6	0.9					
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0					
Total Delay	10.5	10.5	6.7	2.0	6.6	0.9					
Queue Length 50th (ft)	17	23	42	0	41	0					
Queue Length 95th (ft)	39	55	92	22	92	0					
Internal Link Dist (ft)			882		2304						
Turn Bay Length (ft)		50			150						
Base Capacity (vph)	890	831	2062	1016	2062	1583					
Starvation Cap Reductn	0	0	0	0	0	0					
Spillback Cap Reductn	0	0	0	0	0	0					
Storage Cap Reductn	0	0	0	0	0	0					
Reduced v/c Ratio	0.14	0.28	0.40	0.22	0.40	0.45					
Intersection Summary											








Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	111	0	205	0	0	0	0	731	197	0	722
Traffic Volume (vph)	111	0	205	0	0	0	0	731	197	0	722
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85	1.00
Frt	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1583	1583	1583	1583	1583	1583	1583	1583	1583
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1583	1583	1583	1583	1583	1583	1583	1583	1583
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
Adj. Flow (vph)	126	0	233	0	0	0	0	831	224	0	715
RTOR Reduction (vph)	0	0	55	0	0	0	0	0	105	0	0
Lane Group Flow (vph)	126	0	178	0	0	0	0	831	119	0	715
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases											
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Effective Green, g (s)	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Actuated g/c Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	401		358				1881	841		1583	
v/s Ratio Perm	0.07		0.11				0.23			0.23	
v/c Ratio	0.31		0.50				0.44			0.44	
Uniform Delay, d1	10.7		11.2				4.7			3.9	
Progression Factor	1.00		1.00				1.00			1.00	
Incremental Delay, d2	0.5		1.1				0.2			0.2	
Delay (s)	11.1		12.2				4.9			4.9	
Level of Service	B		B				A			A	
Approach Delay (s)	11.8			0.0			4.7			3.0	
Approach LOS	B			A			A			A	
Intersection Summary											
HCM 2000 Control Delay			4.7							A	
HCM 2000 Volume to Capacity ratio			0.60								
Actuated Cycle Length (s)			33.1							8.0	
Intersection Capacity Utilization			39.3%							A	
Analysis Period (min)			15								
c Critical Lane Group											

Balboa Transit Station
26: Morena Blvd & Balboa EB Ramps

Existing Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	323	0	0	514	0	404	119	138	800	0
Future Volume (Veh/h)	0	0	323	0	0	514	0	404	119	138	800	0
Sign Control	Yield			Yield			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	340	0	0	541	0	425	125	145	842	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None											
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
VC, conflicting volume	1557	1557	421	1136	1557	425	842			425		
vc1, stage 1 conf vol												
vc2, stage 2 conf vol												
VCu, unblocked vol	1557	1557	421	1136	1557	425	842			425		
IC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
IC, 2 stage (s)												
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	41	100	100	6	100			87		
cM capacity (veh/h)	4	97	581	59	97	578	789			1131		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	340	541	425	125	145	421	421					
Volume Left	0	0	0	0	145	0	0					
Volume Right	340	541	0	125	0	0	0					
cSH	581	578	1700	1700	1131	1700	1700					
Volume to Capacity	0.59	0.94	0.25	0.07	0.13	0.25	0.25					
Queue Length 95th (ft)	94	303	0	0	11	0	0					
Control Delay (s)	19.6	50.2	0.0	0.0	8.7	0.0	0.0					
Lane LOS	C	F			A							
Approach Delay (s)	19.6	50.2	0.0	1.3								
Approach LOS	C	F										
Intersection Summary												
Average Delay						14.5				B		
Intersection Capacity Utilization						59.8%						
Analysis Period (min)						15						

Balboa Transit Station
27: Morena Blvd & Baker St

Existing Conditions
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	23	465	14	44	1012
Future Volume (Veh/h)	12	23	465	14	44	1012
Sign Control	Stop			Free		
Grade	0%			0%		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	13	24	495	15	47	1077
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
VC, conflicting volume	1128	495			510	
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	1128	495			510	
IC, single (s)	6.8	6.9			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	93	95			96	
CM capacity (veh/h)	189	520			1051	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	37	495	15	47	538	538
Volume Left	13	0	0	47	0	0
Volume Right	24	0	15	0	0	0
cSH	322	1700	1700	1051	1700	1700
Volume to Capacity	0.11	0.29	0.01	0.04	0.32	0.32
Queue Length 95th (ft)	10	0	0	4	0	0
Control Delay (s)	17.6	0.0	0.0	8.6	0.0	0.0
Lane LOS	C			A		
Approach Delay (s)	17.6	0.0		0.4		
Approach LOS	C					
Intersection Summary						
Average Delay				0.6		
Intersection Capacity Utilization				41.1%	ICU Level of Service	
Analysis Period (min)				15	A	

Balboa Transit Station
28: Morena Blvd & Gesner St

Existing Conditions
Timing Plan: PM Peak Period

	WBL	NBT	NBR	SBL	SBT
Lane Group					
Lane Group Flow (vph)	130	452	47	110	1009
v/c Ratio	0.36	0.29	0.07	0.28	0.42
Control Delay	11.8	12.3	6.1	18.1	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	12.3	6.1	18.1	5.2
Queue Length 50th (ft)	10	43	1	22	55
Queue Length 95th (ft)	50	90	19	64	108
Internal Link Dist (ft)	1333	298			3362
Turn Bay Length (ft)			95	95	
Base Capacity (vph)	1540	3539	1583	1332	3539
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.13	0.03	0.08	0.29
Intersection Summary					

Balboa Transit Station
28: Morena Blvd & Gesner St

Existing Conditions
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		W	W	W	W
Traffic Volume (vph)	36	84	416	43	101	928
Future Volume (vph)	36	84	416	43	101	928
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		5.9	5.9	4.4	6.0
Lane Util. Factor	1.00		0.95	1.00	1.00	0.95
Flt	0.91		1.00	0.85	1.00	1.00
Flt Protected	0.99		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1662		3539	1583	1770	3539
Flt Permitted	0.99		1.00	1.00	0.95	1.00
Satd. Flow (perm)	1662		3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	91	452	47	110	1009
RTOR Reduction (vph)	70	0	0	26	0	0
Lane Group Flow (vph)	60	0	452	21	110	1009
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	5.0		14.6	14.6	6.1	25.0
Effective Green, g (s)	5.0		14.6	14.6	6.1	25.0
Actuated g/C Ratio	0.12		0.36	0.36	0.15	0.62
Clearance Time (s)	4.4		5.9	5.9	4.4	6.0
Vehicle Extension (s)	2.0		4.4	4.4	2.0	4.2
Lane Grp Cap (vph)	205		1278	572	267	2189
v/s Ratio Prot	0.04		0.13		0.06	0.29
v/s Ratio Perm				0.01		
v/c Ratio	0.29		0.35	0.04	0.41	0.46
Uniform Delay, d1	16.1		9.4	8.4	15.5	4.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3		0.3	0.0	0.4	0.2
Delay (s)	16.4		9.7	8.4	15.9	4.3
Level of Service	B		A	A	B	A
Approach Delay (s)	16.4		9.6		5.5	
Approach LOS	B		A		A	
Intersection Summary						
HCM 2000 Control Delay			7.5		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.50			
Actuated Cycle Length (s)			40.4		Sum of lost time (s)	14.7
Intersection Capacity Utilization			41.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Intersection Sign configuration not allowed in HCM analysis.

Arterial Level of Service: EB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Olney St	II	30	12.1	11.2	23.3	0.09	13.3	E
Balboa Ave	II	30	23.5	33.8	57.3	0.19	11.6	F
Soledad Mtn Rd	II	35	27.3	10.3	37.6	0.23	22.0	D
Bond St	II	35	21.0	0.6	21.6	0.17	28.0	C
Mission Bay Dr	II	35	15.5	52.9	68.4	0.12	6.5	F
Miraga Ave	II	45	44.2	6.0	50.2	0.50	36.0	A
Clairmont Dr	II	45	49.7	52.5	102.2	0.62	21.9	D
Total	II		193.3	167.3	360.6	1.92	19.1	D

Arterial Level of Service: WB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Clairmont Dr	II	45	14.7	50.9	65.6	0.13	7.4	F
Miraga Ave	II	45	49.7	22.4	72.1	0.62	31.0	B
Mission Bay Dr	II	45	44.2	55.5	99.7	0.50	18.1	D
Bond St	II	35	15.5	1.1	16.6	0.12	26.9	C
Soledad Mtn Rd	II	35	21.0	34.5	55.5	0.17	10.9	F
Garnet Ave	II	35	27.3	0.7	28.0	0.23	29.5	B
Olney St	II	30	23.5	10.2	33.7	0.19	19.8	D
Total	II		195.9	175.3	371.2	1.97	19.1	D

Arterial Level of Service: NB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Grand Ave	III	35	37.4	3.2	40.6	0.31	27.6	B
Bunker Hill St	III	35	14.3	7.4	21.7	0.11	17.5	D
Magnolia Ave	III	35	21.4	4.5	25.9	0.17	23.3	C
Garnet Ave	III	35	13.8	60.8	74.6	0.10	4.9	F
Damon Ave	III	35	11.7	12.1	23.8	0.09	13.1	E
Bluffs Ave	III	35	20.1	1.4	21.5	0.16	26.3	B
Total	III		118.7	89.4	208.1	0.93	16.1	D

Arterial Level of Service: SB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bluffs Ave	III	35	20.0	28.5	48.5	0.16	11.6	E
Damon Ave	III	35	20.1	0.7	20.8	0.16	27.2	B
Garnet Ave	III	35	11.7	73.9	85.6	0.09	3.6	F
Magnolia Ave	III	35	13.8	9.3	23.1	0.10	16.0	D
Bunker Hill St	III	35	21.4	2.3	23.7	0.17	25.4	B
Grand Ave	III	35	14.3	51.1	65.4	0.11	5.8	F
Total	III		101.3	165.8	267.1	0.77	10.4	E

APPENDIX C

FUTURE YEAR MODEL INFORMATION

ROADWAY SEGMENT	EXISTING			ADOPTED MODEL			Change in Volume
	Existing Model Volume	Adjustment	Adjusted Existing Model Volume	Adopted Model Volume	Adjustment	Adjusted Adopted Model Volume	
Balboa Avenue							
Garnet Avenue to Grand Avenue	19,700	0	19,700	14,400	0	14,400	-5,300
Garnet Avenue							
Bond Street to Mission Bay Drive	58,600	0	58,600	63,200	0	63,200	4,600
Mission Bay Drive to I-5 SB On-Ramp	46,800	0	46,800	48,100	0	48,100	1,300
I-5 SB On-Ramp to I-5 NB Off-Ramp	63,000	0	63,000	66,600	0	66,600	3,600
Balboa Avenue (CA-274)							
I-5 NB Off-Ramp to Morena Boulevard SB Ramps	76,000	0	76,000	77,500	0	77,500	1,500
Morena Boulevard SB Ramps to Morena Boulevard NB Ramps	50,400	0	50,400	49,400	0	49,400	-1,000
Morena Boulevard NB Ramps to Moraga Avenue	49,700	-7,000	42,700	52,500	-7,000	45,500	2,800
Moraga Avenue to Clairemont Drive	42,400	-7,000	35,400	45,200	-7,000	38,200	2,800
East of Clairemont Drive	39,600	0	39,600	43,000	0	43,000	3,400
Grand Avenue							
Kendall Street to Lamont Street	29,900	0	29,900	24,500	0	24,500	-5,400
Lee Street to Bond Street (On Rose Creek Bridge)	32,800	5,000	37,800	30,700	5,000	35,700	-2,100
Figuerroa Boulevard to Mission Bay Drive	33,700	5,000	38,700	31,500	5,000	36,500	-2,200
Mission Bay Drive							
Bluffside Avenue to Damon Avenue	28,400	7,000	35,400	32,600	7,000	39,600	4,200
Damon Avenue to Garnet Avenue	27,100	10,000	37,100	32,400	10,000	42,400	5,300
Garnet Avenue to Magnolia Avenue	18,900	10,000	28,900	23,800	10,000	33,800	4,900
Magnolia Avenue to Bunker Hill Street	15,000	15,000	30,000	19,800	15,000	34,800	4,800
Bunker Hill Street to Grand Avenue	18,300	12,000	30,300	22,100	12,000	34,100	3,800
Grand Avenue to I-5 Ramps	38,200	12,000	50,200	40,400	12,000	52,400	2,200
Morena Boulevard							
Jutland Drive to Avati Drive	15,200	0	15,200	17,200	0	17,200	2,000
Avati Drive to Balboa Avenue Ramps	22,500	-2,500	20,000	24,600	-2,500	22,100	2,100
Balboa Avenue Ramps to Ticonderoga Street	19,100	-2,500	16,600	19,400	-2,500	16,900	300
Gesner Street to Clairemont Drive	11,900	3,000	14,900	13,400	3,000	16,400	1,500
Clairemont Drive							
Cippewa Court to Balboa Avenue	22,000	0	22,000	25,800	0	25,800	3,800
Balboa Avenue to Ute Drive	18,500	0	18,500	26,700	0	26,700	8,200
Denver Street to Morena Boulevard	35,400	0	35,400	39,200	0	39,200	3,800
Damon Avenue							
Mission Bay Drive to Santa Fe Street	4,700	0	4,700	4,400	0	4,400	-300
Santa Fe Street							
Damon Avenue to Balboa Avenue	6,000	-2,000	4,000	6,900	-2,000	4,900	900
Soledad Mountain Road							
Beryl Street to Garnet Avenue	30,900	0	30,900	28,700	0	28,700	-2,200
N Mission Bay Drive							
De Anza Road to Mission Bay Drive	2,100	0	2,100	2,500	0	2,500	400

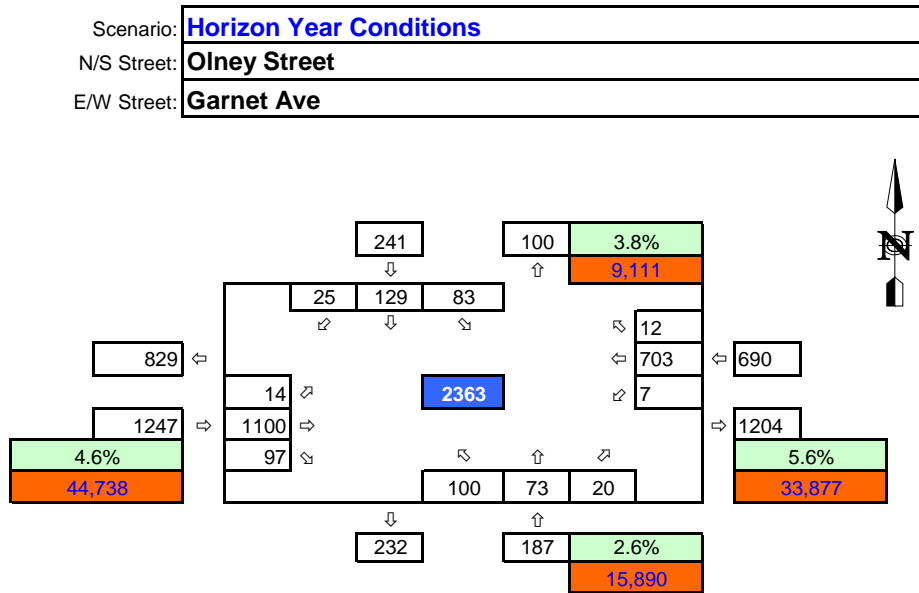
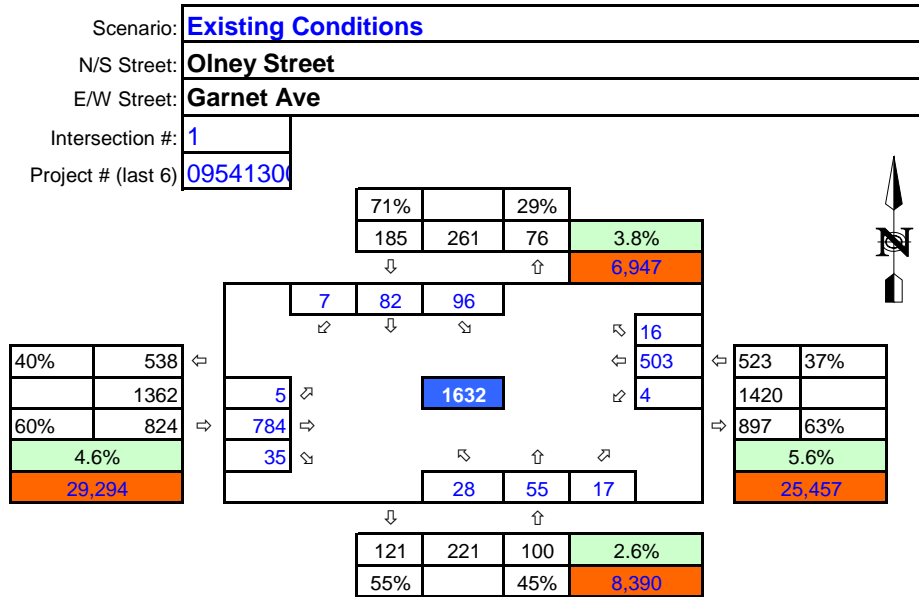
ROADWAY SEGMENT	EXISTING			PREFERRED MODEL			Change in Volume
	Existing Model Volume	Adjustment	Adjusted Existing Model Volume	Preferred Model Volume	Adjustment	Adjusted Adopted Model Volume	
Balboa Avenue							
Garnet Avenue to Grand Avenue	19,700	0	19,700	13,200	0	13,200	-6,500
Garnet Avenue							
Bond Street to Mission Bay Drive	58,600	0	58,600	52,200	0	52,200	-6,400
Mission Bay Drive to I-5 SB On-Ramp	46,800	0	46,800	43,000	0	43,000	-3,800
I-5 SB On-Ramp to I-5 NB Off-Ramp	63,000	0	63,000	60,500	0	60,500	-2,500
Balboa Avenue (CA-274)							
I-5 NB Off-Ramp to Morena Boulevard SB Ramps	76,000	0	76,000	71,500	0	71,500	-4,500
Morena Boulevard SB Ramps to Morena Boulevard NB Ramps	50,400	0	50,400	45,700	0	45,700	-4,700
Morena Boulevard NB Ramps to Moraga Avenue	49,700	-7,000	42,700	46,800	-7,000	39,800	-2,900
Moraga Avenue to Clairemont Drive	42,400	-7,000	35,400	39,600	-7,000	32,600	-2,800
East of Clairemont Drive	39,600	0	39,600	42,500	0	42,500	2,900
Grand Avenue							
Kendall Street to Lamont Street	29,900	0	29,900	24,000	0	24,000	-5,900
Lee Street to Bond Street (On Rose Creek Bridge)	32,800	5,000	37,800	32,200	5,000	37,200	-600
Figuerola Boulevard to Mission Bay Drive	33,700	5,000	38,700	32,900	5,000	37,900	-800
Mission Bay Drive							
Bluffside Avenue to Damon Avenue	28,400	7,000	35,400	32,000	7,000	39,000	3,600
Damon Avenue to Garnet Avenue	27,100	10,000	37,100	31,300	10,000	41,300	4,200
Garnet Avenue to Magnolia Avenue	18,900	10,000	28,900	28,300	10,000	38,300	9,400
Magnolia Avenue to Bunker Hill Street	15,000	15,000	30,000	23,700	15,000	38,700	8,700
Bunker Hill Street to Grand Avenue	18,300	12,000	30,300	23,900	12,000	35,900	5,600
Grand Avenue to I-5 Ramps	38,200	12,000	50,200	44,600	12,000	56,600	6,400
Morena Boulevard							
Jutland Drive to Avati Drive	15,200	0	15,200	17,200	0	17,200	2,000
Avati Drive to Balboa Avenue Ramps	22,500	-2,500	20,000	24,300	-2,500	21,800	1,800
Balboa Avenue Ramps to Ticonderoga Street	19,100	-2,500	16,600	16,400	-2,500	13,900	-2,700
Gesner Street to Clairemont Drive	11,900	3,000	14,900	11,600	3,000	14,600	-300
Clairemont Drive							
Cippewa Court to Balboa Avenue	22,000	0	22,000	25,300	0	25,300	3,300
Balboa Avenue to Ute Drive	18,500	0	18,500	22,900	0	22,900	4,400
Denver Street to Morena Boulevard	35,400	0	35,400	41,200	0	41,200	5,800
Damon Avenue							
Mission Bay Drive to Santa Fe Street	4,700	0	4,700	5,900	0	5,900	1,200
Santa Fe Street							
Damon Avenue to Balboa Avenue	6,000	-2,000	4,000	7,600	-2,000	5,600	1,600
Soledad Mountain Road							
Beryl Street to Garnet Avenue	30,900	0	30,900	27,900	0	27,900	-3,000
N Mission Bay Drive							
De Anza Road to Mission Bay Drive	2,100	0	2,100	2,500	0	2,500	400

ROADWAY SEGMENT	EXISTING			REDUCED MODEL			Change in Volume
	Existing Model Volume	Adjustment	Adjusted Existing Model Volume	Reduced Model Volume	Adjustment	Adjusted Adopted Model Volume	
Balboa Avenue							
Garnet Avenue to Grand Avenue	19,700	0	19,700	13,200	0	13,200	-6,500
Garnet Avenue							
Bond Street to Mission Bay Drive	58,600	0	58,600	52,900	0	52,900	-5,700
Mission Bay Drive to I-5 SB On-Ramp	46,800	0	46,800	42,100	0	42,100	-4,700
I-5 SB On-Ramp to I-5 NB Off-Ramp	63,000	0	63,000	59,200	0	59,200	-3,800
Balboa Avenue (CA-274)							
I-5 NB Off-Ramp to Morena Boulevard SB Ramps	76,000	0	76,000	71,200	0	71,200	-4,800
Morena Boulevard SB Ramps to Morena Boulevard NB Ramps	50,400	0	50,400	45,300	0	45,300	-5,100
Morena Boulevard NB Ramps to Moraga Avenue	49,700	-7,000	42,700	46,400	-7,000	39,400	-3,300
Moraga Avenue to Clairemont Drive	42,400	-7,000	35,400	39,400	-7,000	32,400	-3,000
East of Clairemont Drive	39,600	0	39,600	42,200	0	42,200	2,600
Grand Avenue							
Kendall Street to Lamont Street	29,900	0	29,900	23,600	0	23,600	-6,300
Lee Street to Bond Street (On Rose Creek Bridge)	32,800	5,000	37,800	32,600	5,000	37,600	-200
Figuerroa Boulevard to Mission Bay Drive	33,700	5,000	38,700	33,200	5,000	38,200	-500
Mission Bay Drive							
Bluffside Avenue to Damon Avenue	28,400	7,000	35,400	32,400	7,000	39,400	4,000
Damon Avenue to Garnet Avenue	27,100	10,000	37,100	31,600	10,000	41,600	4,500
Garnet Avenue to Magnolia Avenue	18,900	10,000	28,900	27,200	10,000	37,200	8,300
Magnolia Avenue to Bunker Hill Street	15,000	15,000	30,000	22,700	15,000	37,700	7,700
Bunker Hill Street to Grand Avenue	18,300	12,000	30,300	23,300	12,000	35,300	5,000
Grand Avenue to I-5 Ramps	38,200	12,000	50,200	44,300	12,000	56,300	6,100
Morena Boulevard							
Jutland Drive to Avati Drive	15,200	0	15,200	17,200	0	17,200	2,000
Avati Drive to Balboa Avenue Ramps	22,500	-2,500	20,000	24,400	-2,500	21,900	1,900
Balboa Avenue Ramps to Ticonderoga Street	19,100	-2,500	16,600	16,400	-2,500	13,900	-2,700
Gesner Street to Clairemont Drive	11,900	3,000	14,900	11,600	3,000	14,600	-300
Clairemont Drive							
Cippewa Court to Balboa Avenue	22,000	0	22,000	25,200	0	25,200	3,200
Balboa Avenue to Ute Drive	18,500	0	18,500	22,700	0	22,700	4,200
Denver Street to Morena Boulevard	35,400	0	35,400	40,500	0	40,500	5,100
Damon Avenue							
Mission Bay Drive to Santa Fe Street	4,700	0	4,700	5,900	0	5,900	1,200
Santa Fe Street							
Damon Avenue to Balboa Avenue	6,000	-2,000	4,000	7,600	-2,000	5,600	1,600
Soledad Mountain Road							
Beryl Street to Garnet Avenue	30,900	0	30,900	26,800	0	26,800	-4,100
N Mission Bay Drive							
De Anza Road to Mission Bay Drive	2,100	0	2,100	2,800	0	2,800	700

APPENDIX D

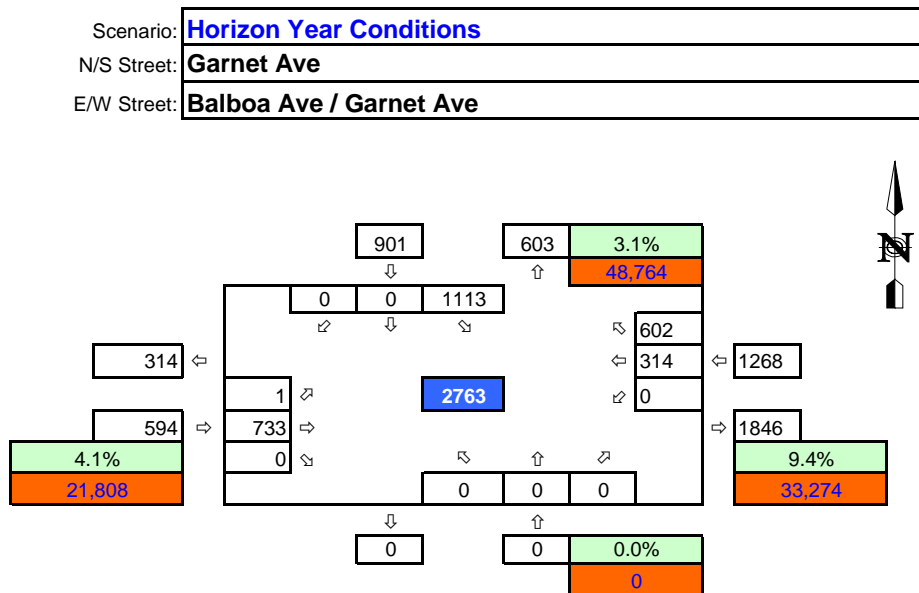
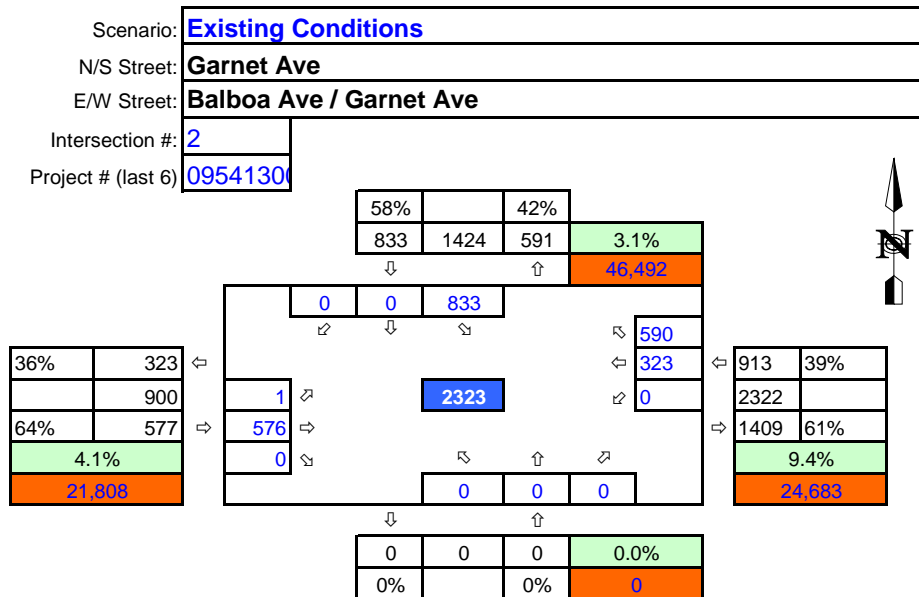
FUTURE YEAR VOLUME ESTIMATES

Int 1 AM Peak Volumes



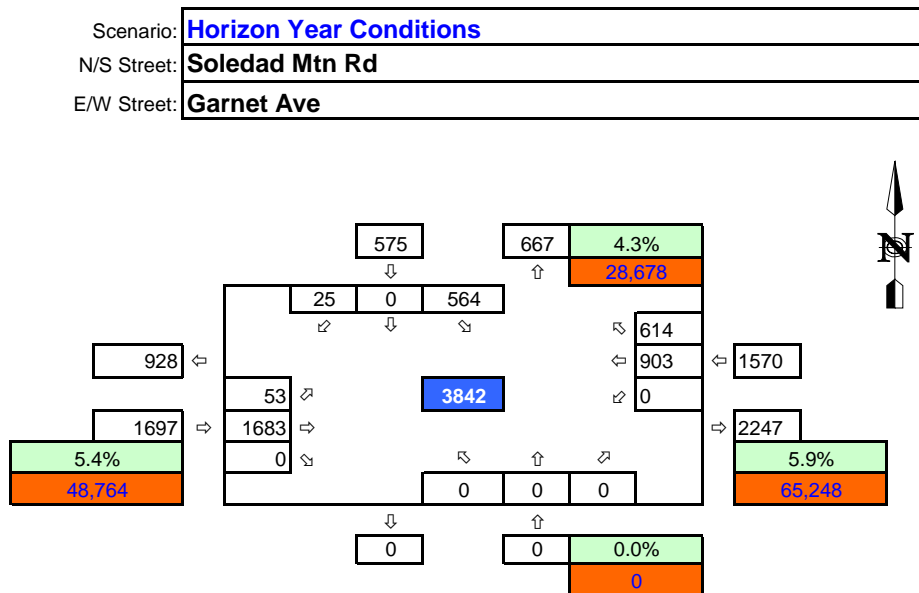
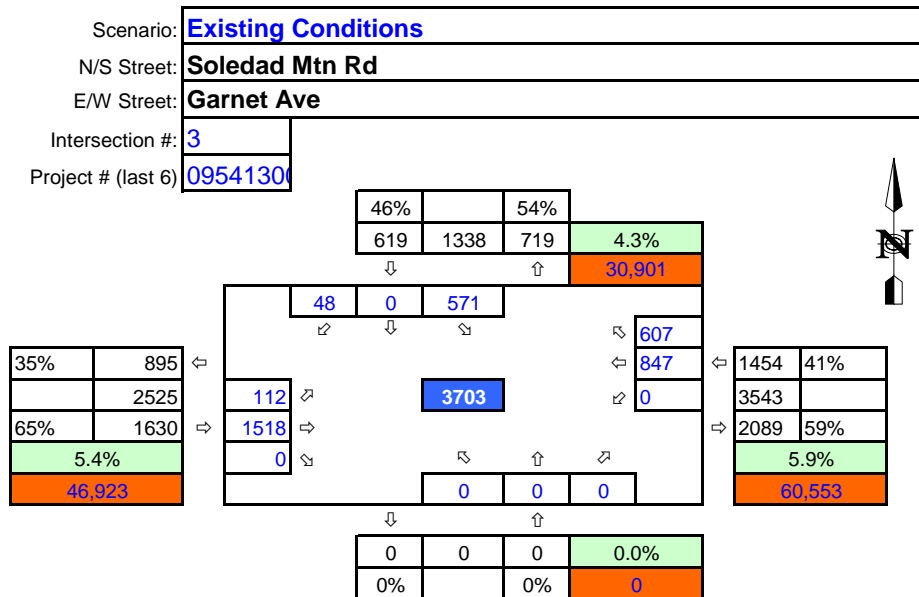
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 2 AM Peak Volumes



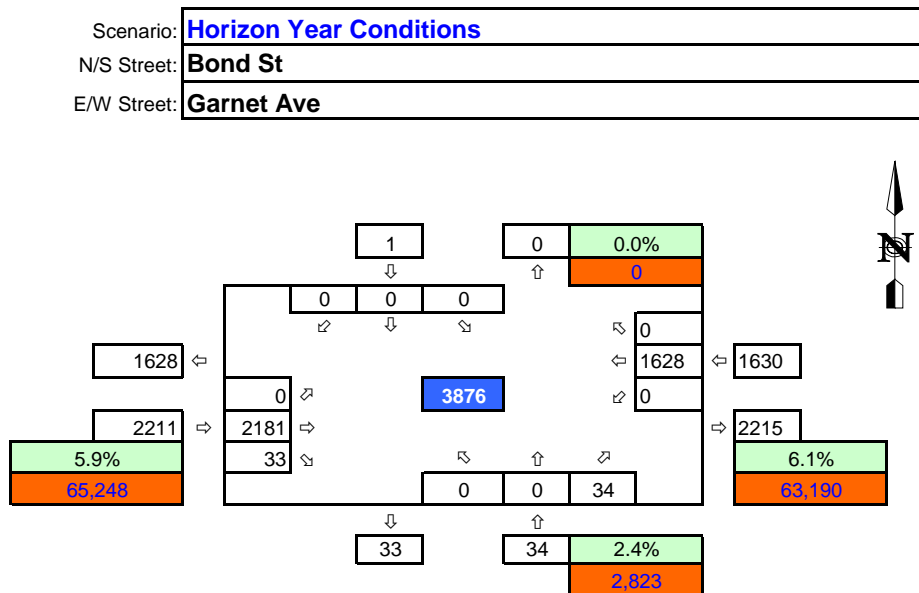
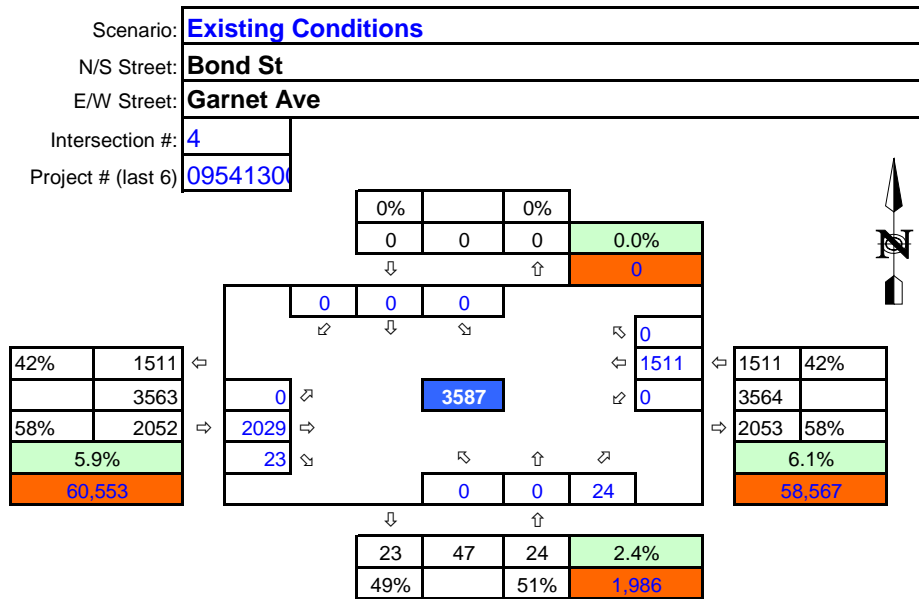
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 3 AM Peak Volumes



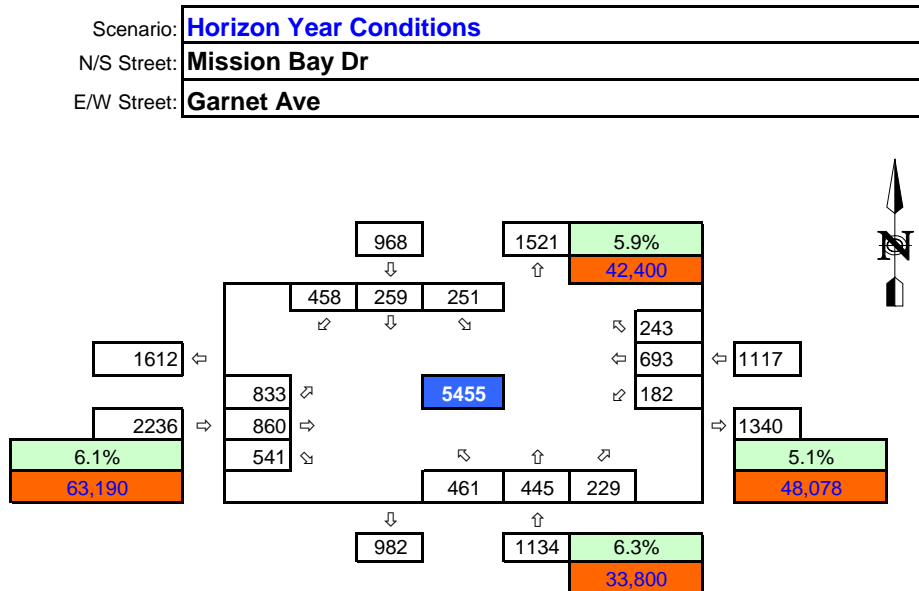
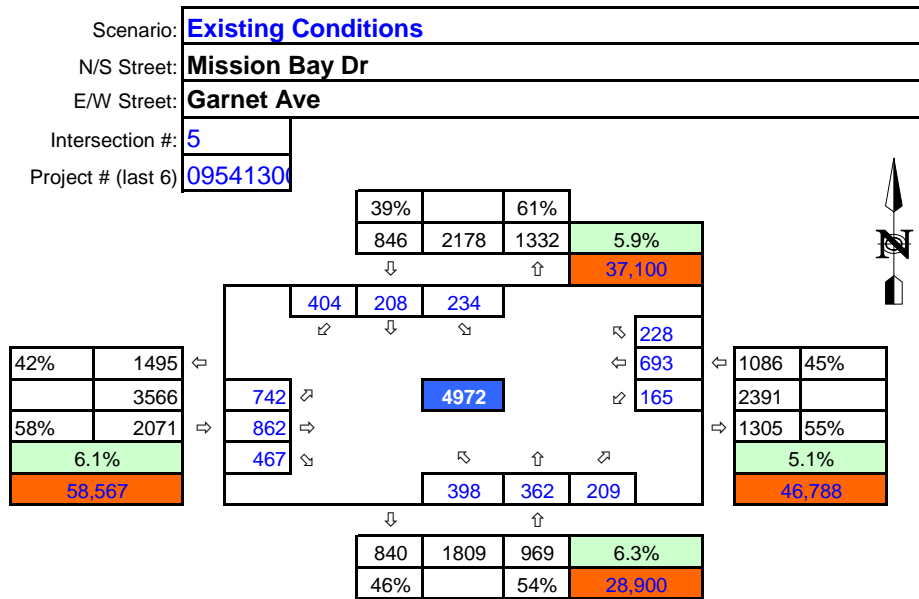
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 4 AM Peak Volumes



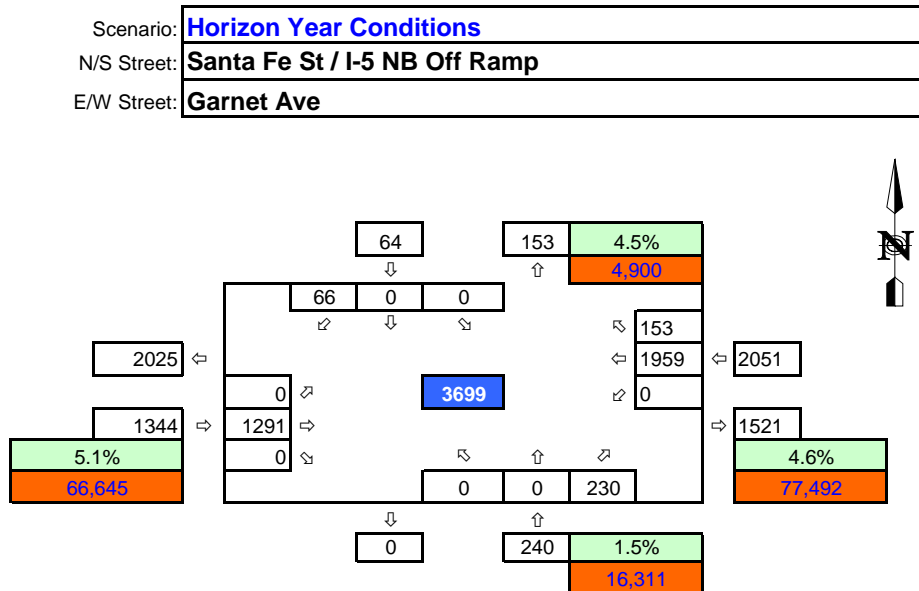
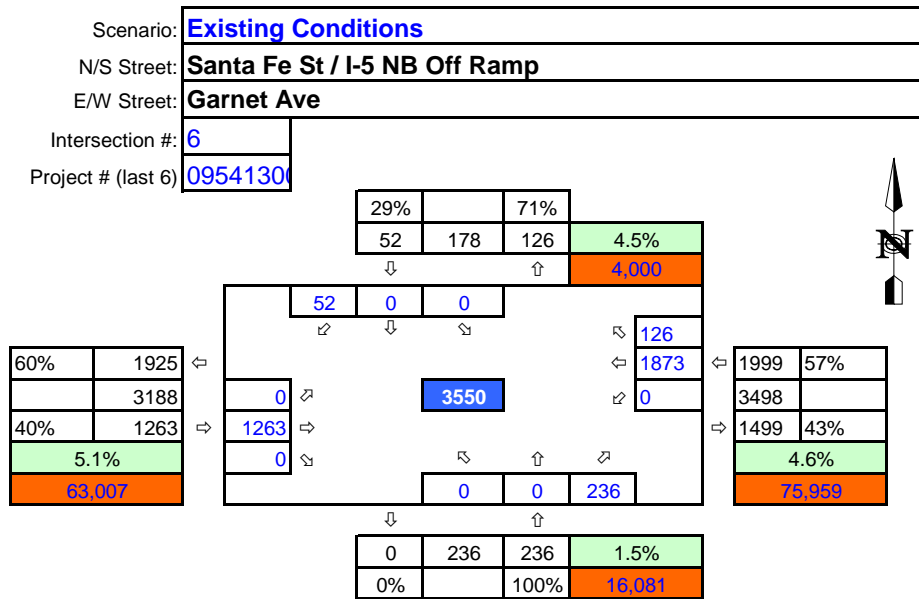
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 5 AM Peak Volumes



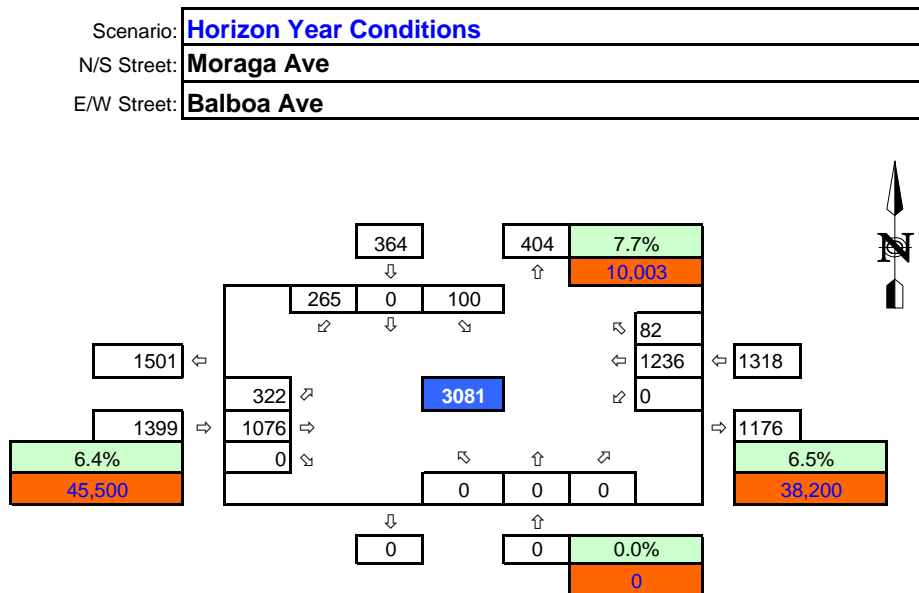
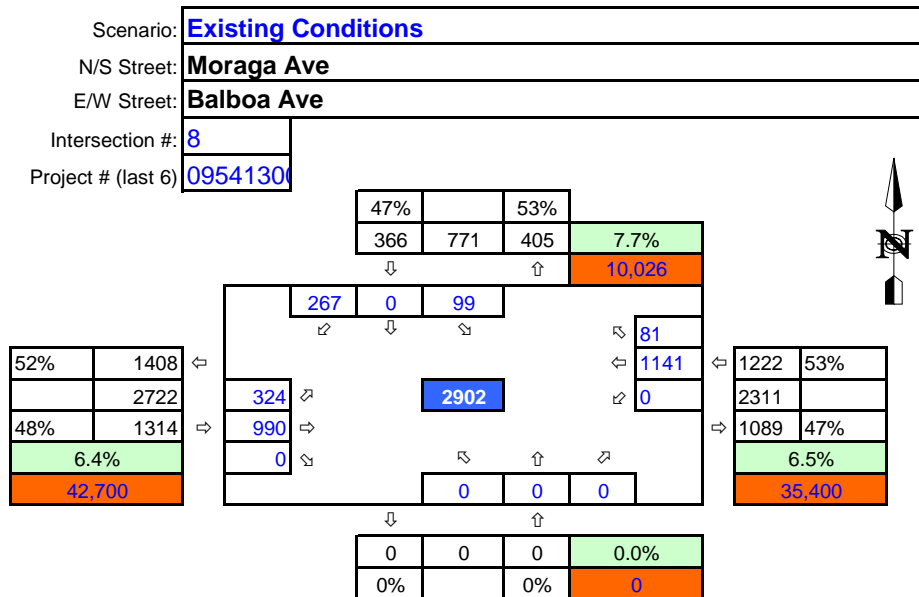
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 6 AM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 8 AM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

The diagram illustrates a network of interconnected tables and nodes. The central node is a large table with a blue header row (310, 271, 152) and a blue body row (208, 3813, 815, 69). It is surrounded by several other tables and nodes, some of which are highlighted in orange. Arrows indicate connections between these elements.

Top Node:

54%	46%
733	1353
620	6.1%
22,034	

Left Node:

53%	1217
	2309
47%	1092
6.5%	
35,400	

Right Node:

1195	48%
2494	
1299	52%
6.3%	
39,600	

Bottom Node:

677	1470	793	7.9%
46%		54%	18,532

Central Node:

310	271	152
208	3813	815
69		

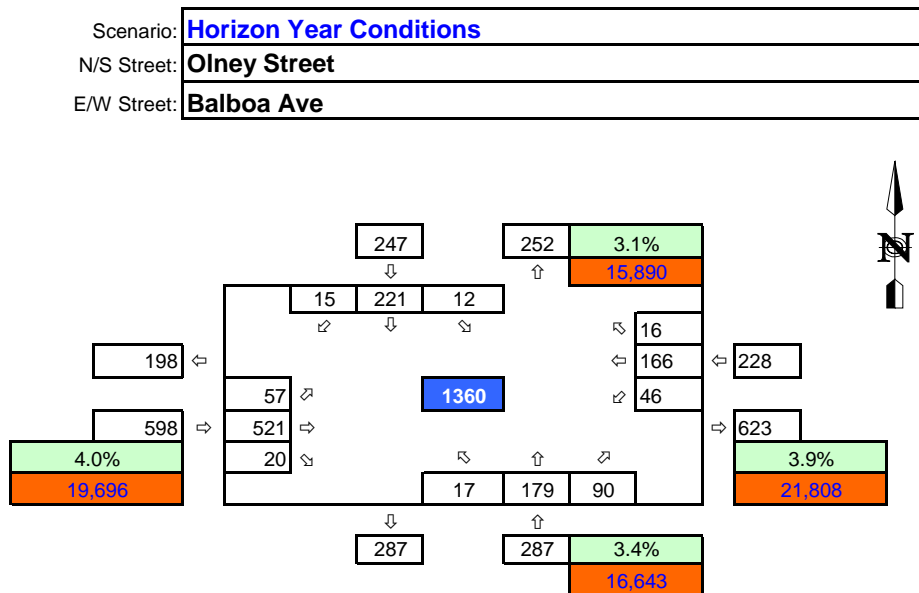
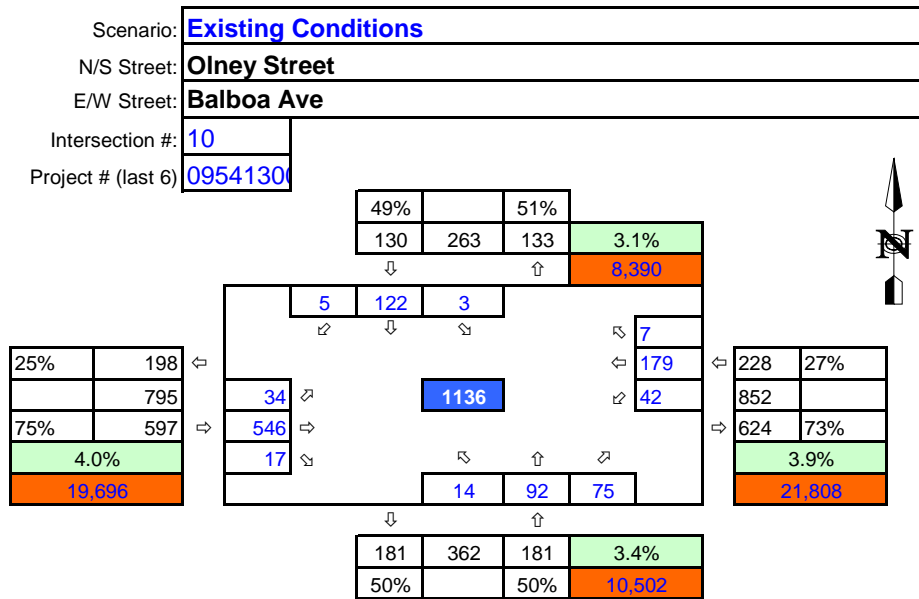
Other Nodes:

- Node 1: 90, 768, 337
- Node 2: 139, 322, 332

Arrows indicate connections between the central node and the other nodes, as well as between the top and bottom nodes.

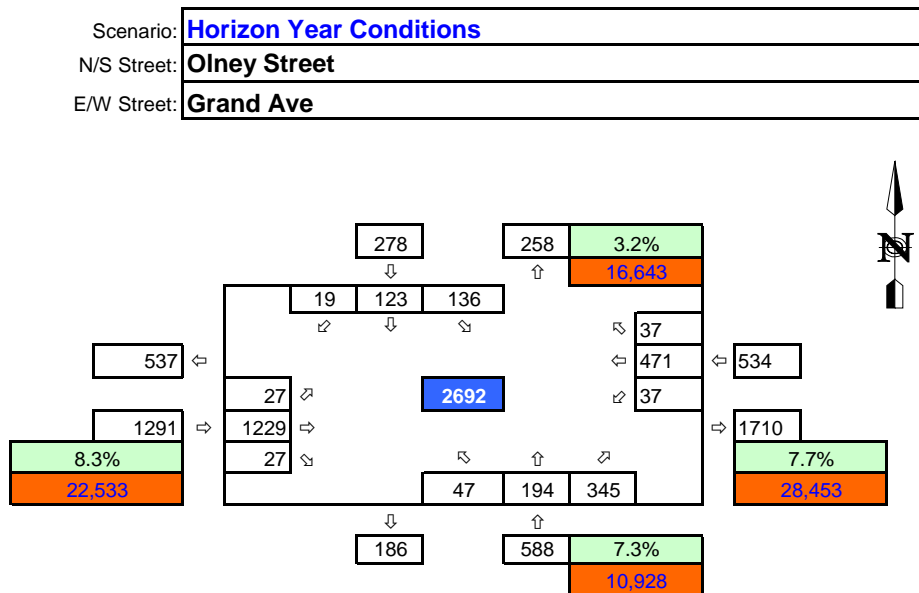
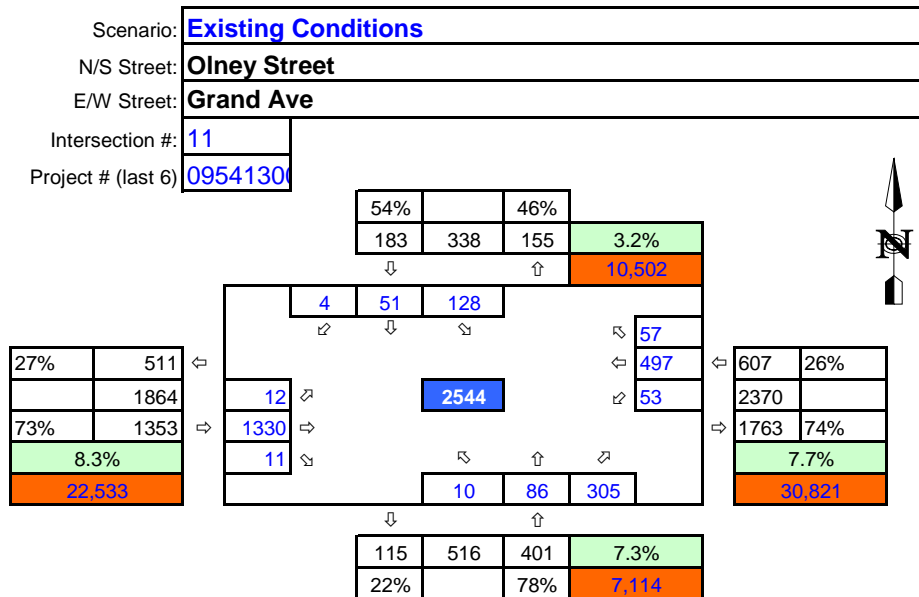


Int 10 AM Peak Volumes



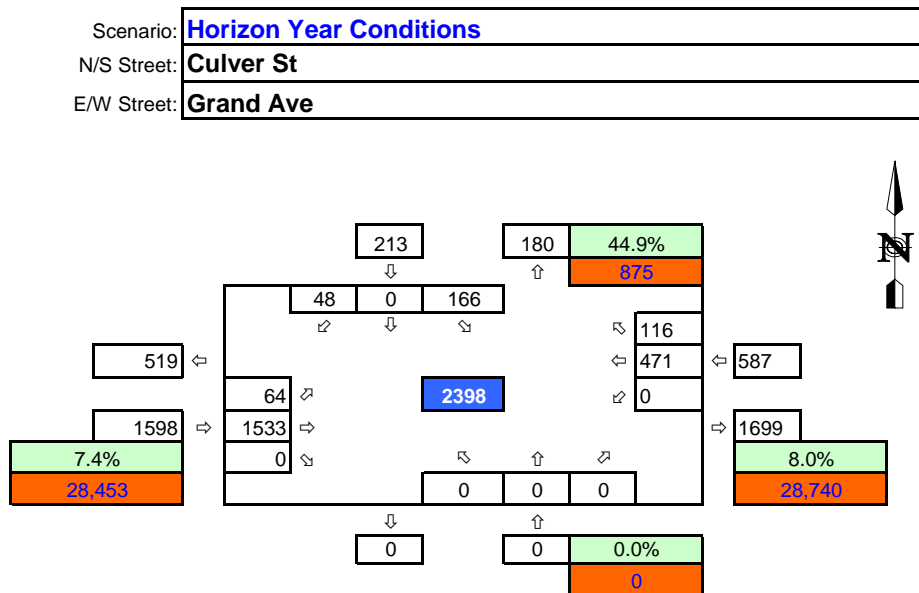
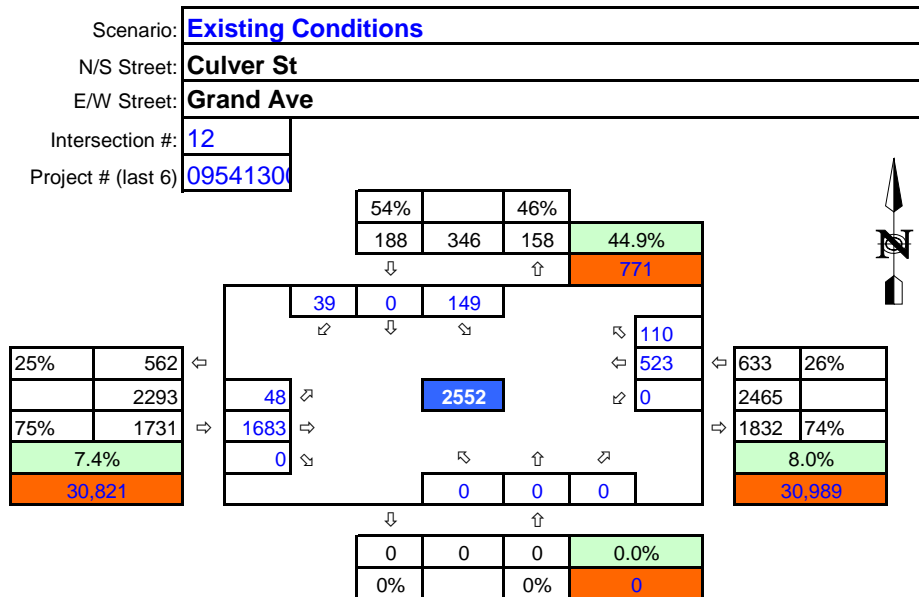
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 11 AM Peak Volumes



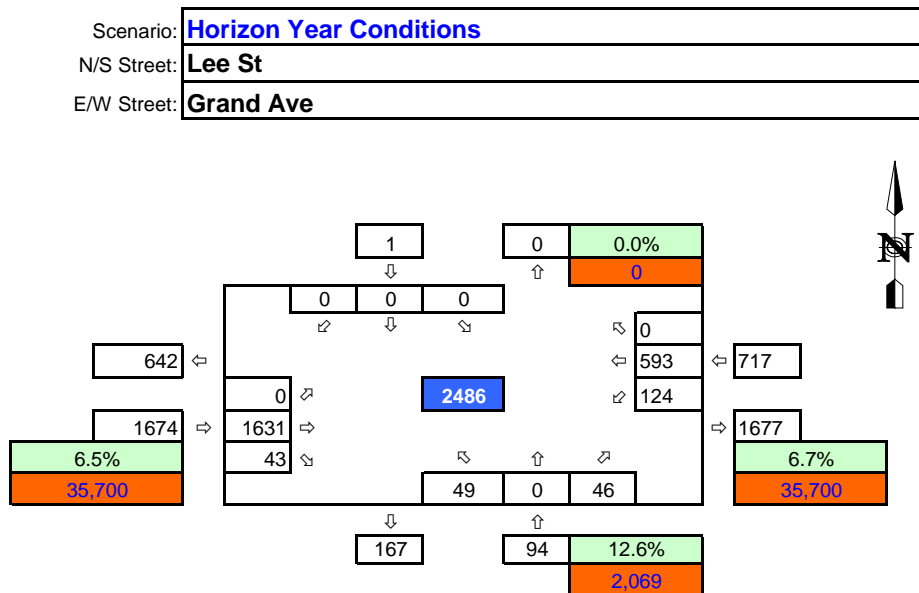
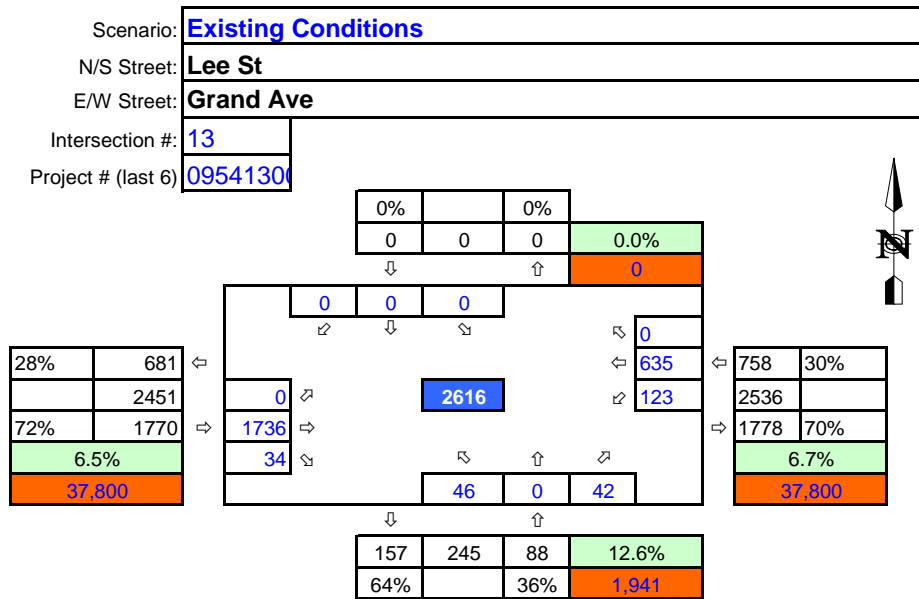
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 12 AM Peak Volumes



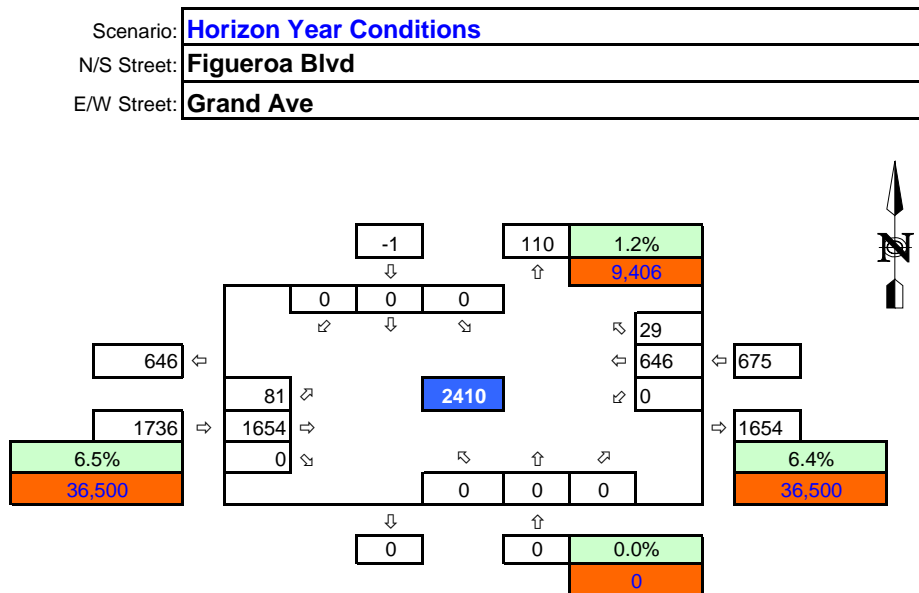
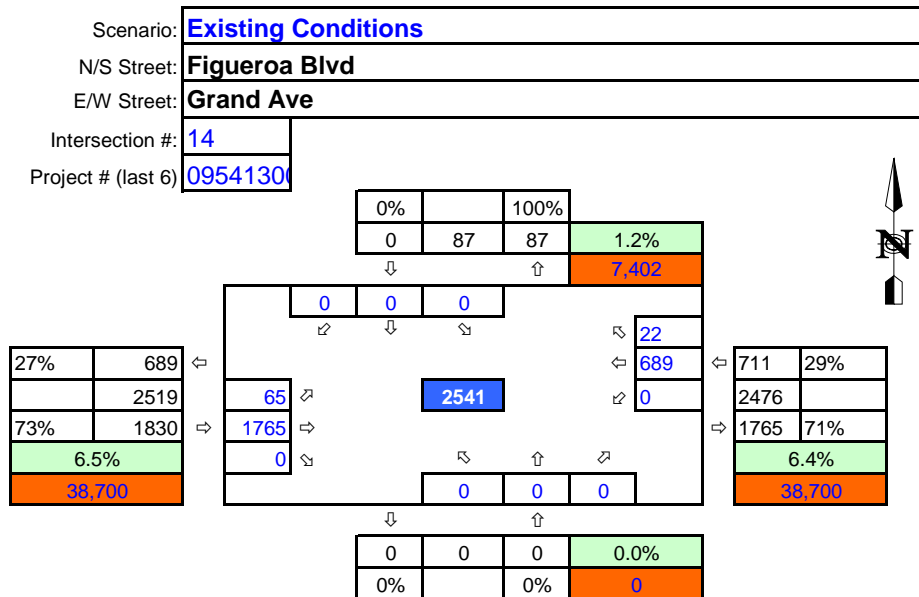
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 13 AM Peak Volumes



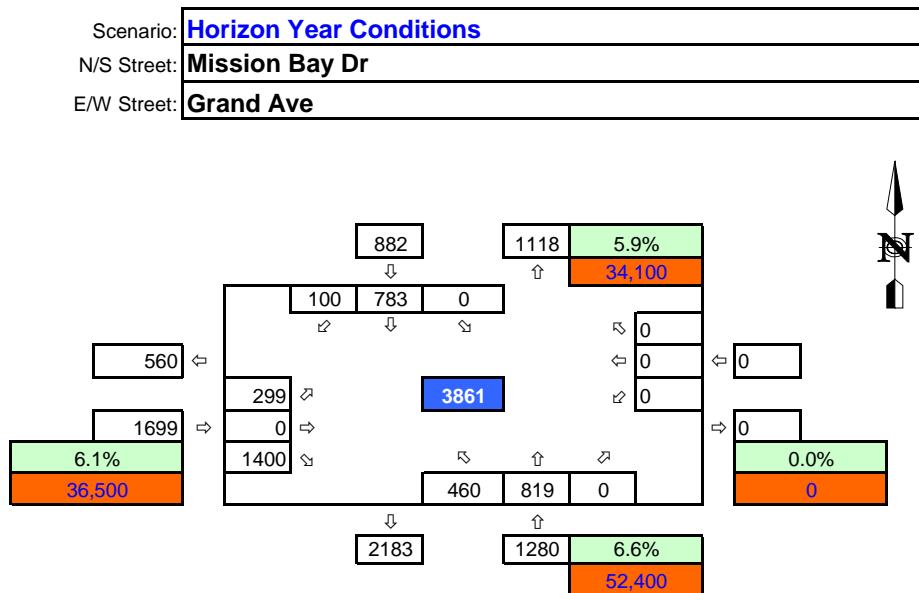
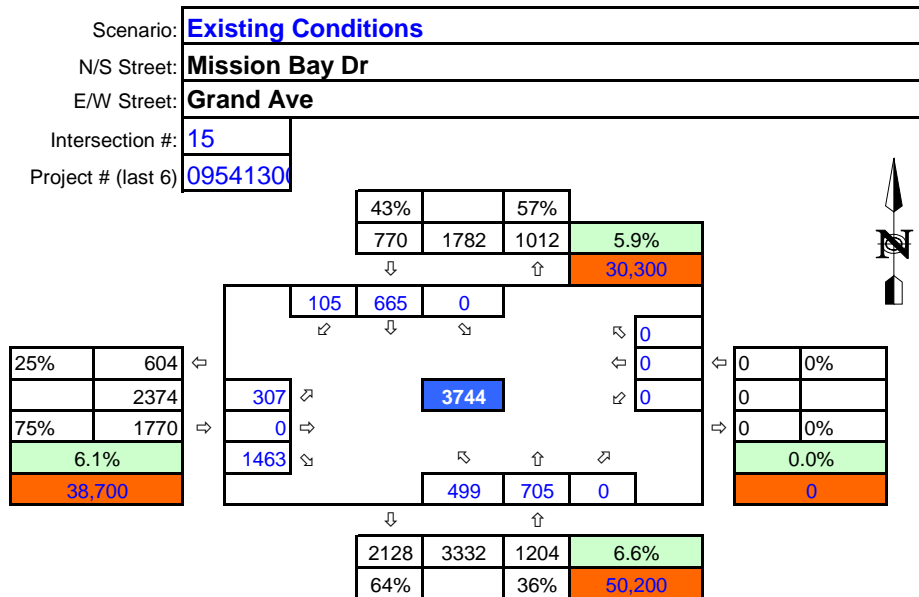
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 14 AM Peak Volumes



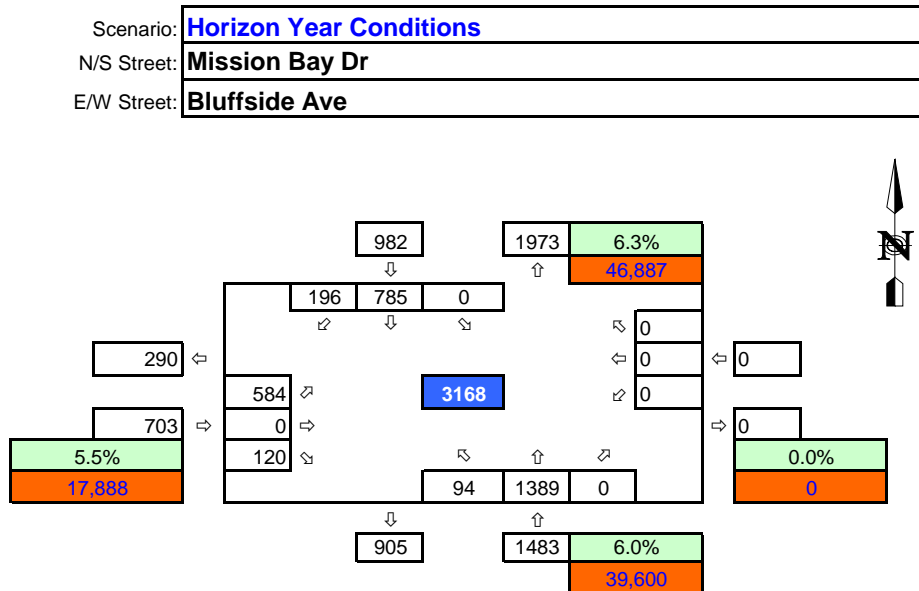
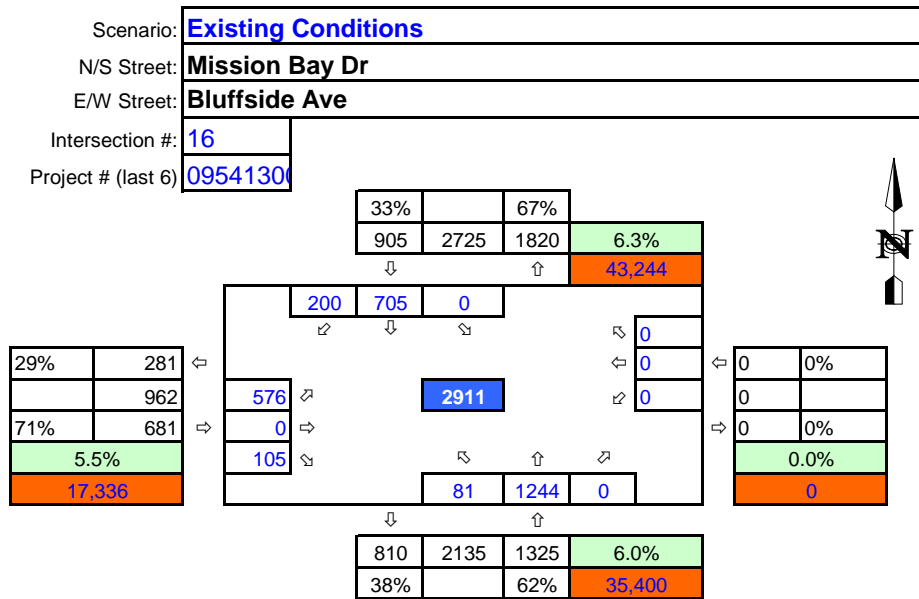
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 15 AM Peak Volumes



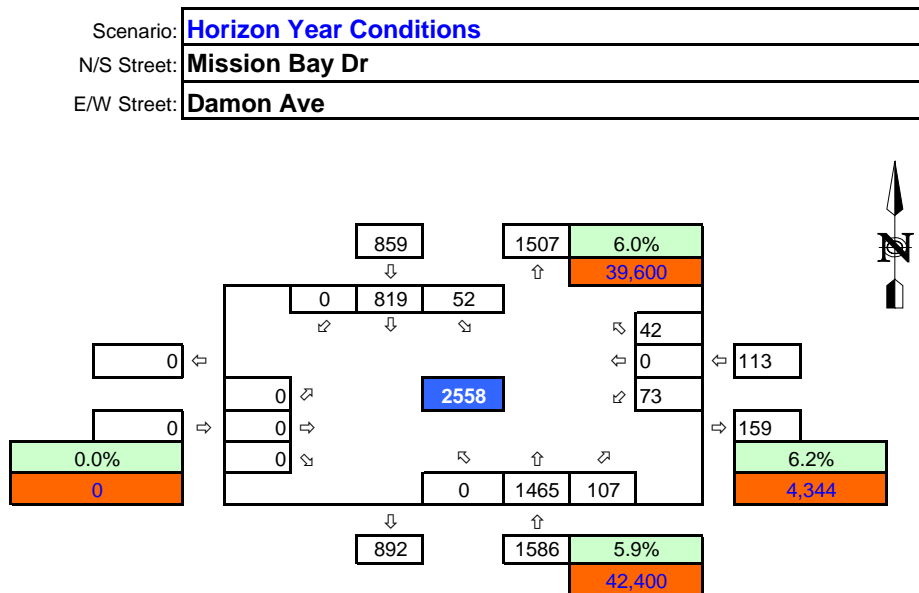
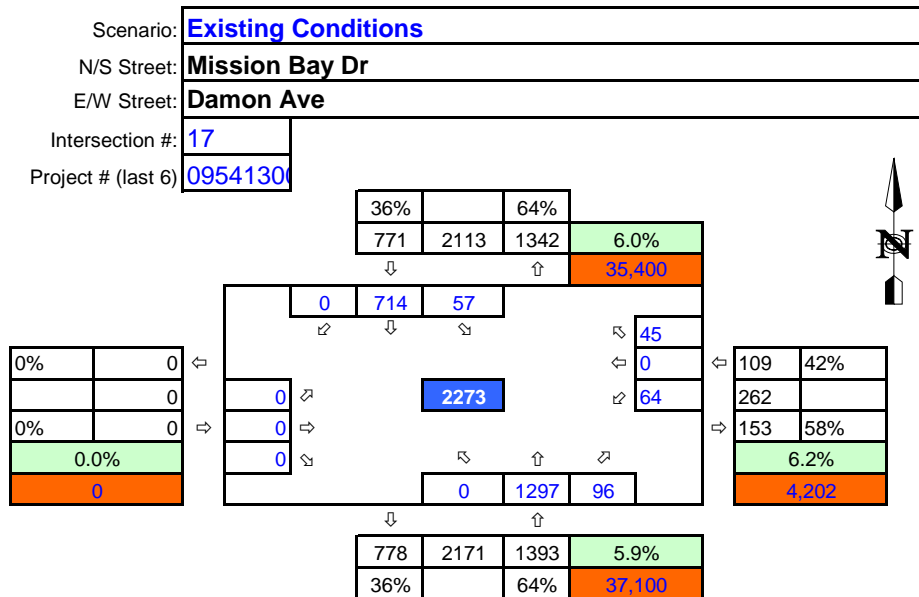
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 16 AM Peak Volumes



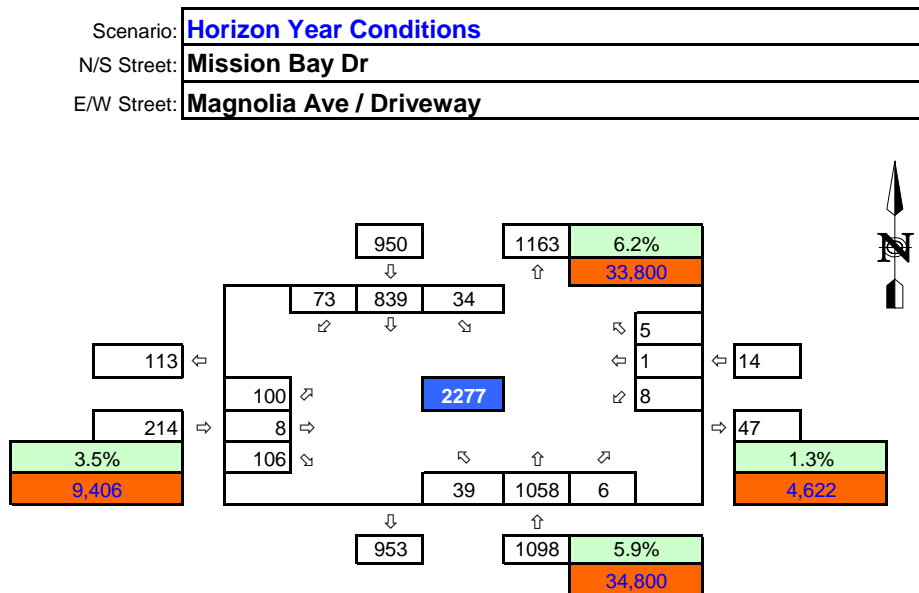
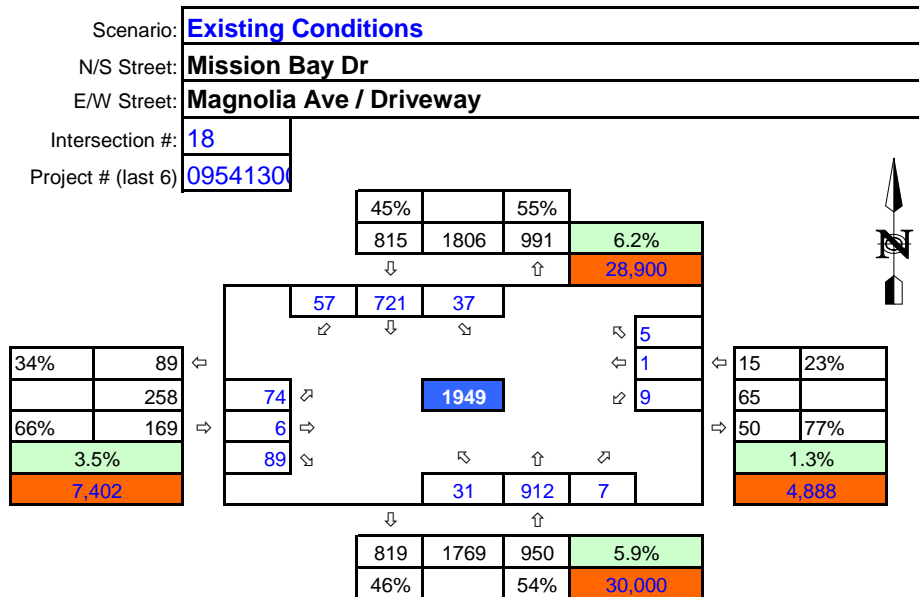
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 17 AM Peak Volumes



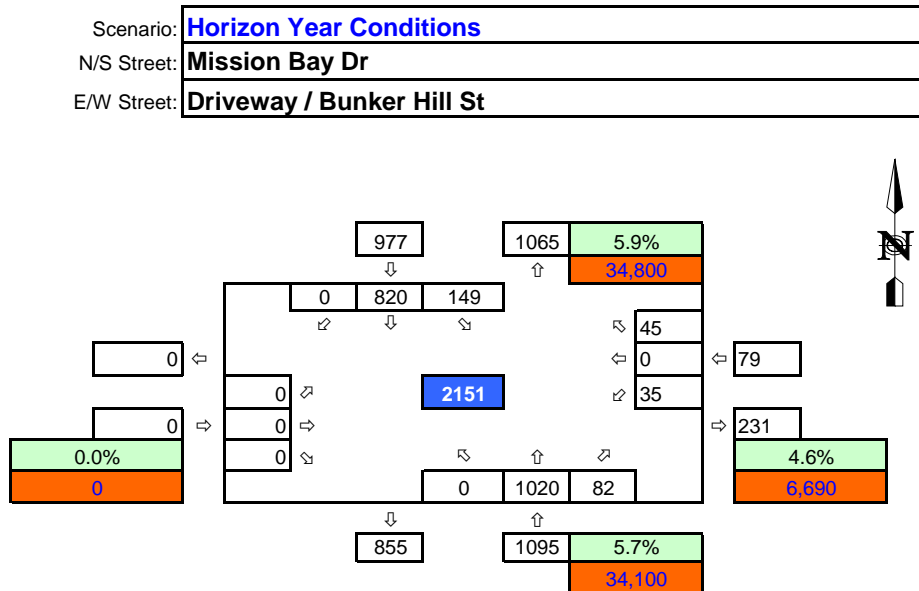
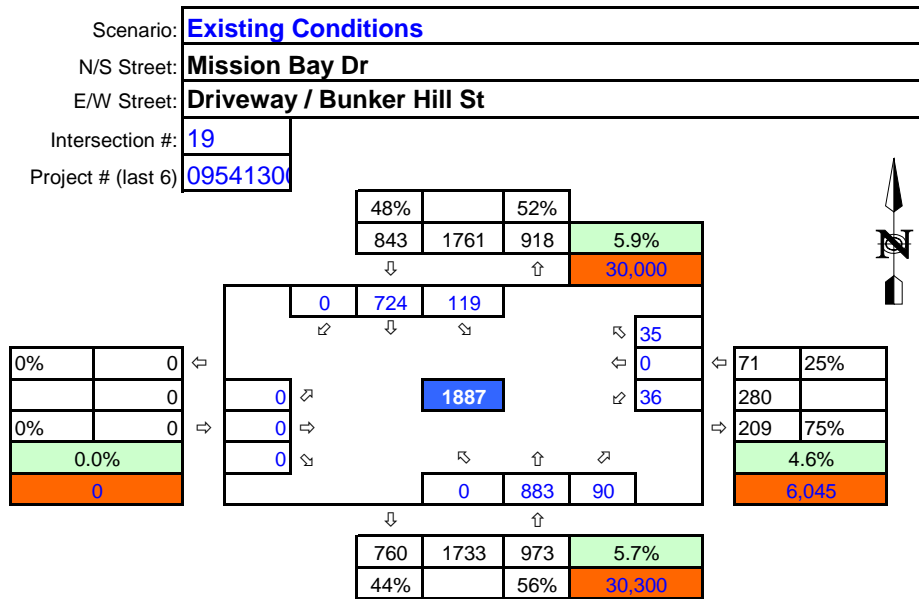
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 18 AM Peak Volumes



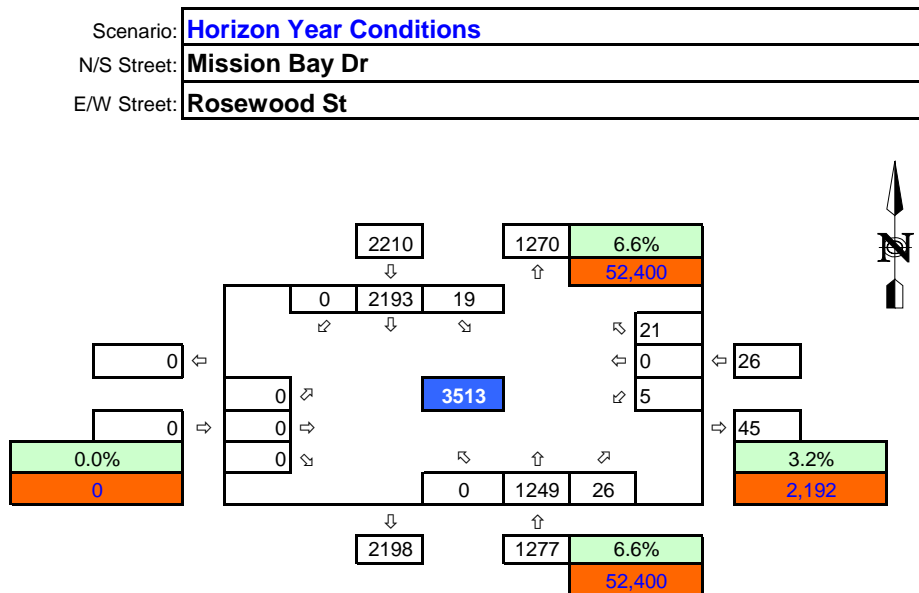
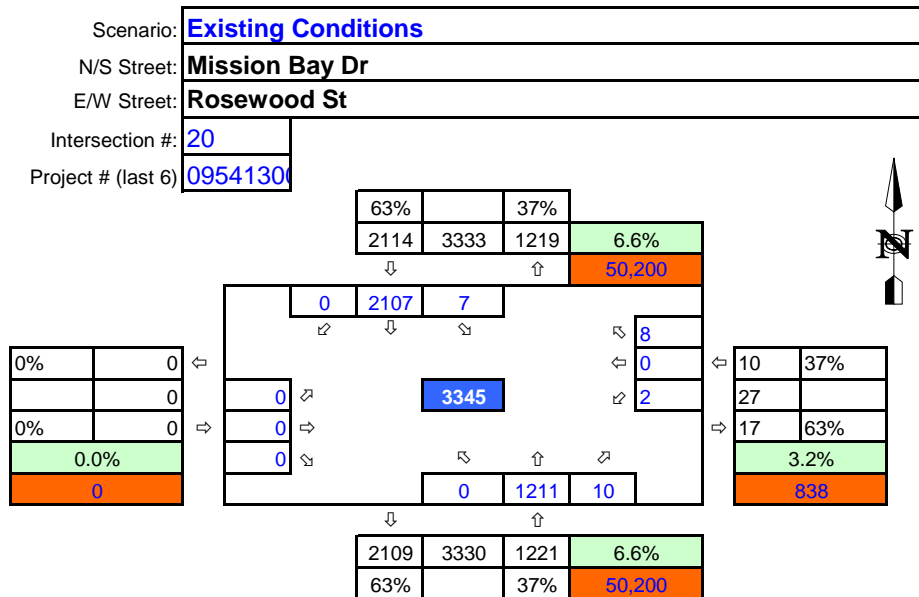
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 19 AM Peak Volumes



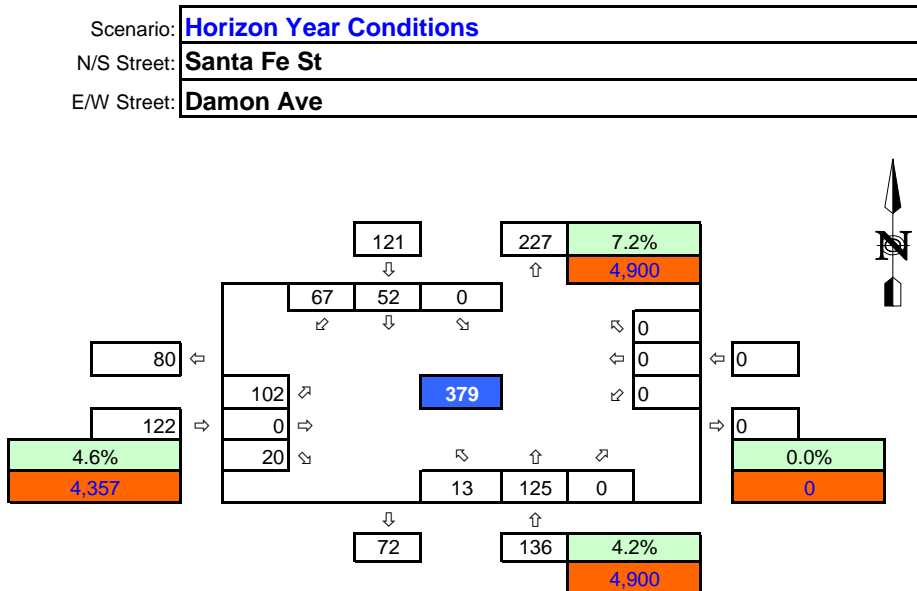
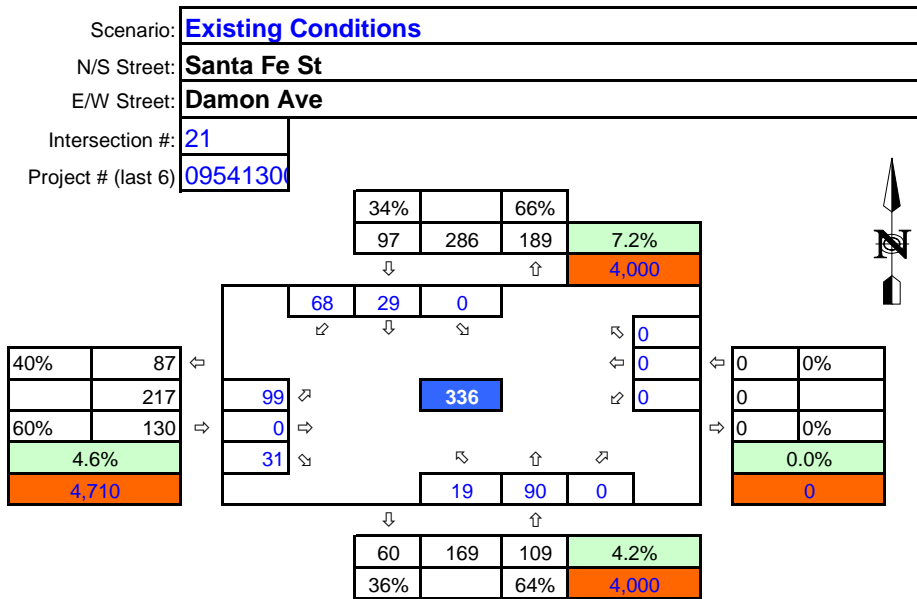
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 20 AM Peak Volumes



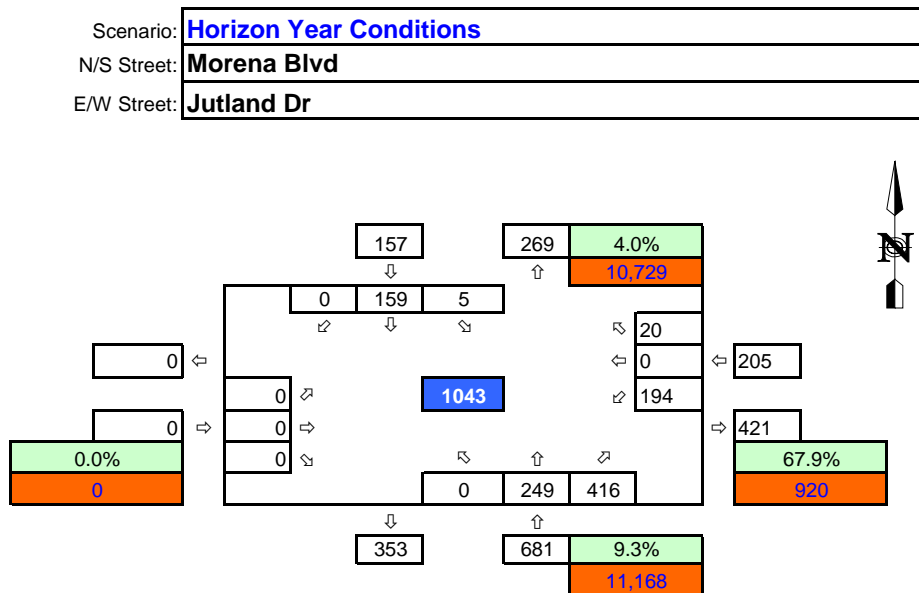
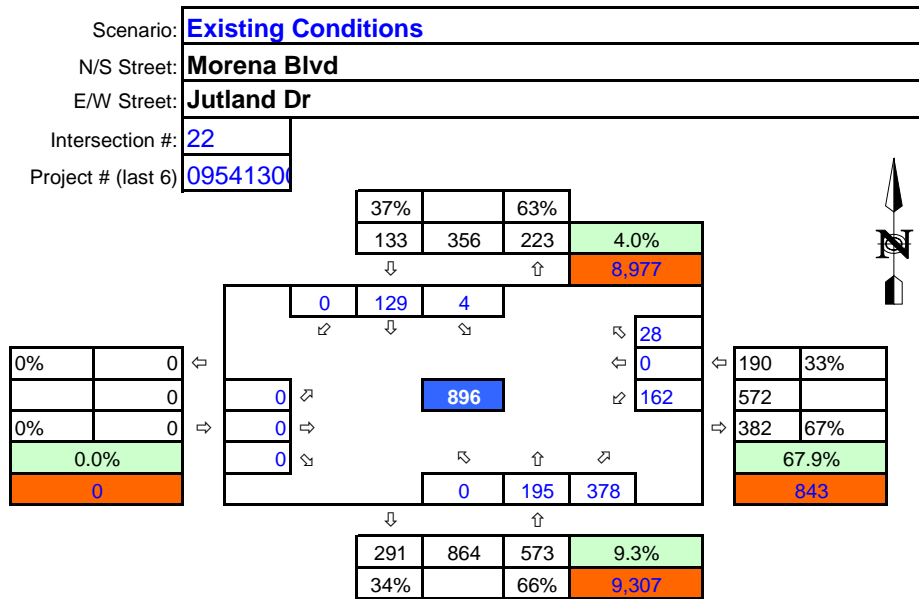
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 21 AM Peak Volumes



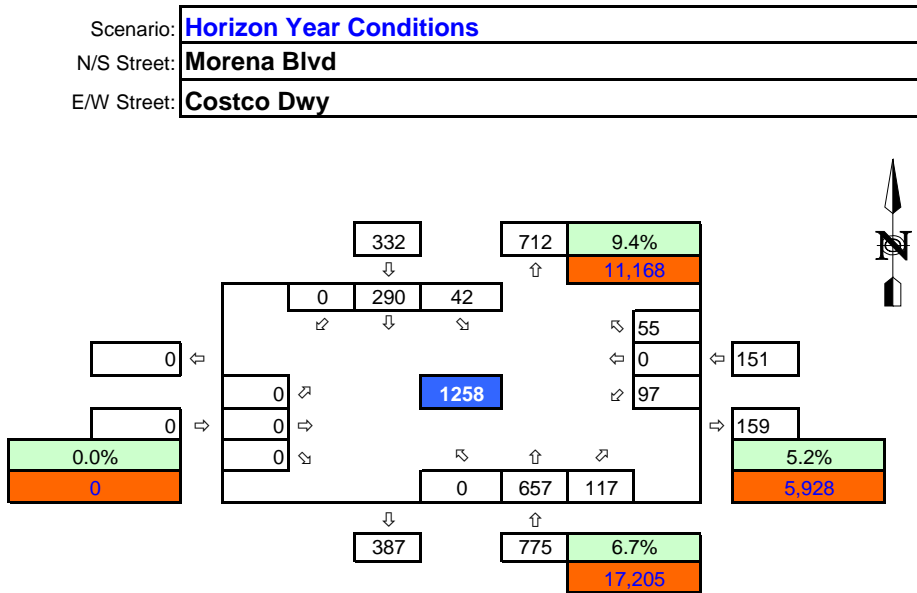
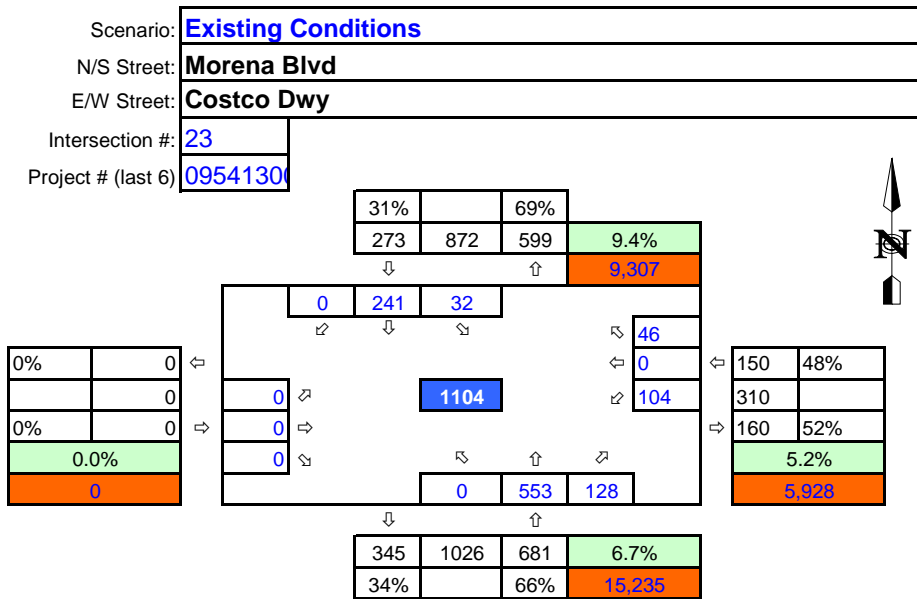
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 22 AM Peak Volumes



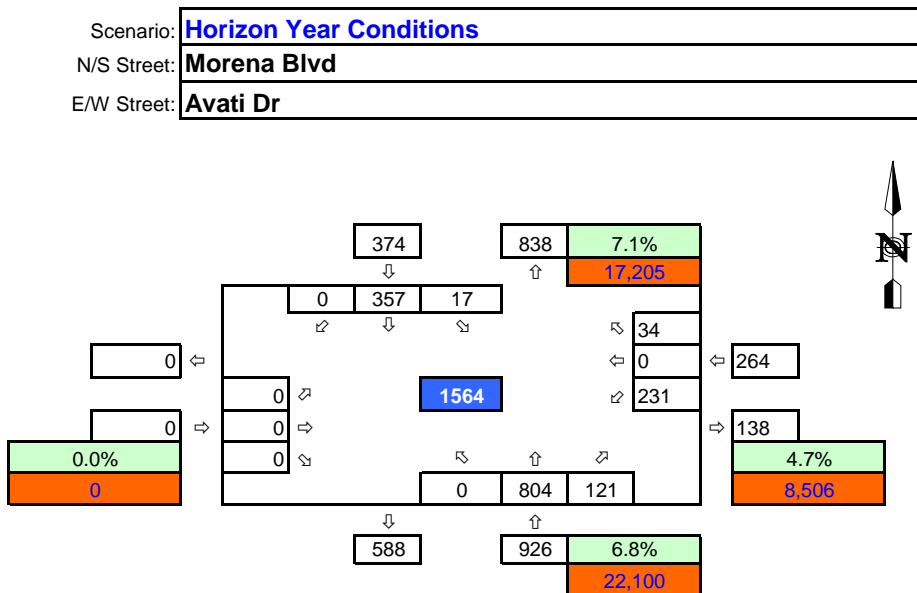
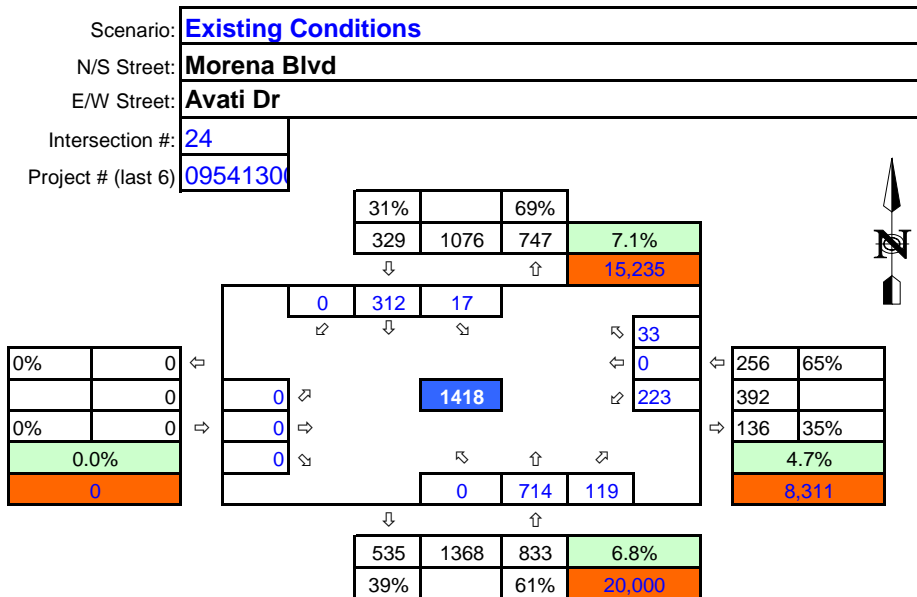
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 23 AM Peak Volumes



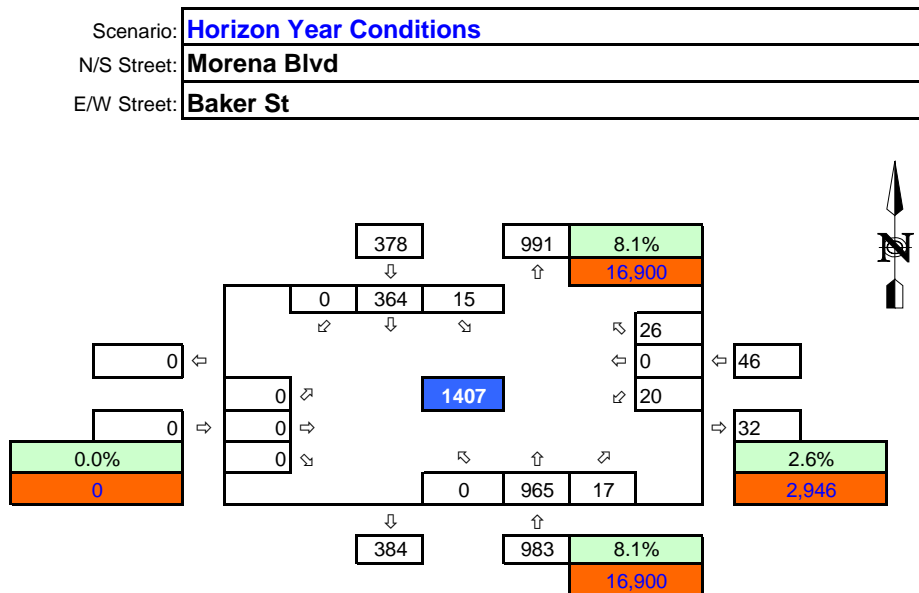
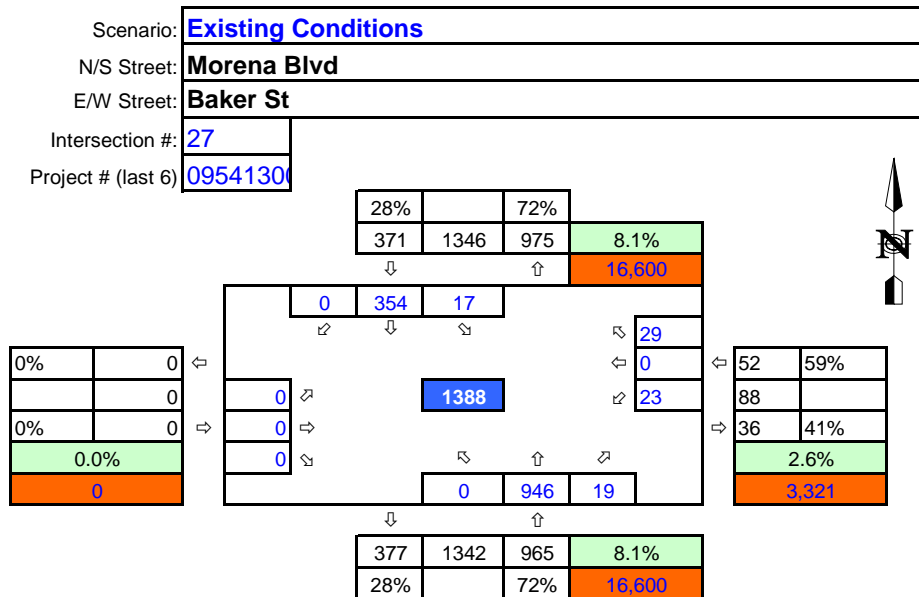
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 24 AM Peak Volumes



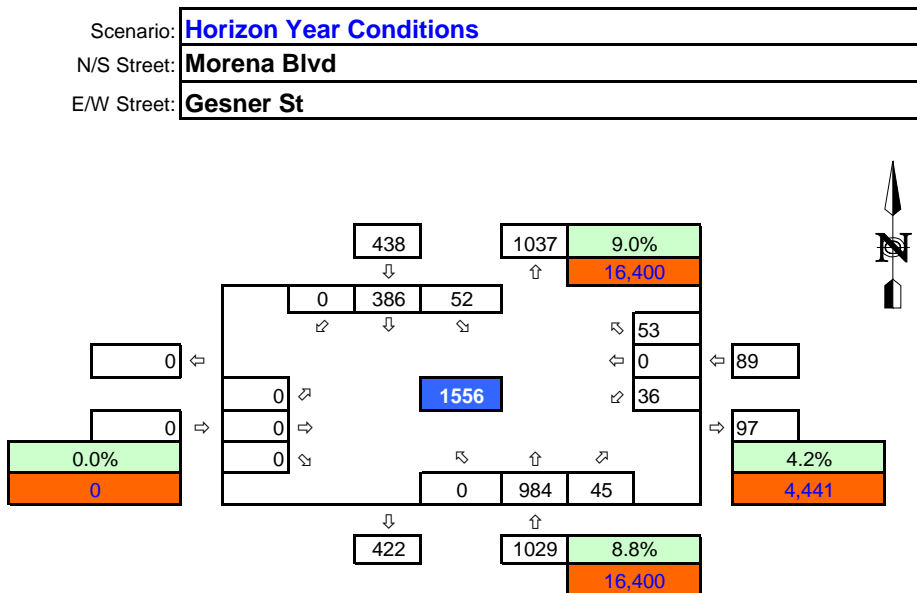
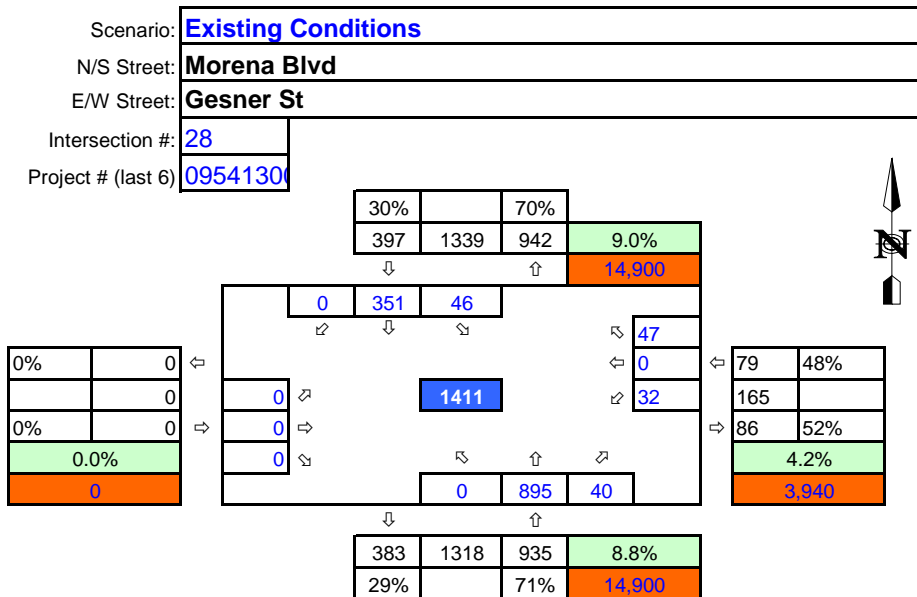
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 27 AM Peak Volumes



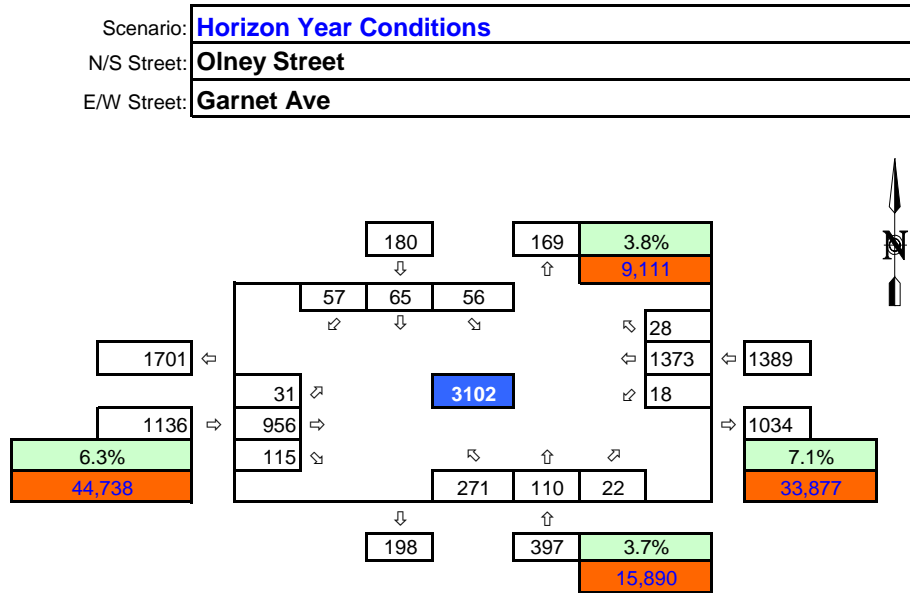
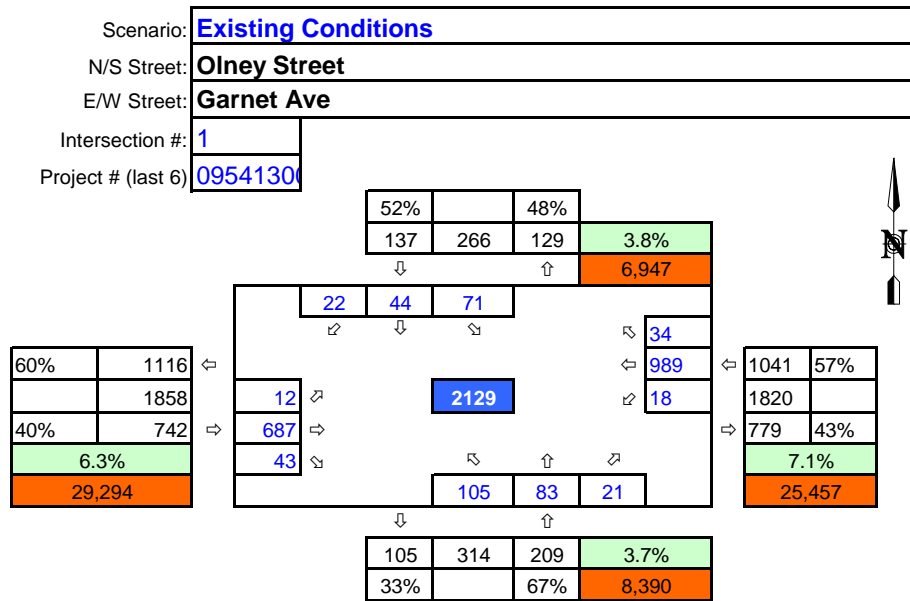
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 28 AM Peak Volumes



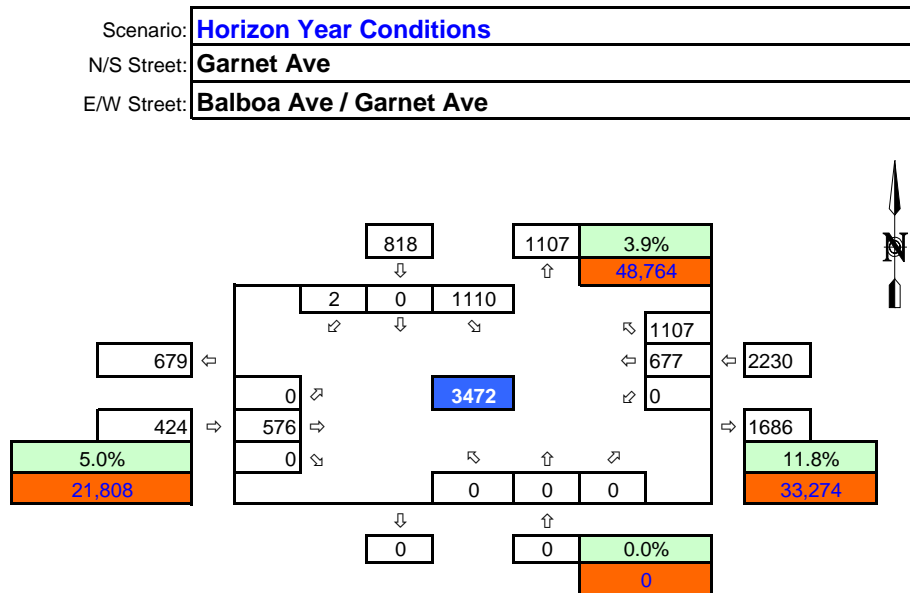
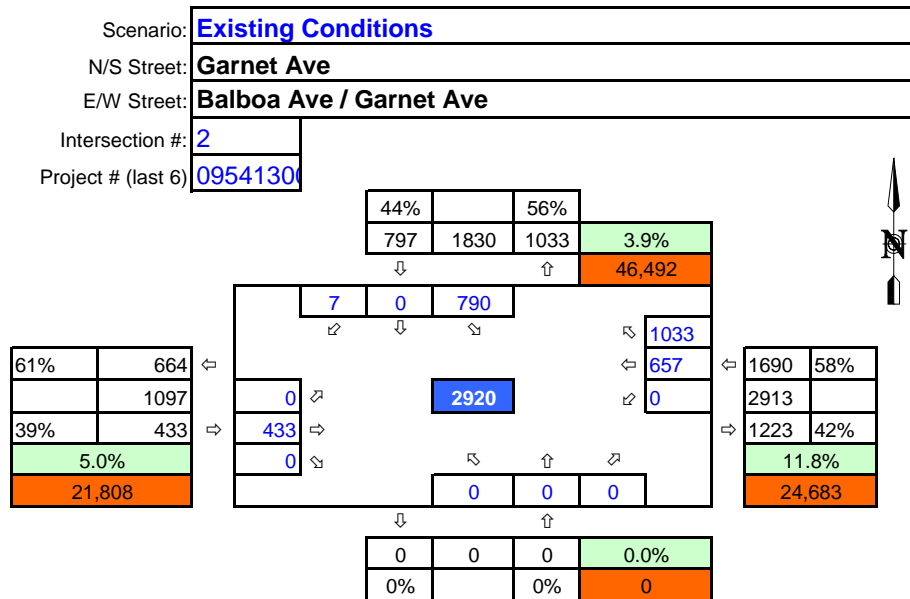
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 1 PM Peak Volumes



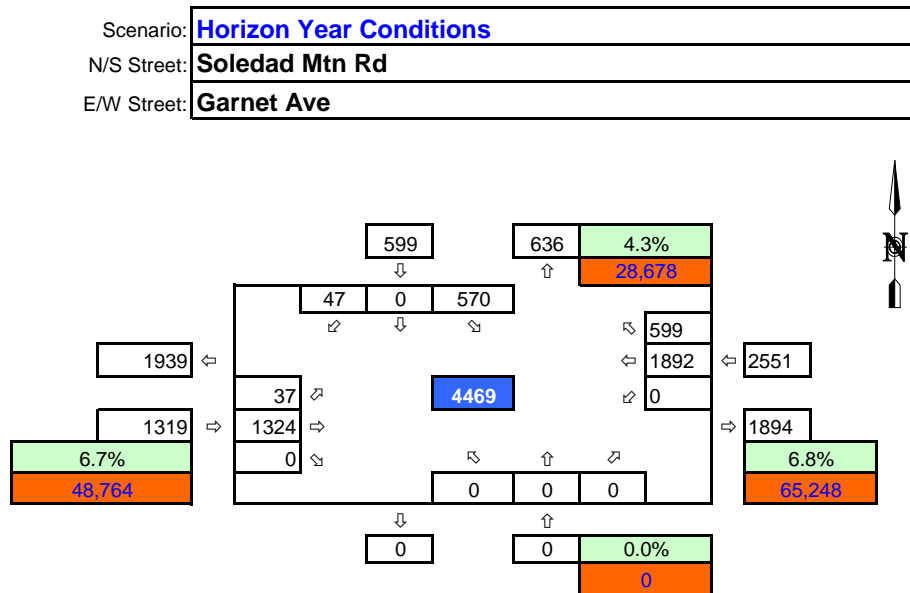
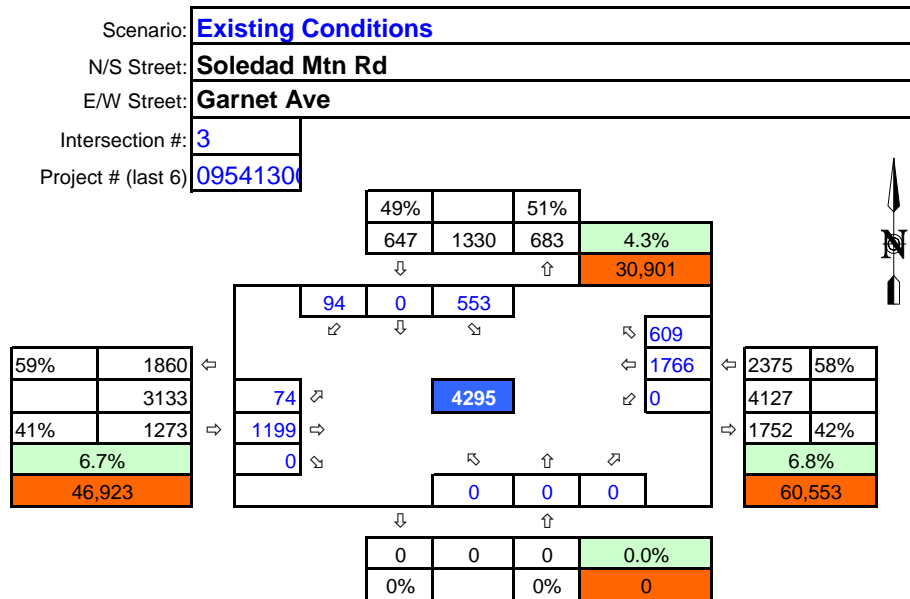
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 2 PM Peak Volumes



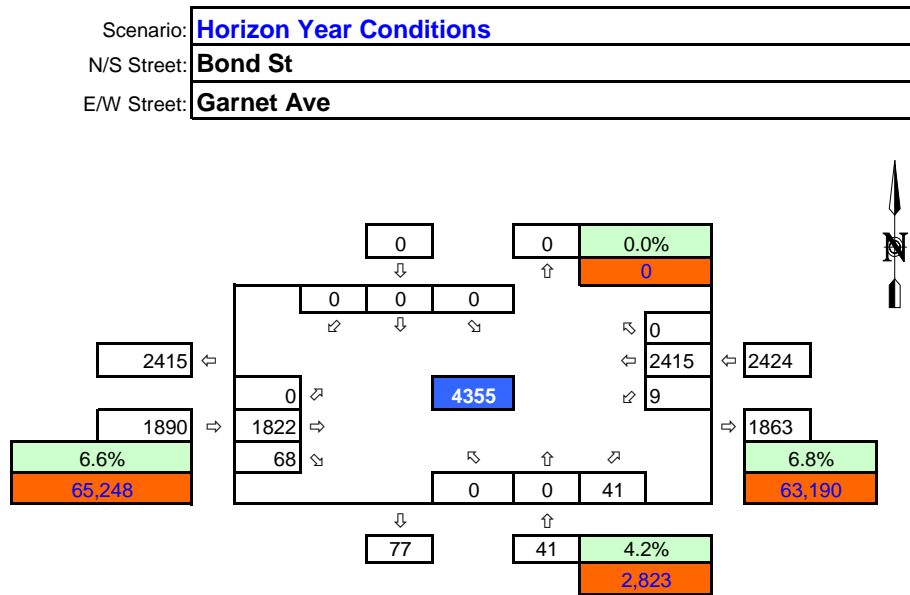
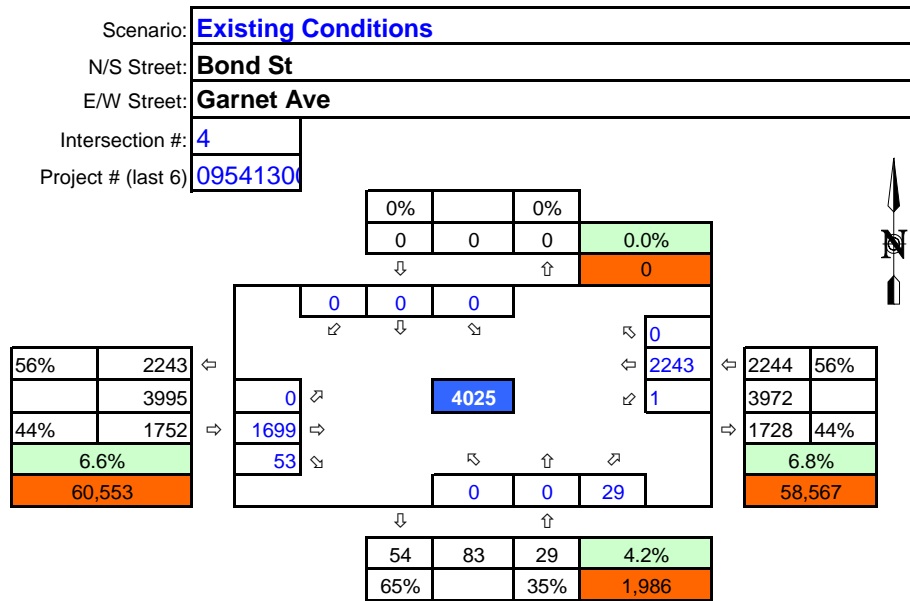
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 3 PM Peak Volumes



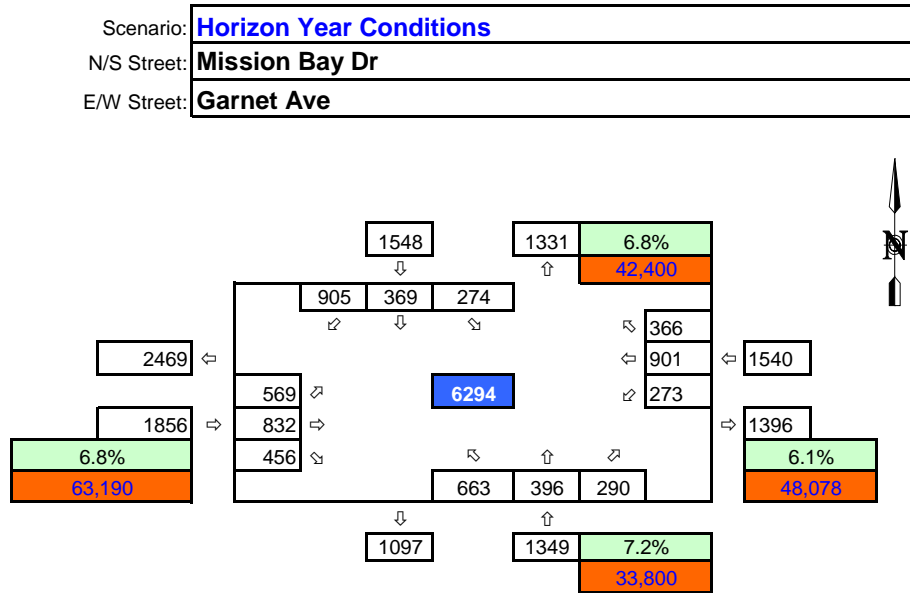
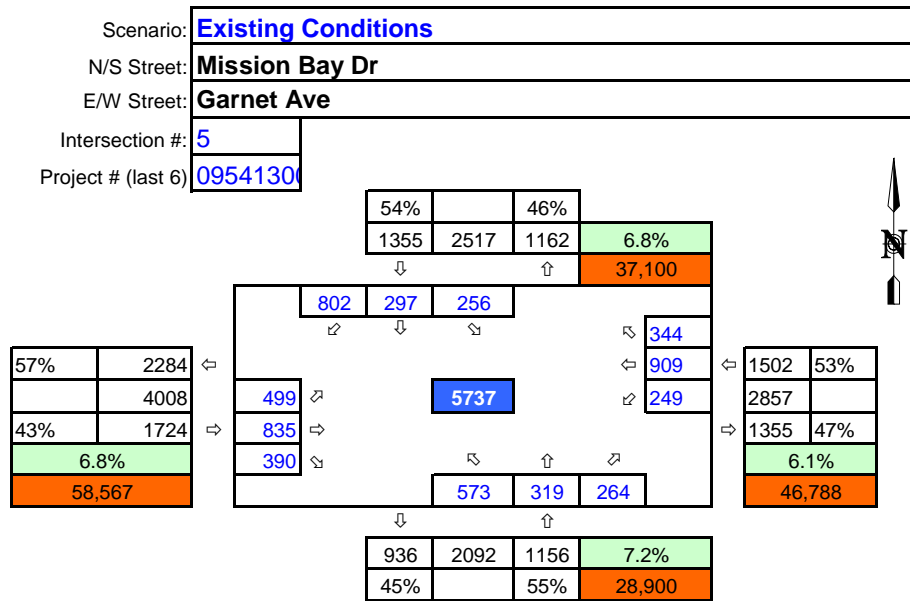
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 4 PM Peak Volumes



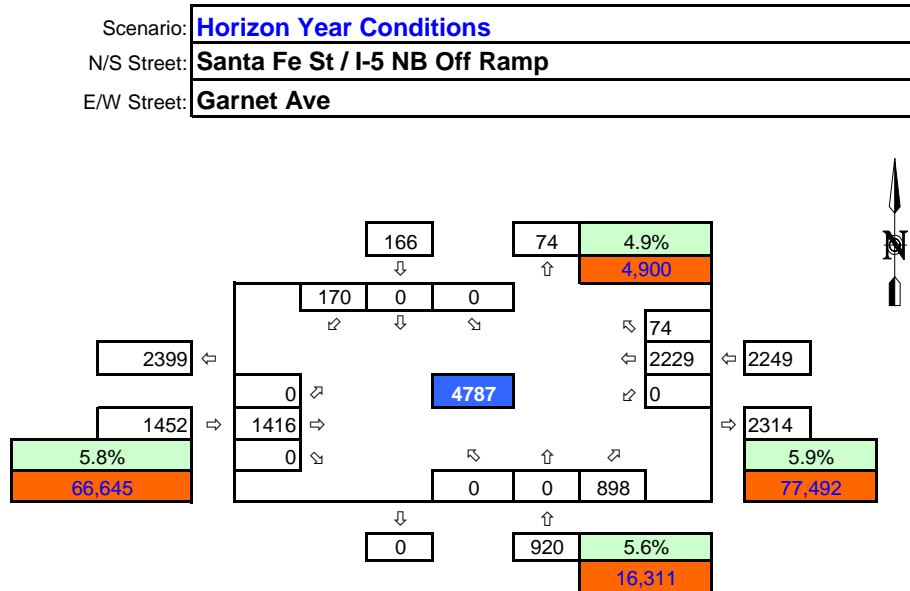
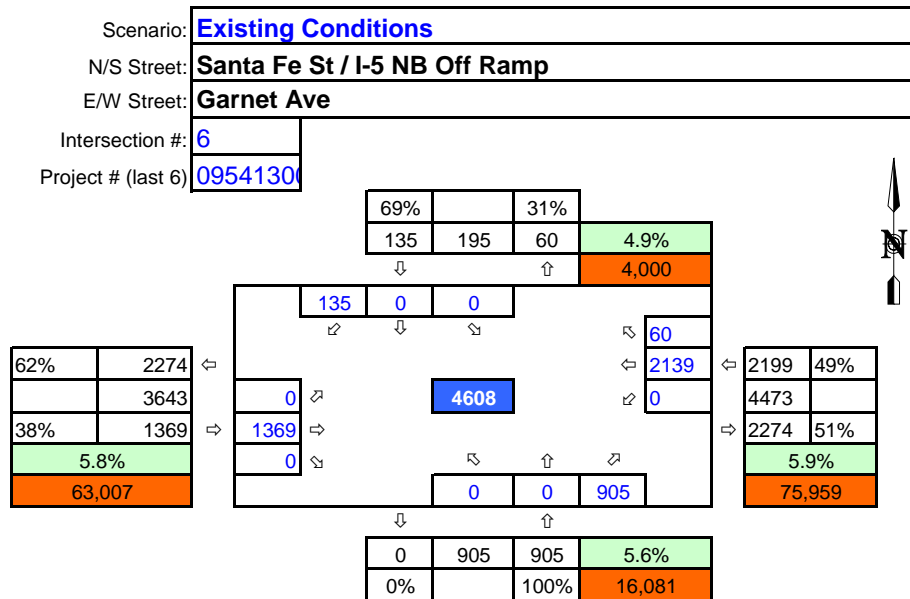
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 5 PM Peak Volumes



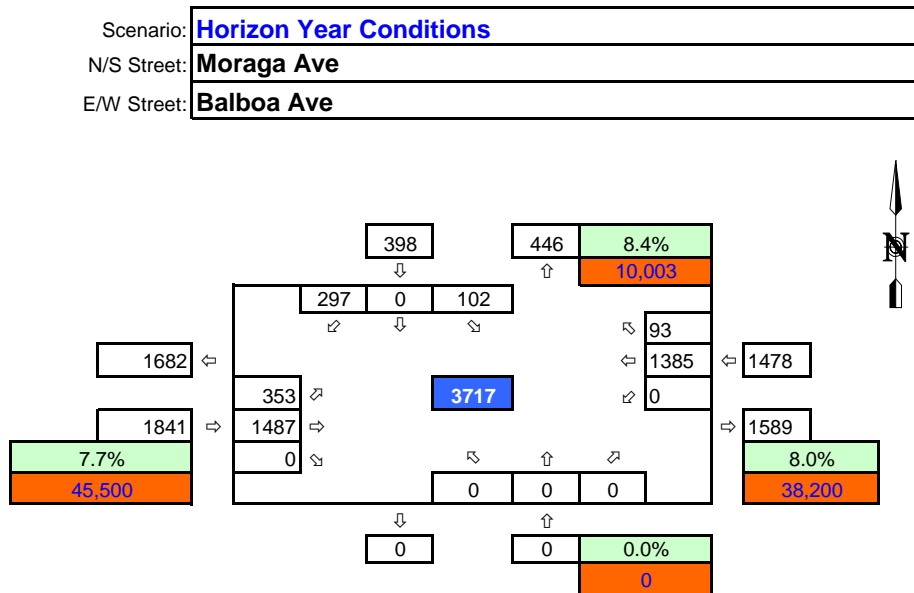
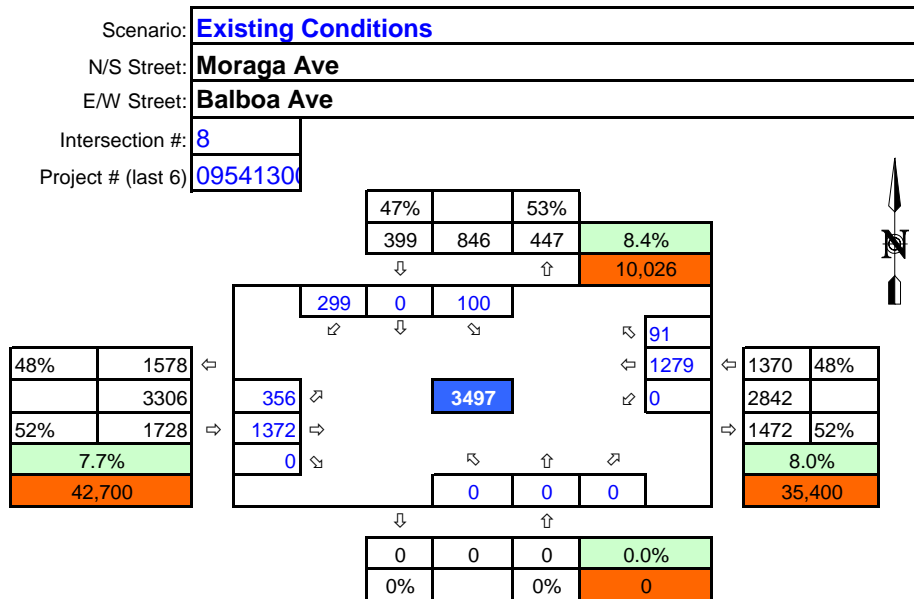
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 6 PM Peak Volumes



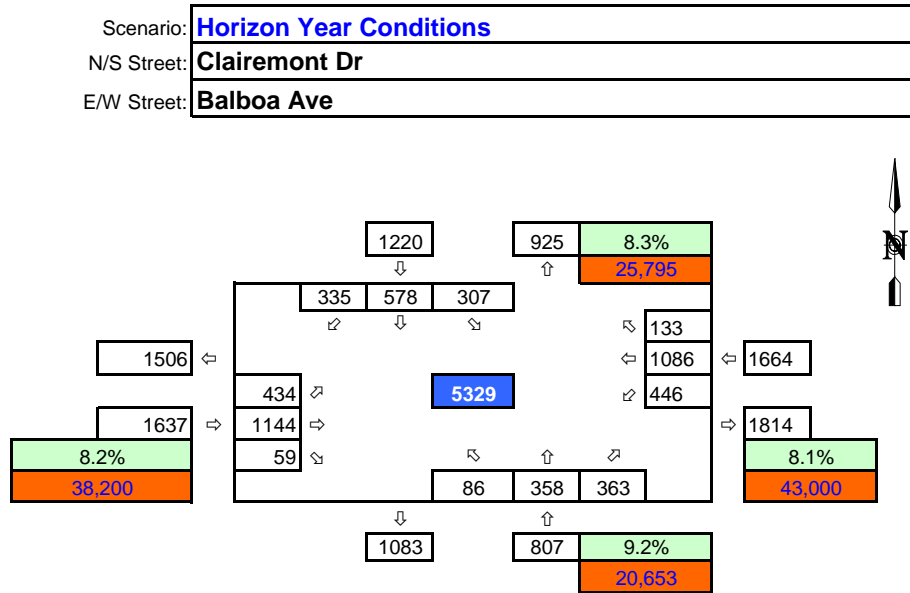
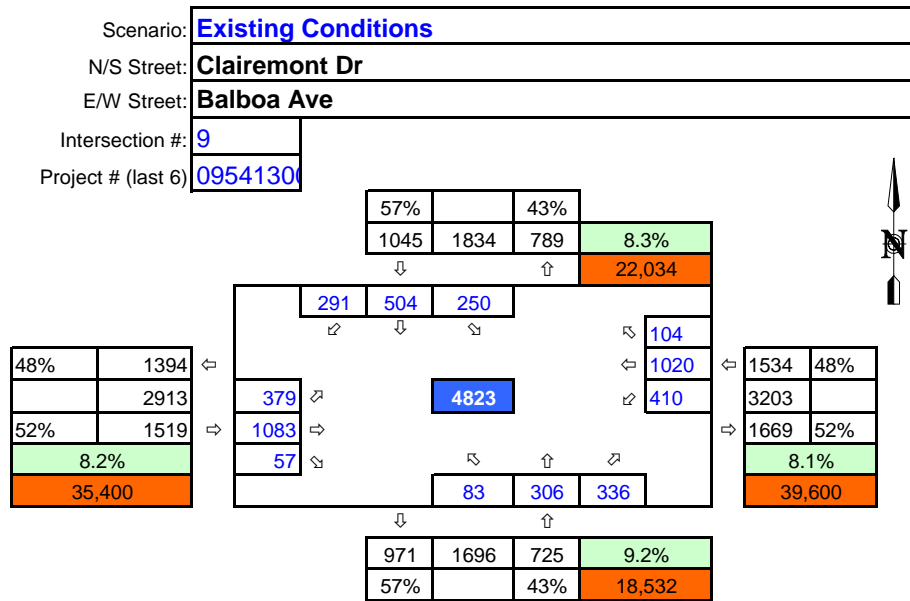
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 8 PM Peak Volumes



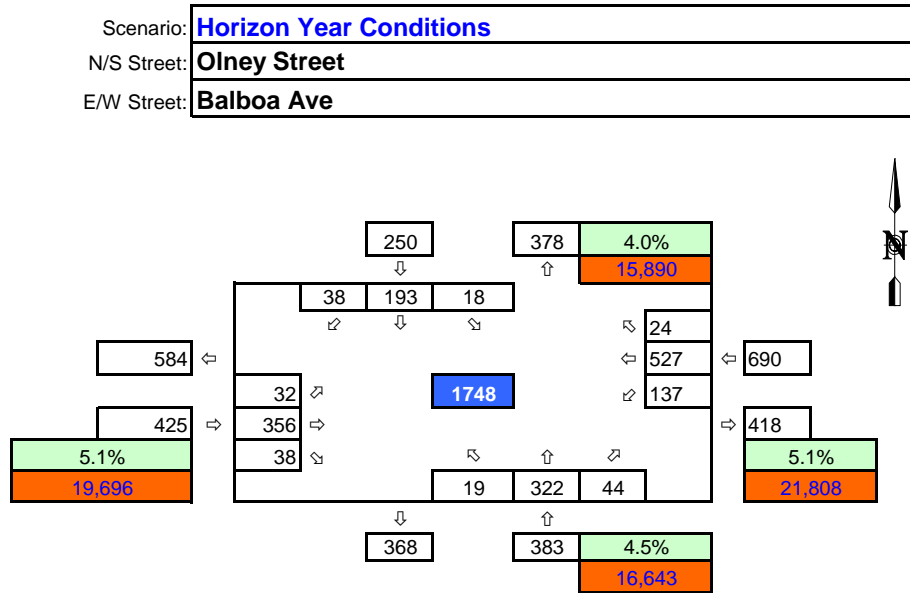
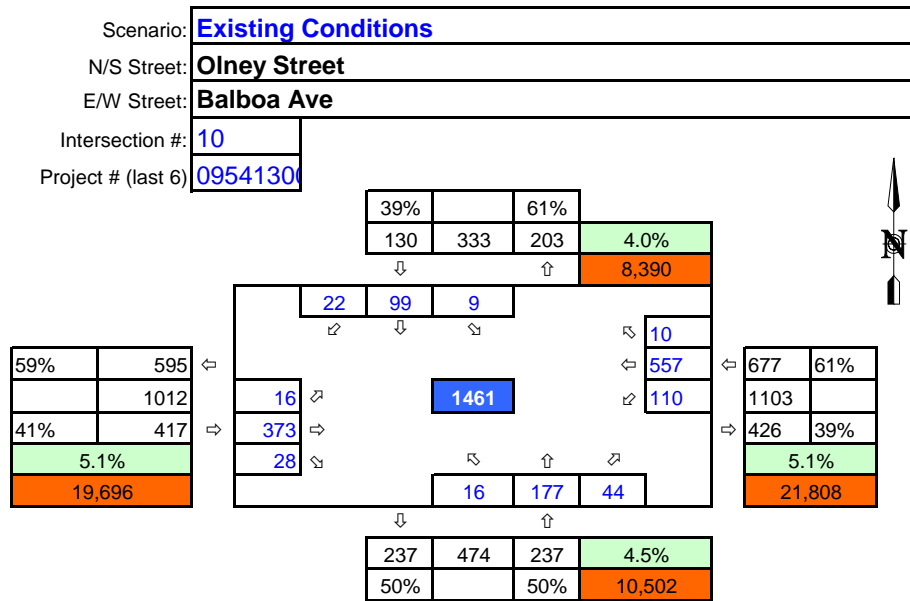
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 9 PM Peak Volumes



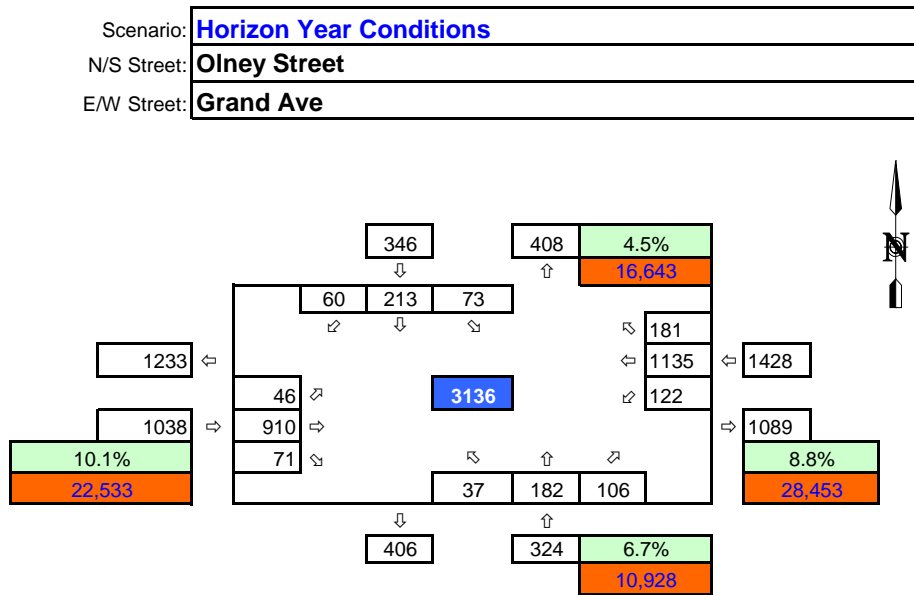
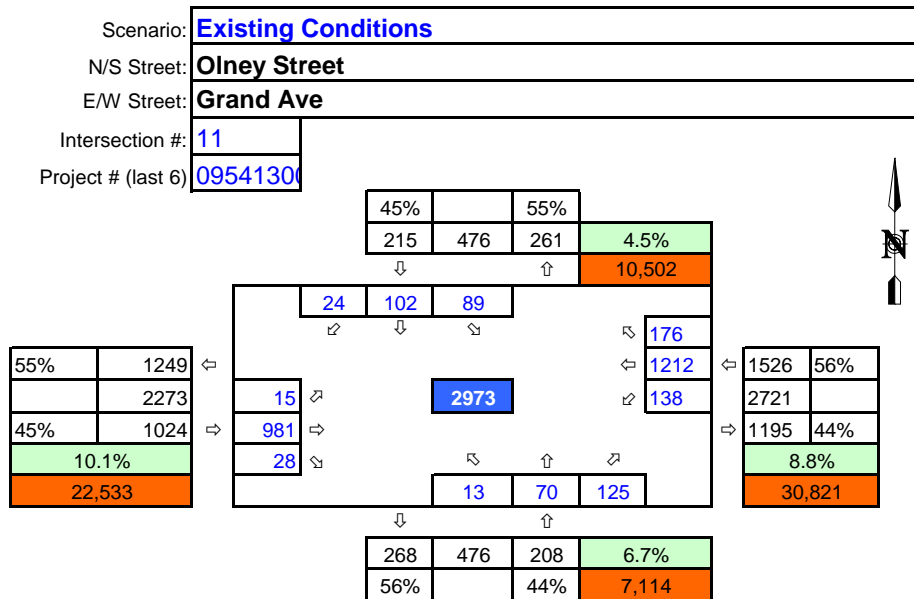
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 10 PM Peak Volumes



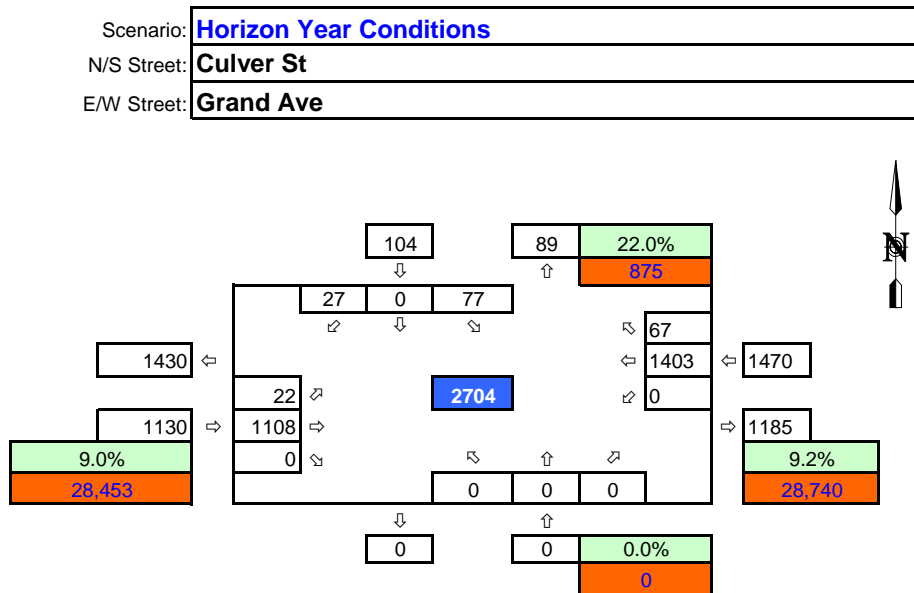
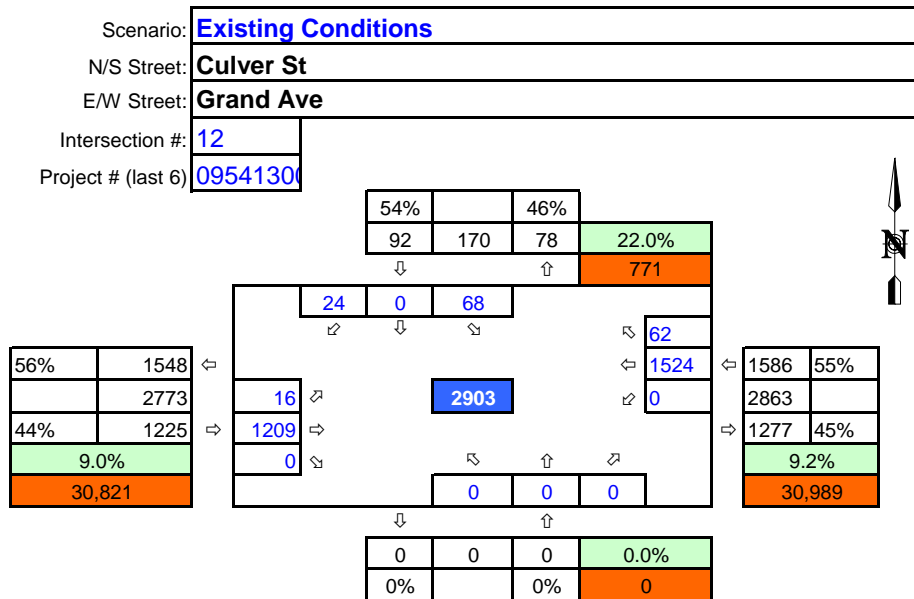
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 11 PM Peak Volumes



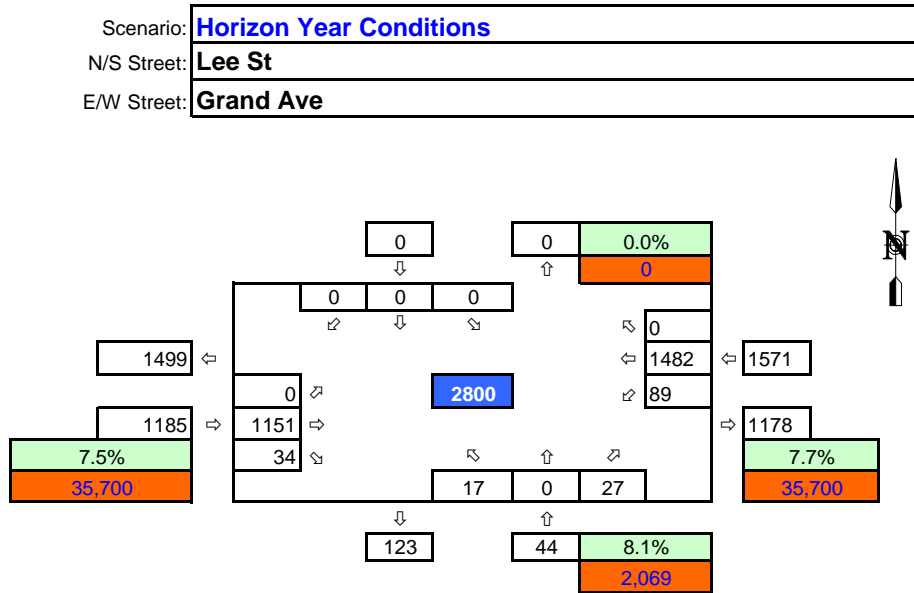
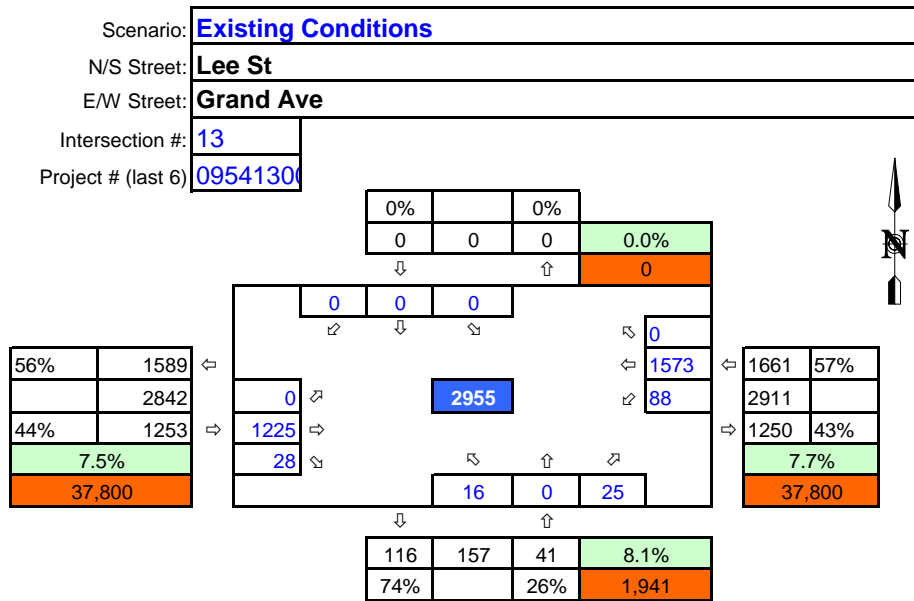
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 12 PM Peak Volumes



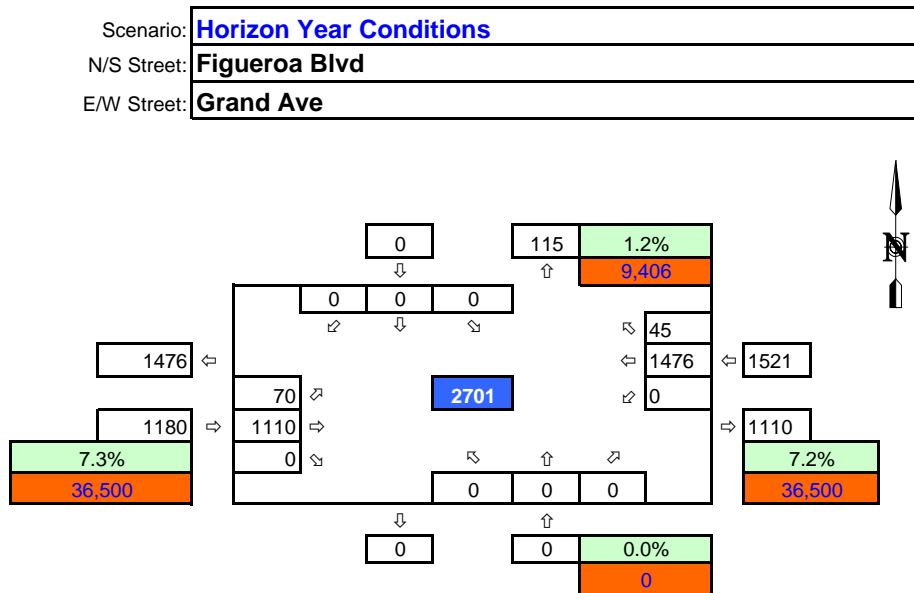
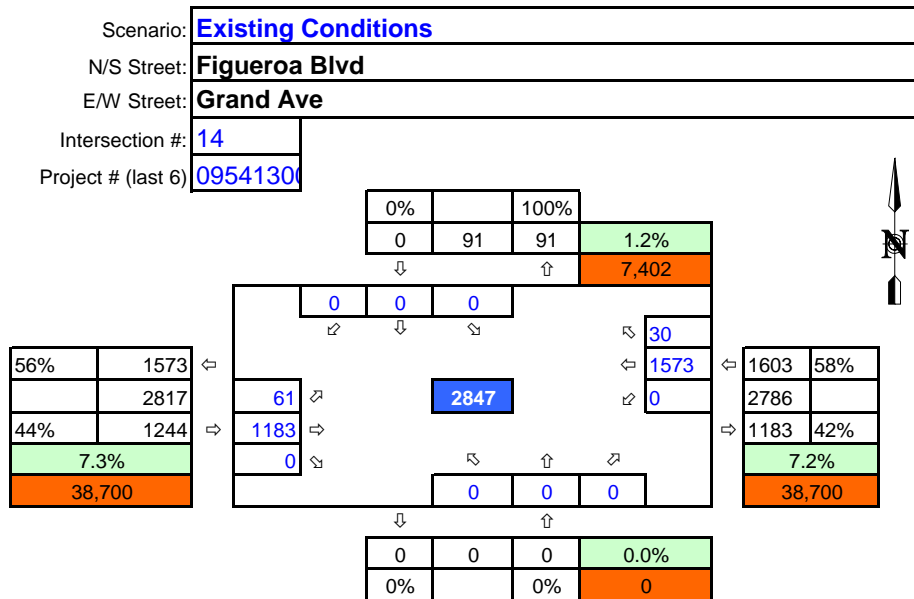
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 13 PM Peak Volumes



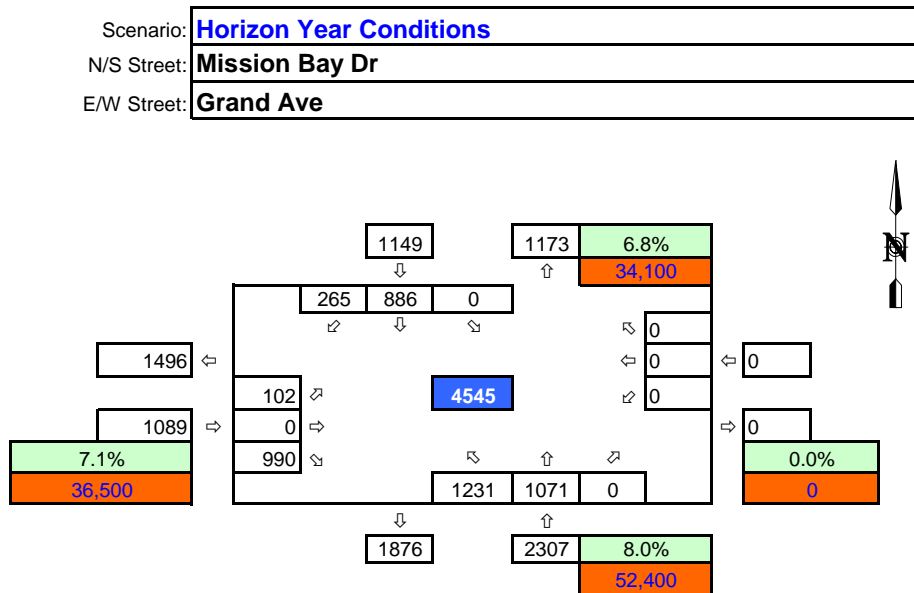
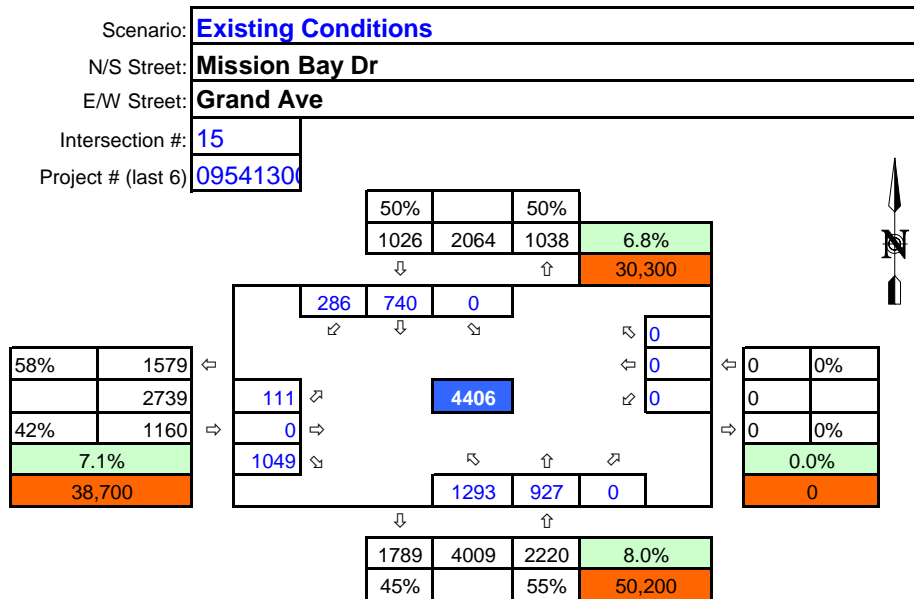
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 14 PM Peak Volumes



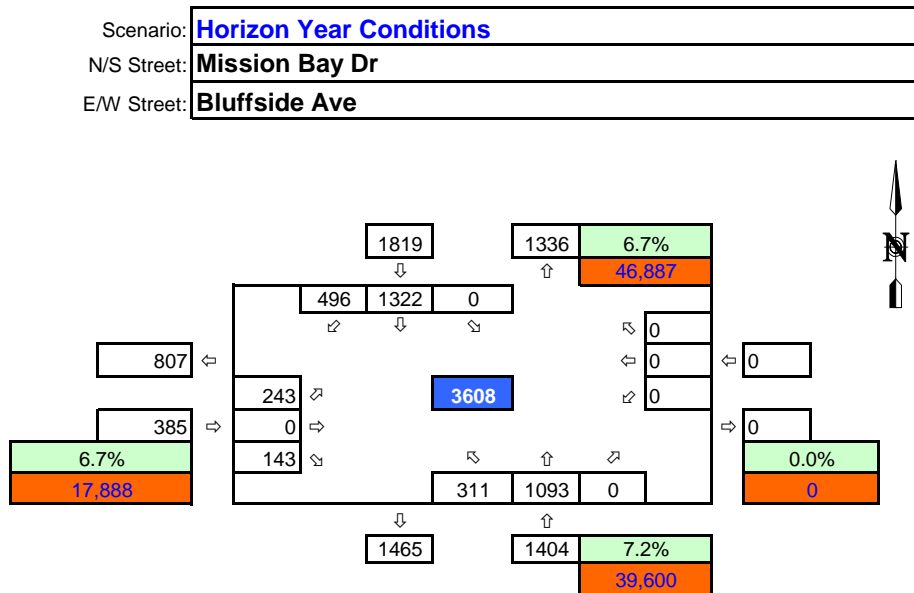
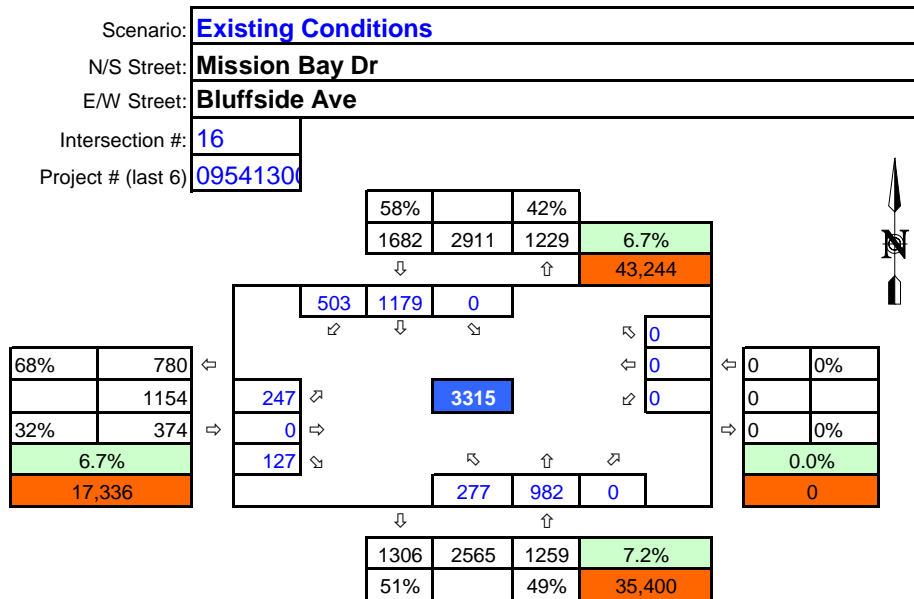
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 15 PM Peak Volumes



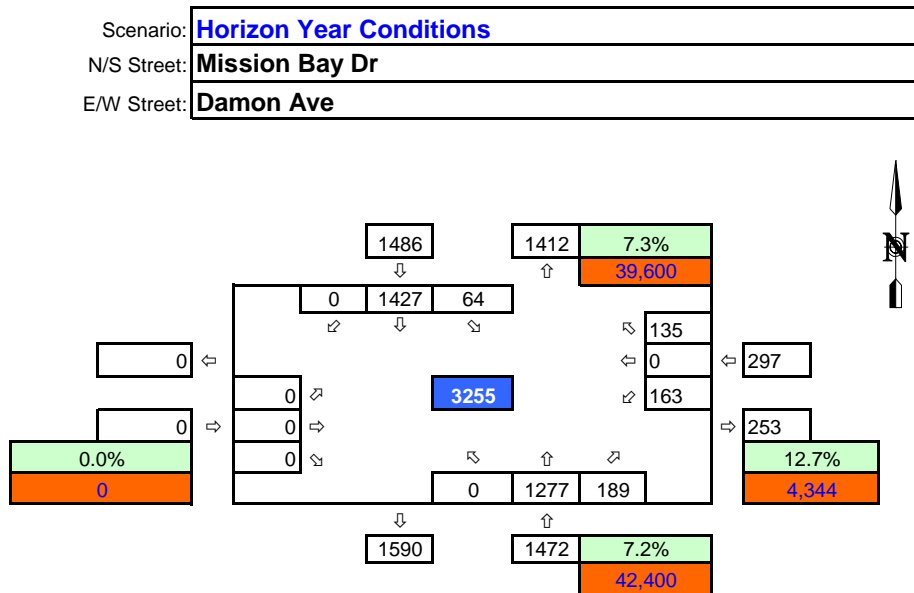
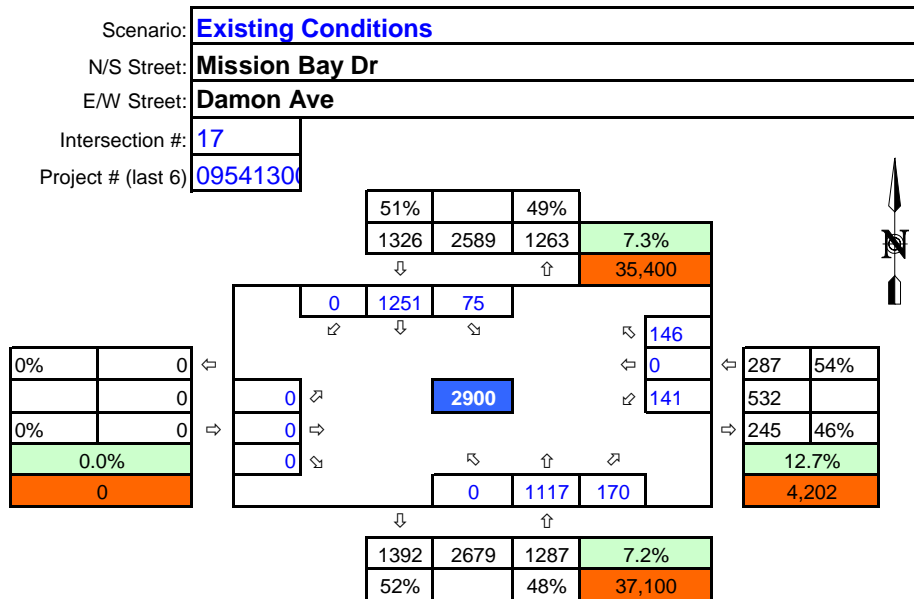
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 16 PM Peak Volumes



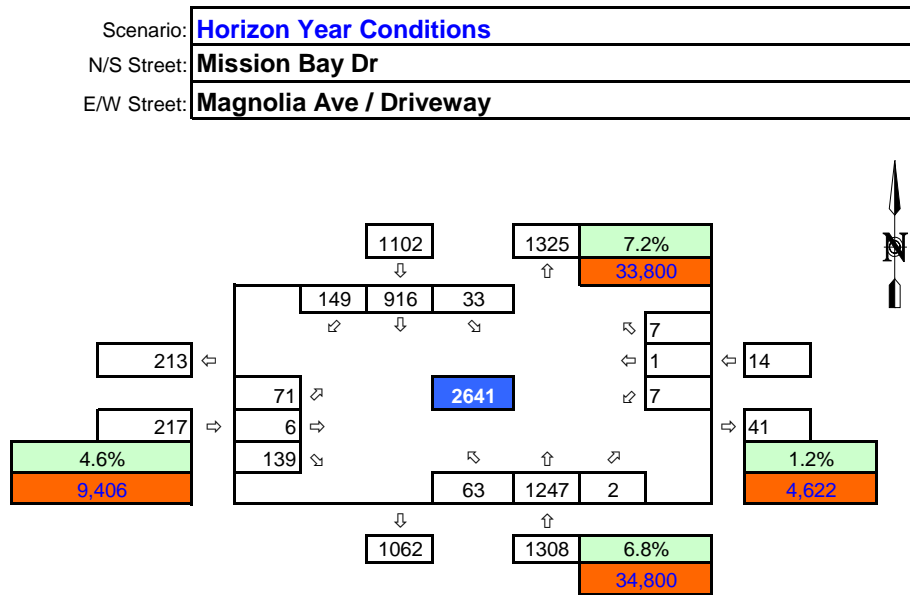
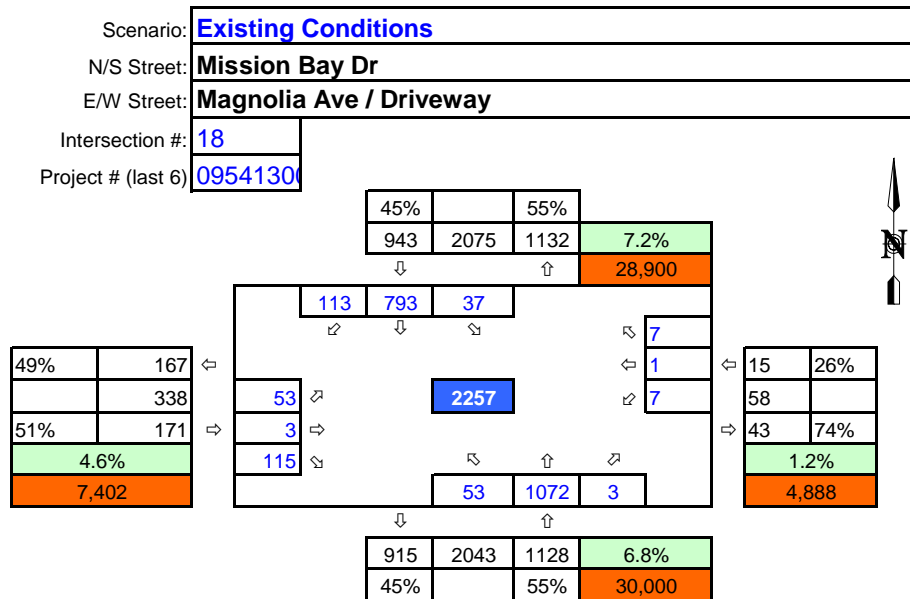
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 17 PM Peak Volumes



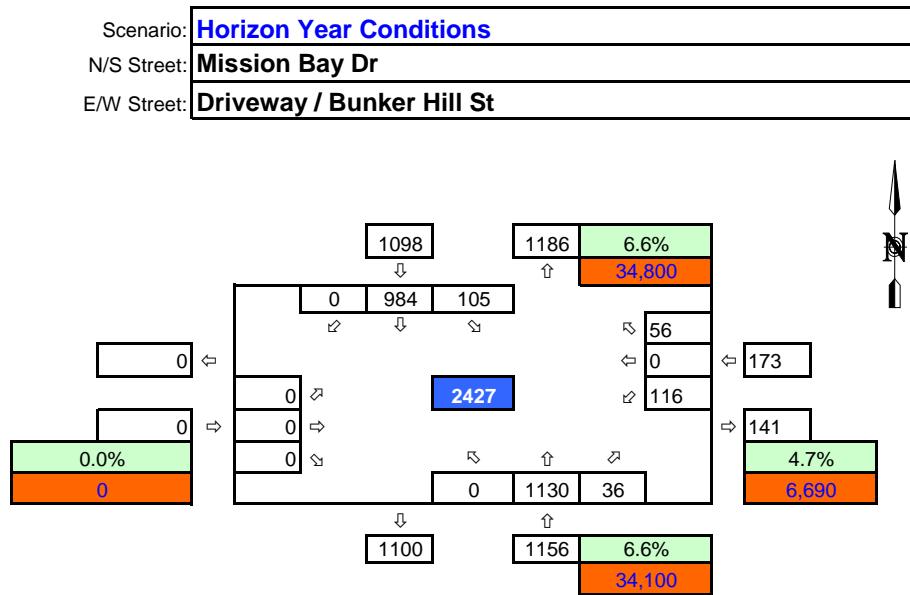
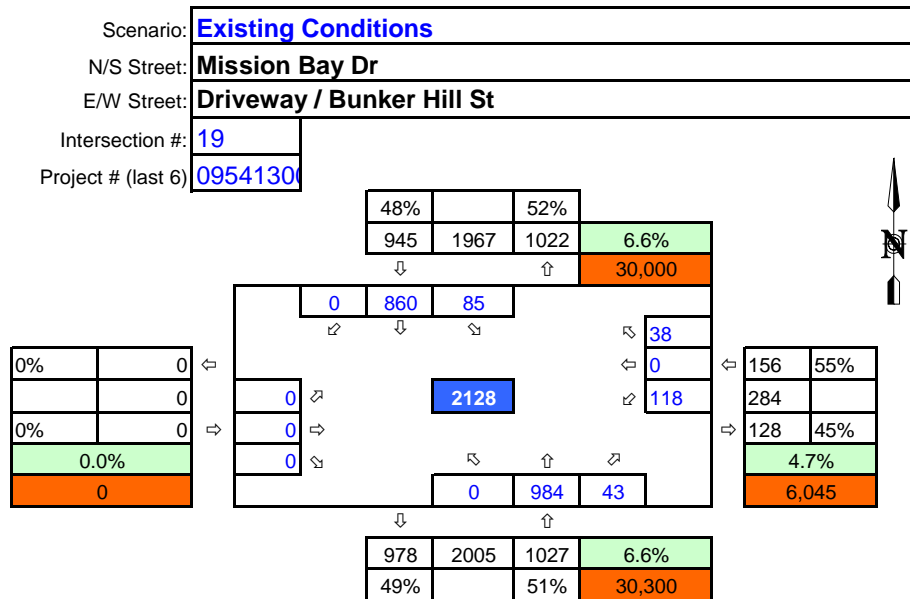
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 18 PM Peak Volumes



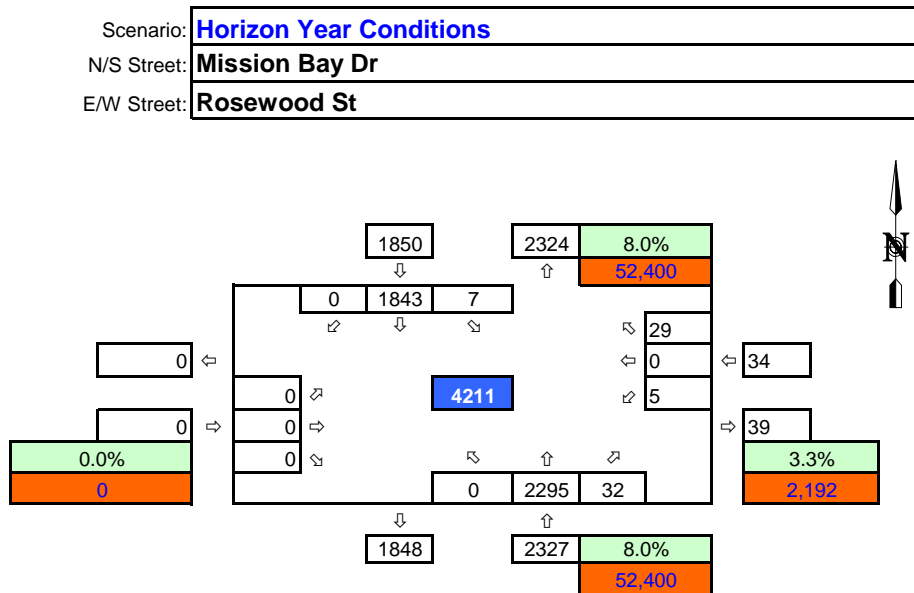
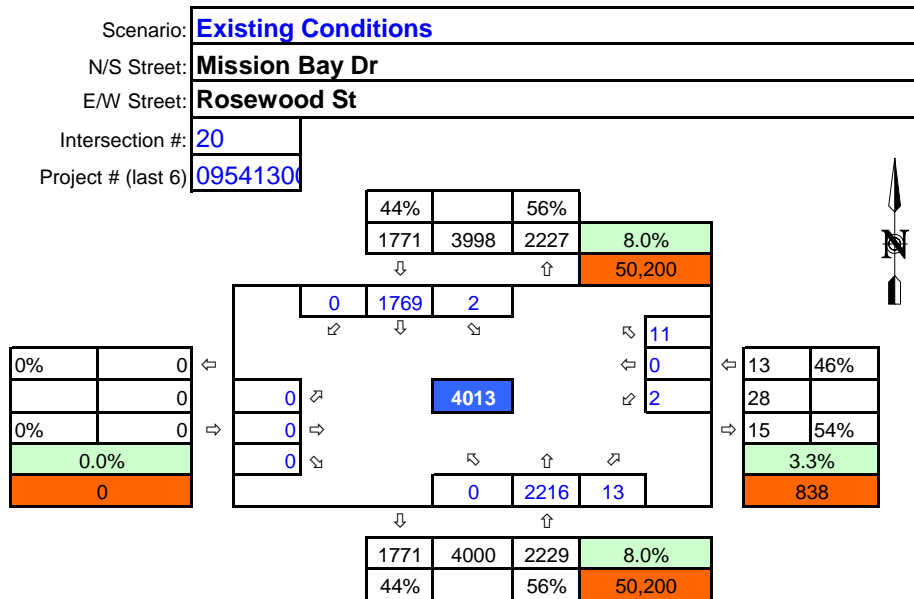
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 19 PM Peak Volumes



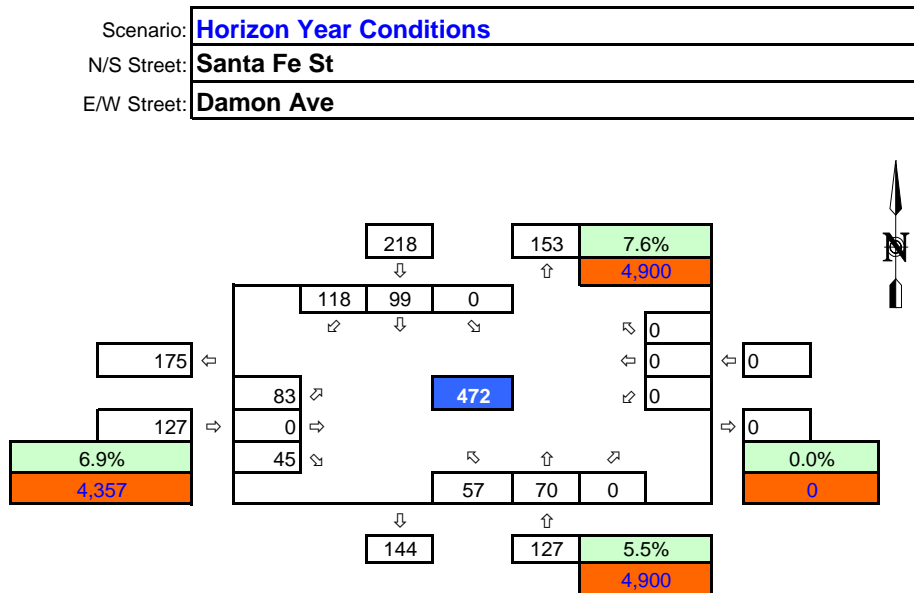
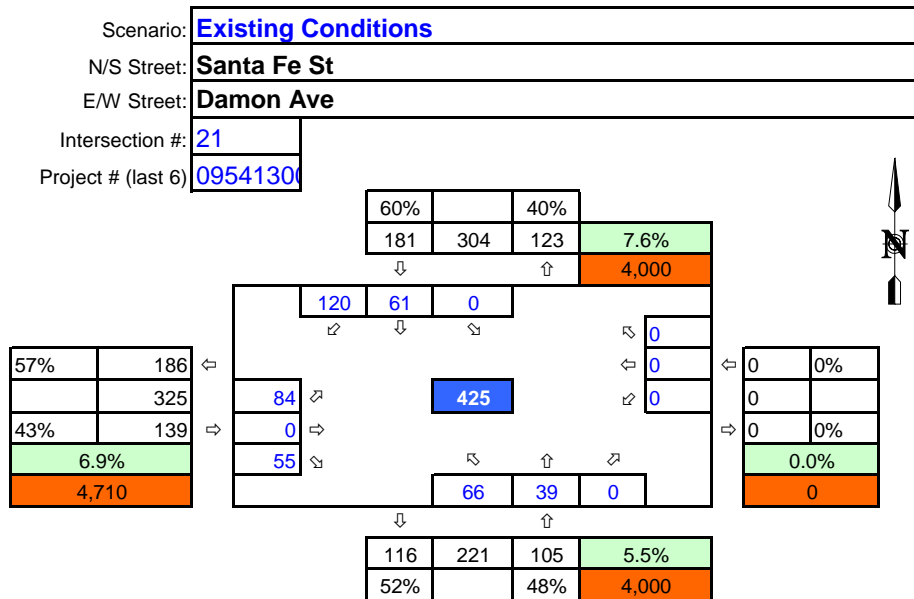
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 20 PM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 21 PM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Scenario: **Horizon Year Conditions**

N/S Street: **Morena Blvd**

E/W Street: **Jutland Dr**

The diagram illustrates the traffic flow at the intersection of Morena Blvd (N/S Street) and Jutland Dr (E/W Street) under Horizon Year Conditions. The intersection is controlled by a traffic signal with four phases: Left Turn (L), Through/Right Turn (T/R), Right Turn (R), and Left Turn (L) for the cross street.

Legend:

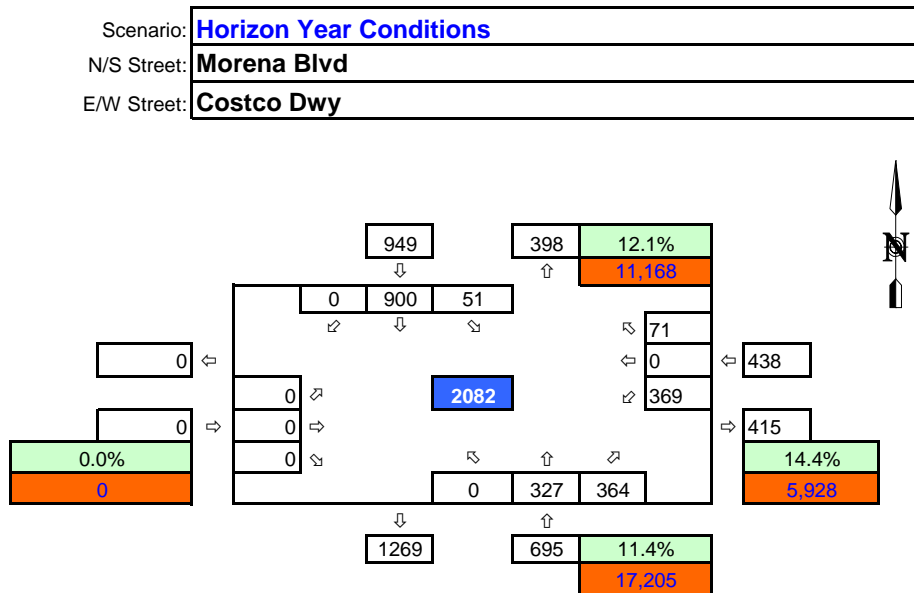
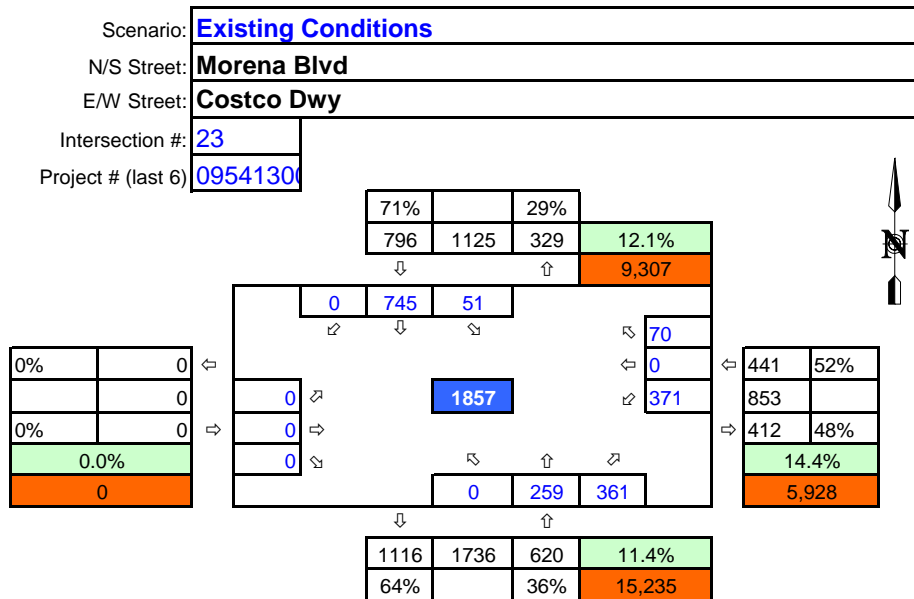
- Left Turn (L)
- Through/Right Turn (T/R)
- Right Turn (R)
- Left Turn (L)

Intersection Data:

Direction	Phase	Volume	Percentage
Northbound (Morena Blvd)	Left Turn	323	
	Through/Right Turn	0	
	Through/Right Turn	303	
	Through/Right Turn	24	
Southbound (Morena Blvd)	Left Turn	188	4.8%
	Through/Right Turn	10,729	
	Through/Right Turn	17	
	Through/Right Turn	0	
Eastbound (Jutland Dr)	Left Turn	622	
	Through/Right Turn	613	
	Through/Right Turn	299	
	Through/Right Turn	99.6%	
Westbound (Jutland Dr)	Left Turn	916	
	Through/Right Turn	458	12.3%
	Through/Right Turn	11,168	
	Through/Right Turn	0	

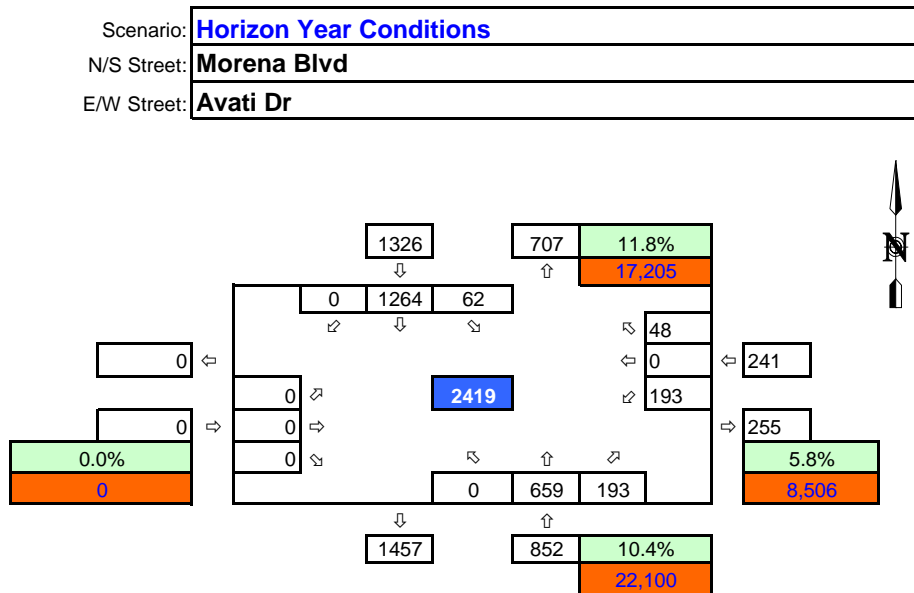
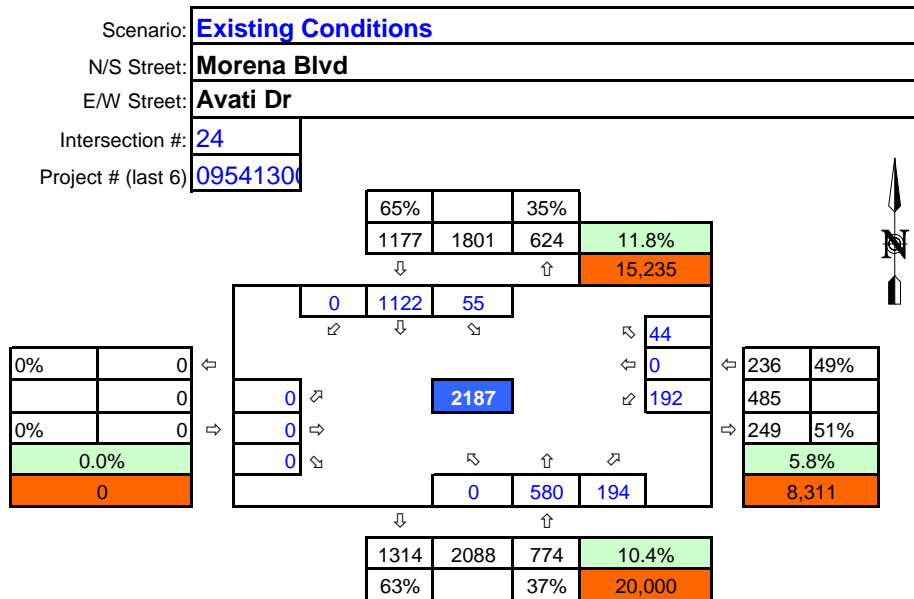
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 23 PM Peak Volumes



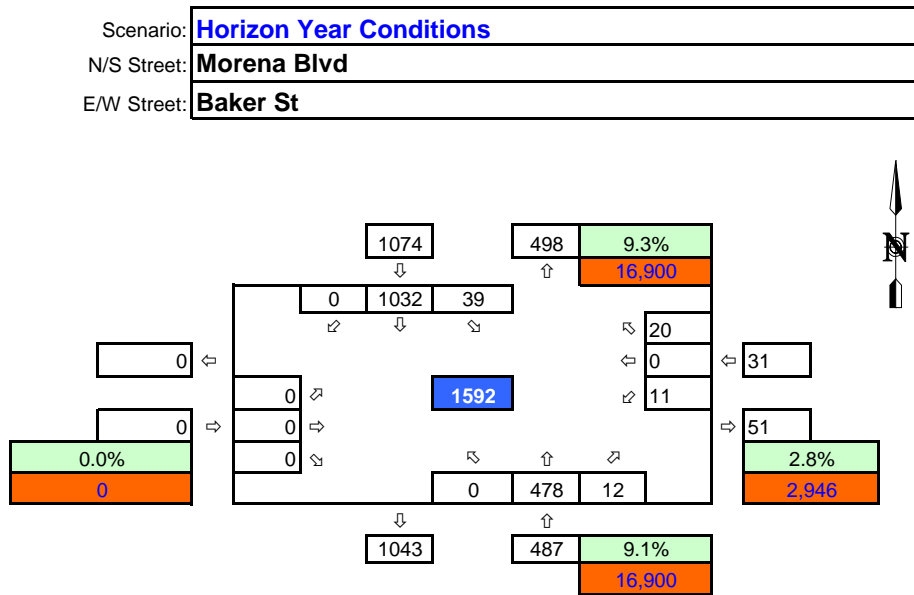
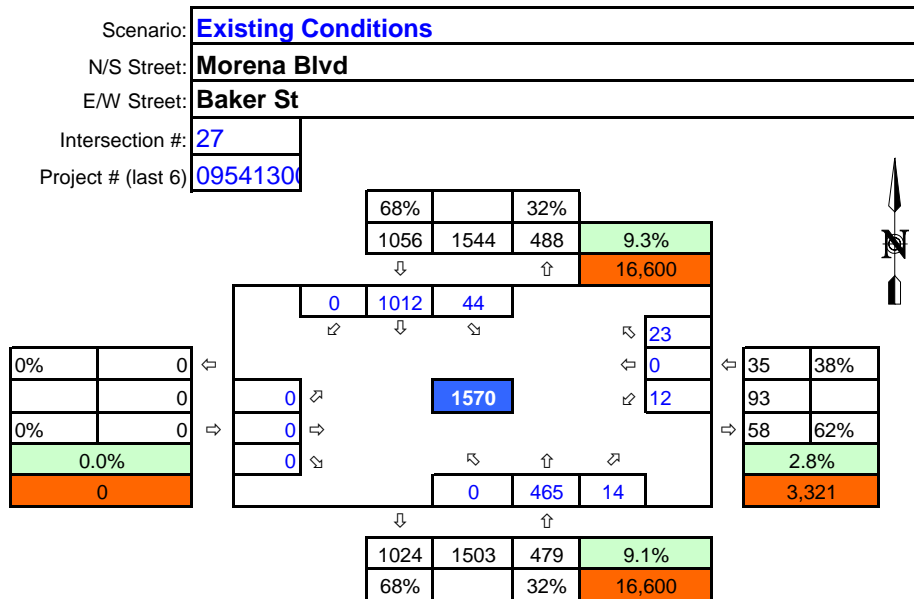
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 24 PM Peak Volumes



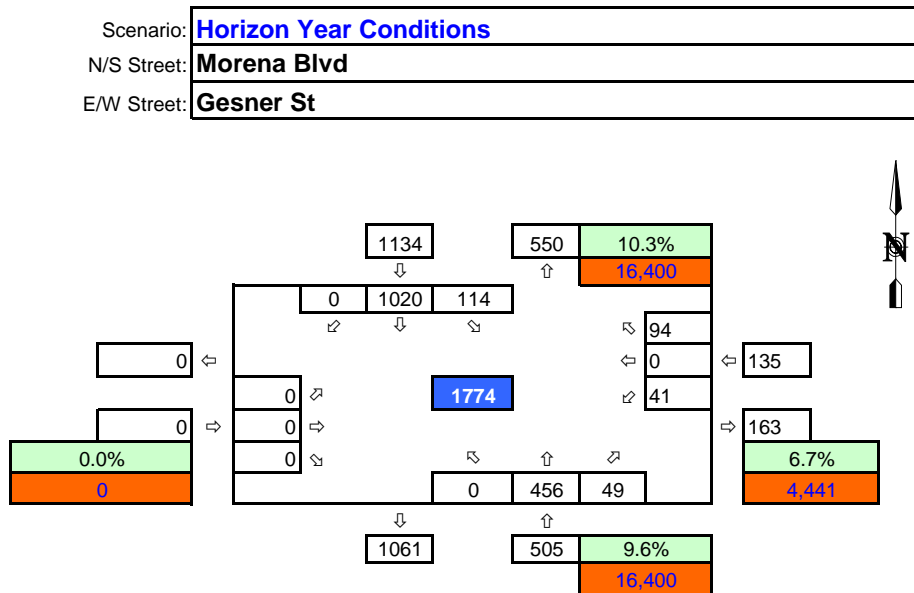
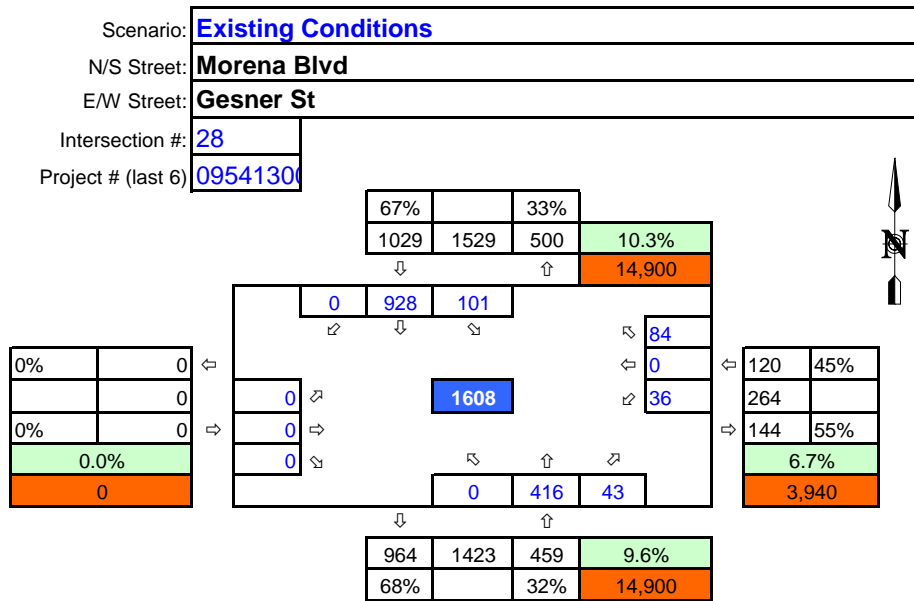
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 27 PM Peak Volumes



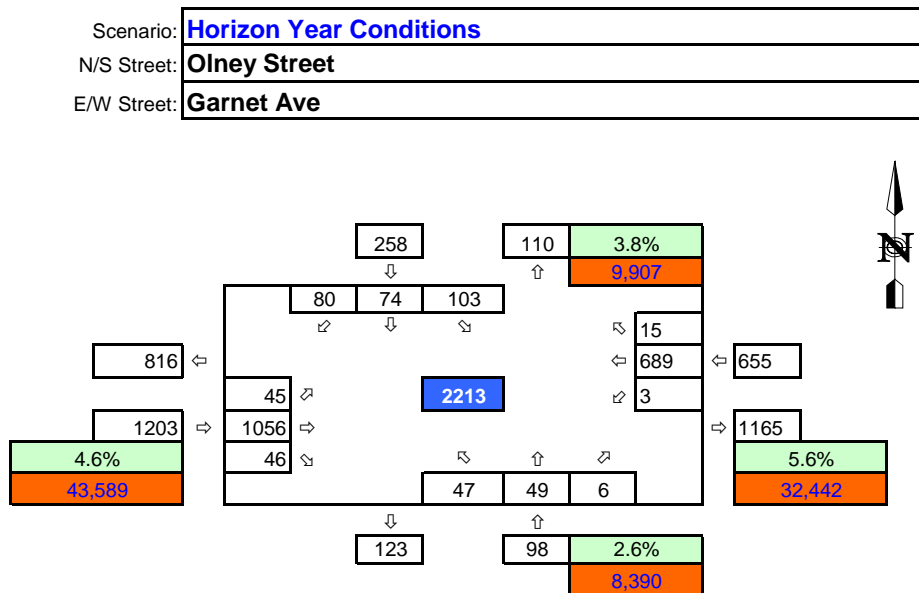
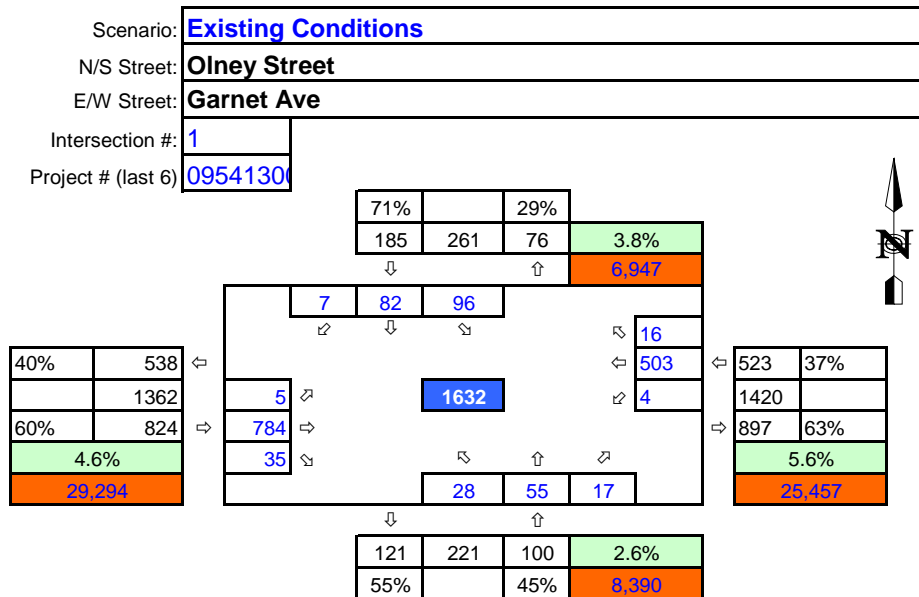
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 28 PM Peak Volumes



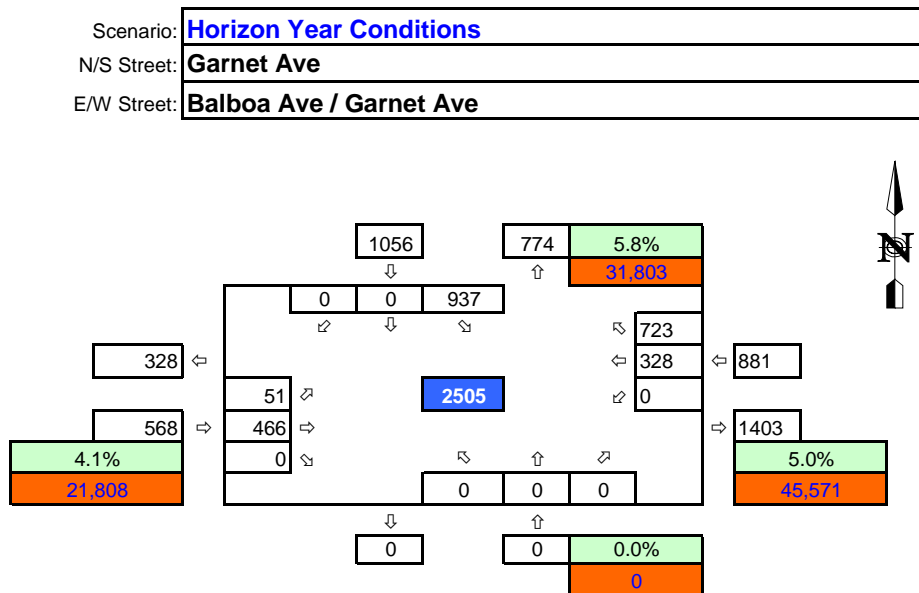
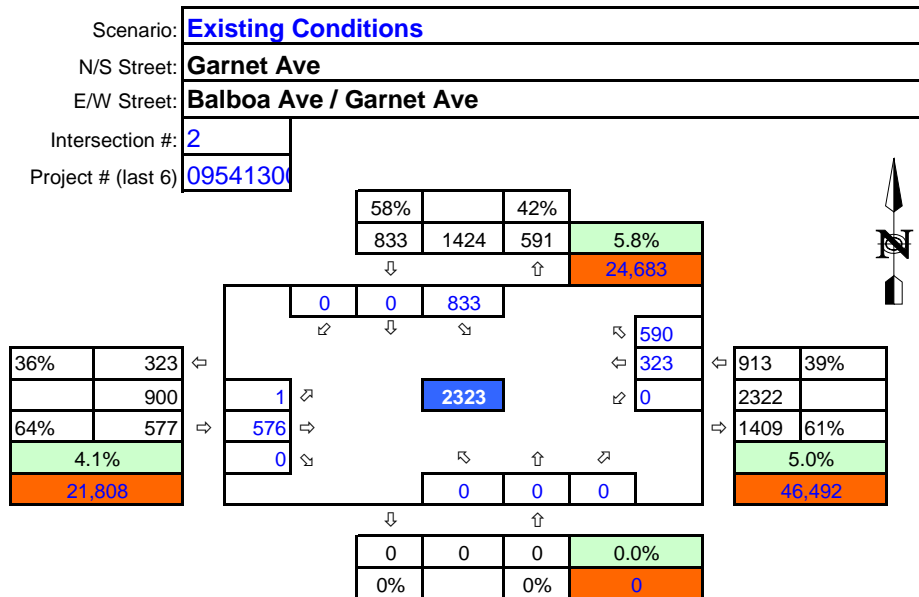
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 1 AM Peak Volumes



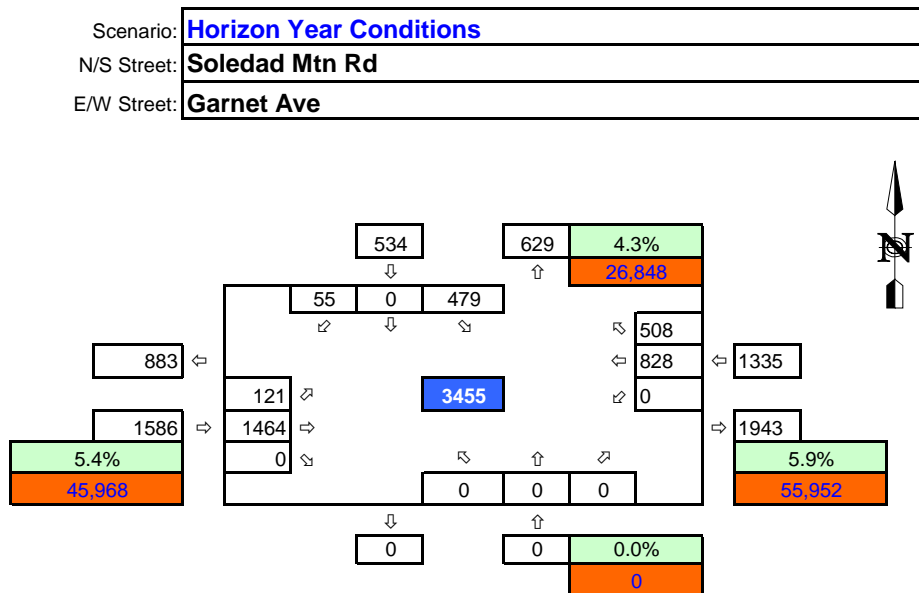
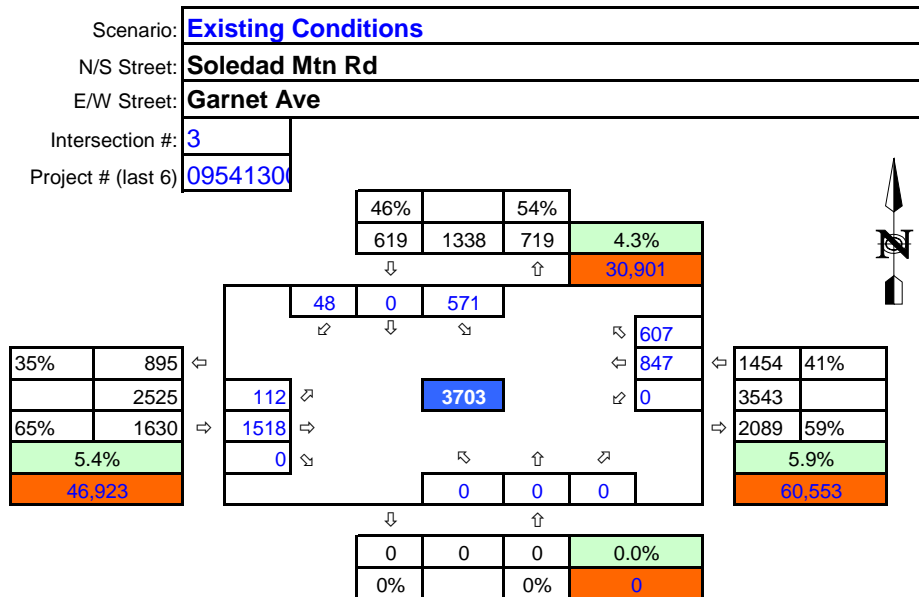
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 2 AM Peak Volumes



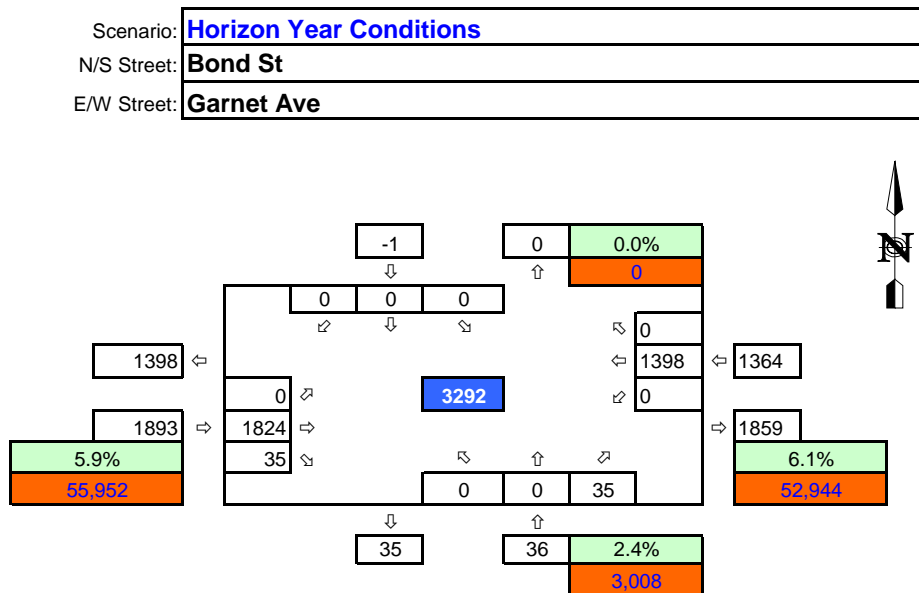
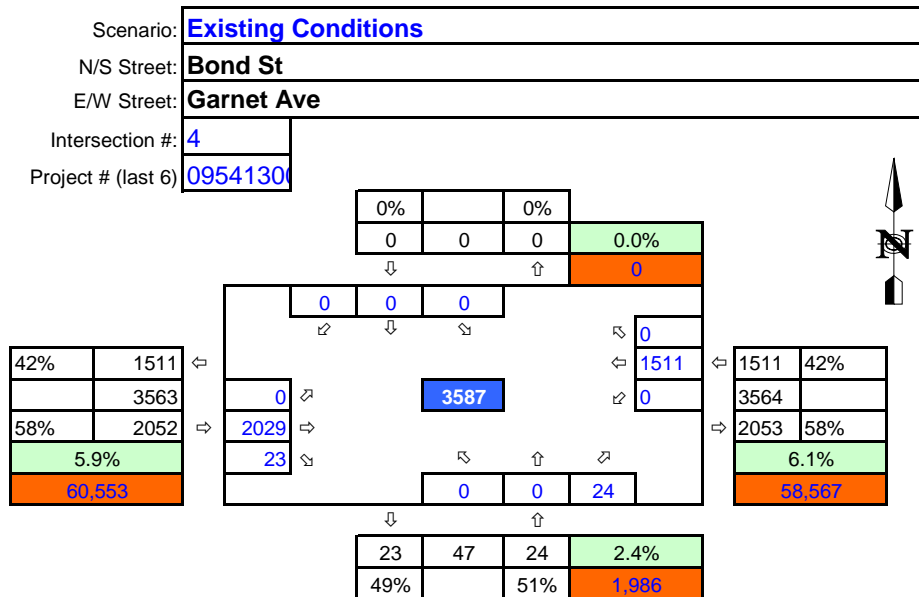
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 3 AM Peak Volumes



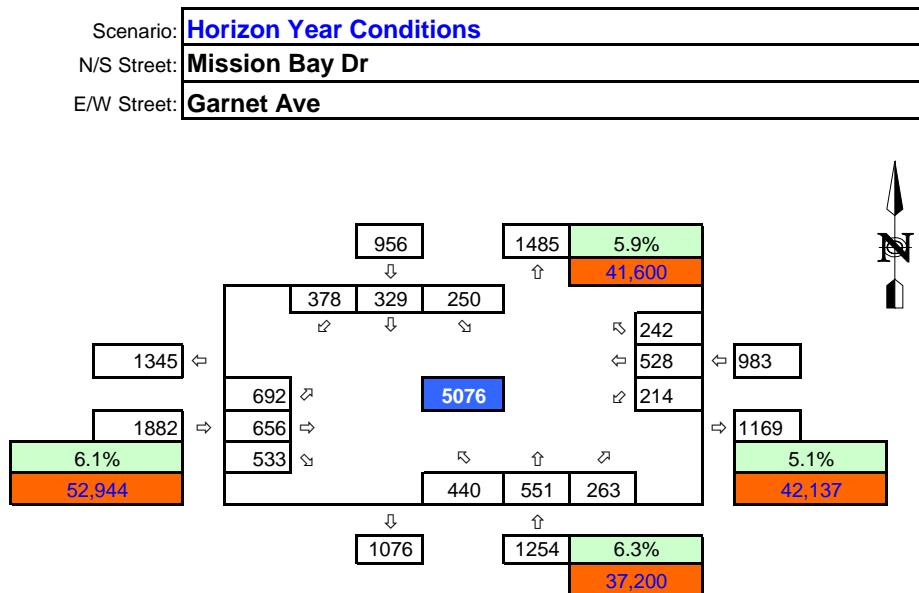
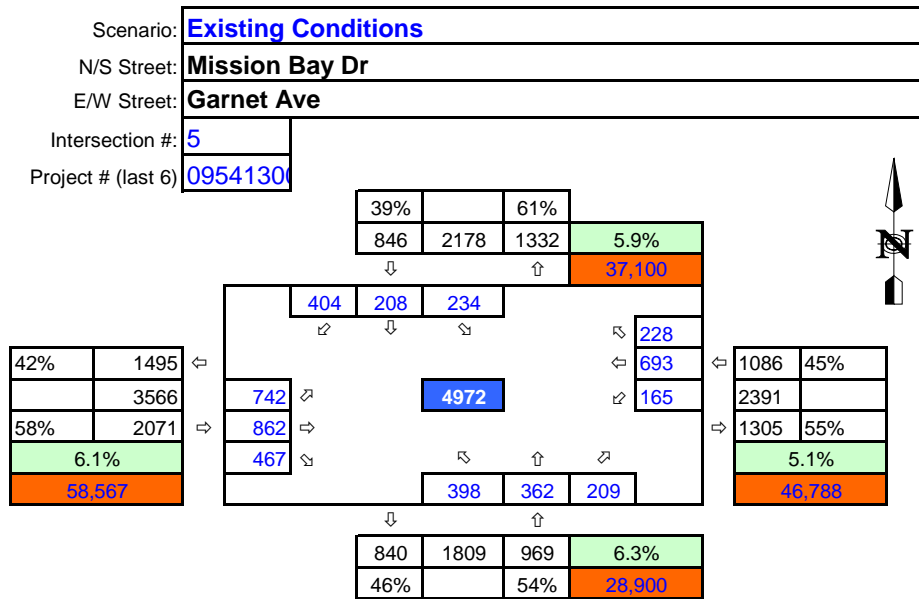
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 4 AM Peak Volumes



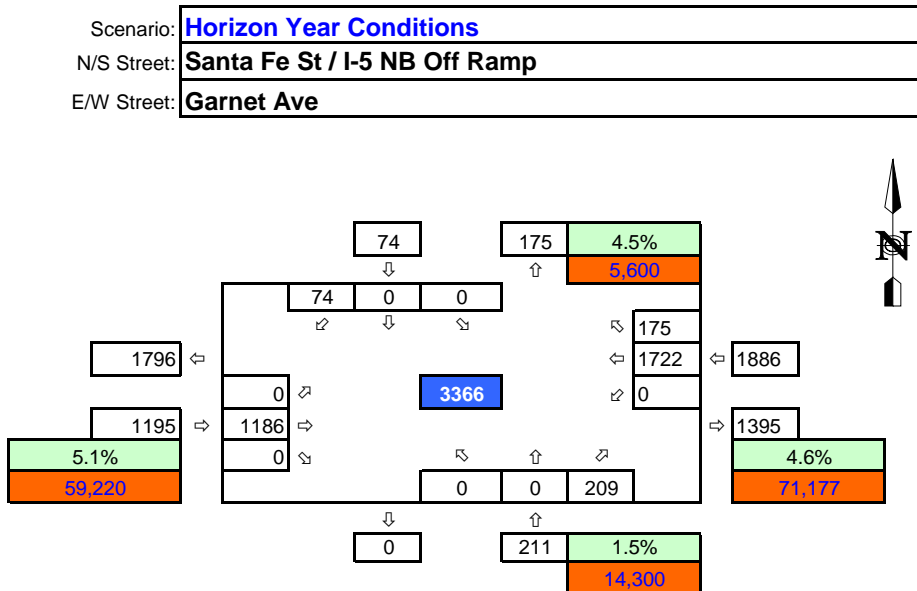
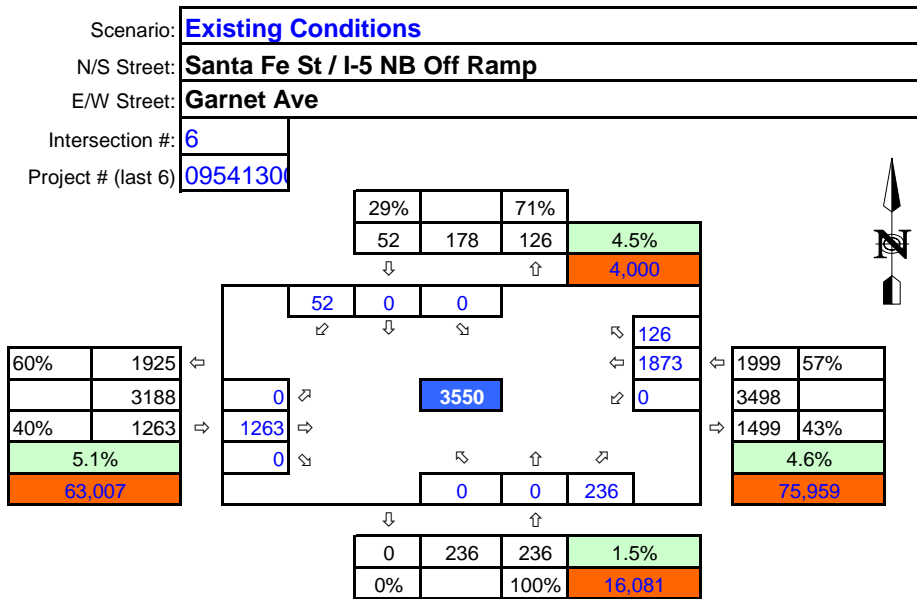
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 5 AM Peak Volumes



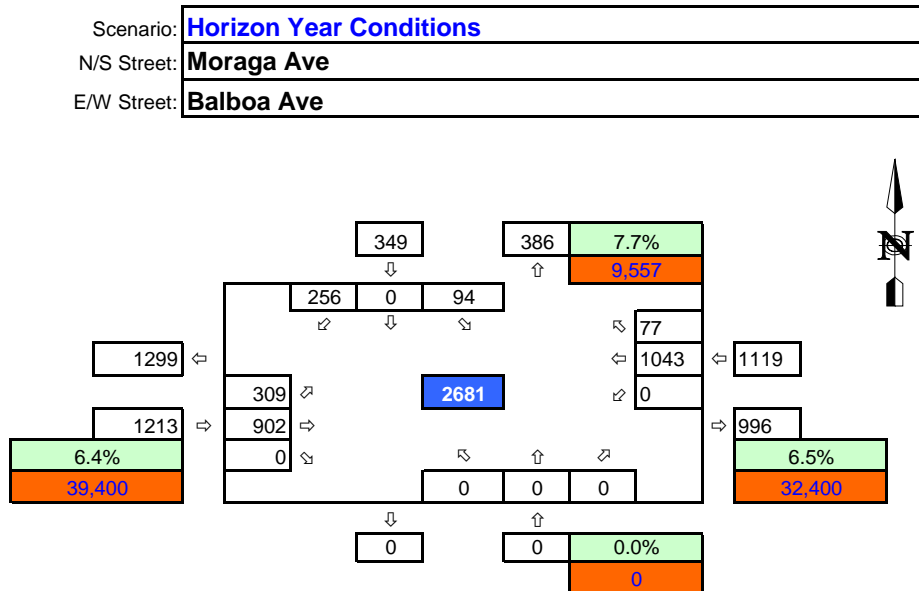
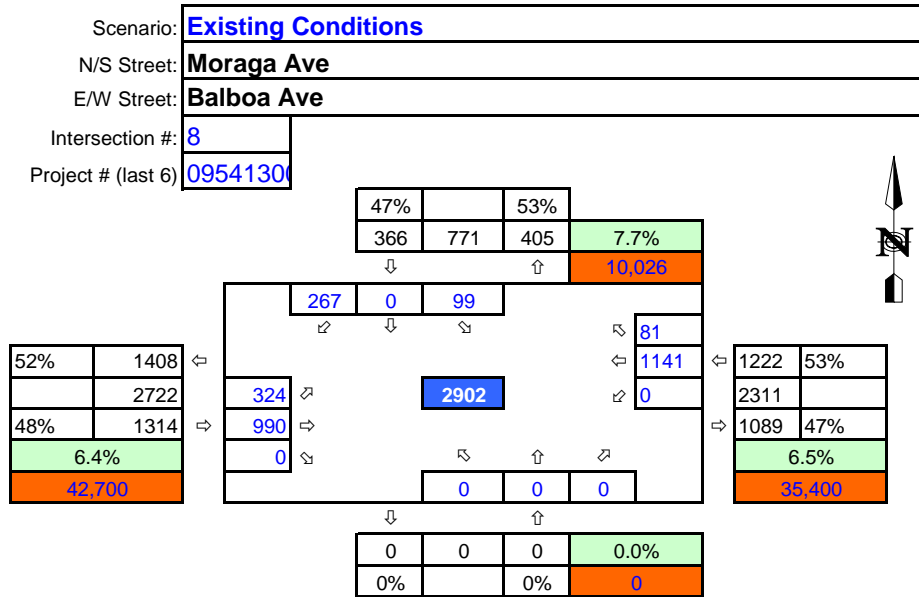
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 6 AM Peak Volumes



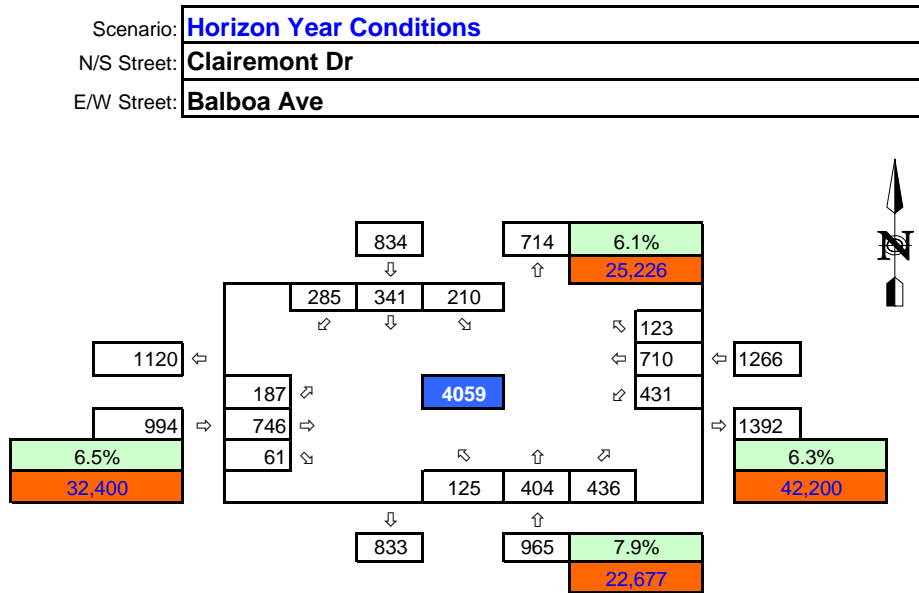
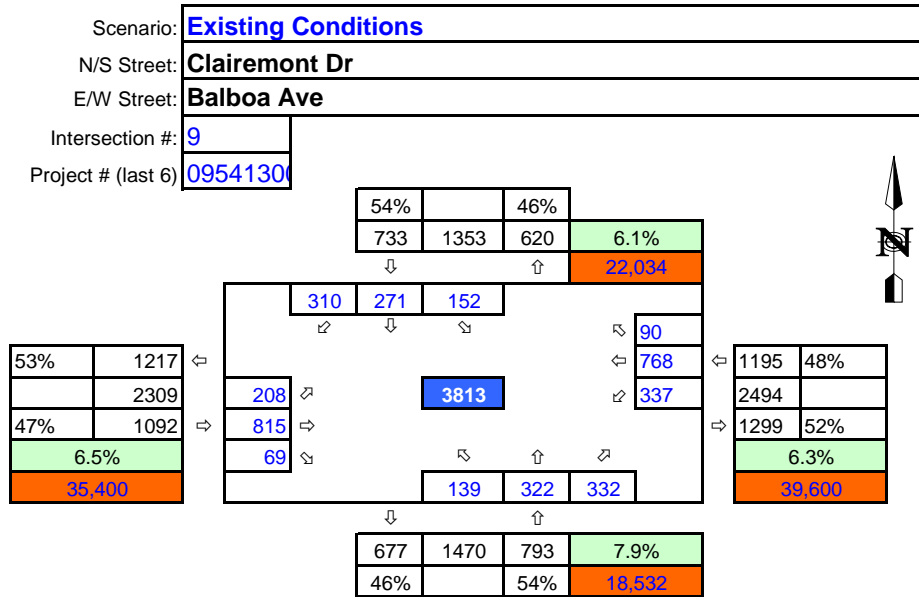
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 8 AM Peak Volumes



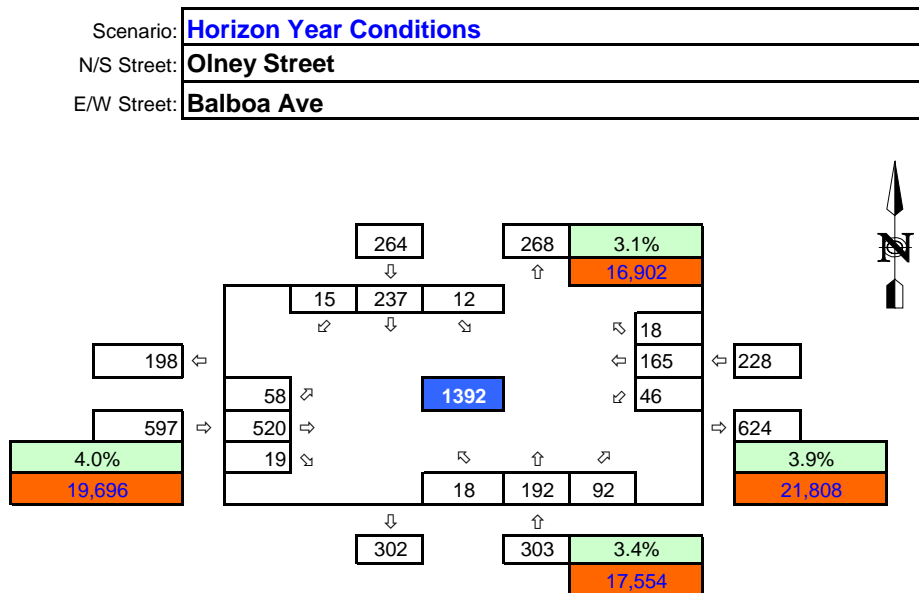
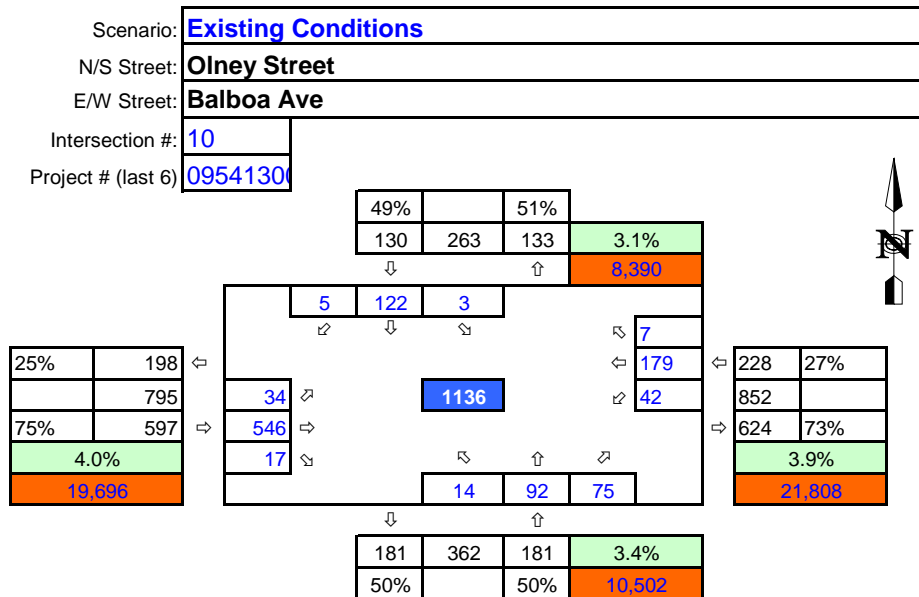
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 9 AM Peak Volumes



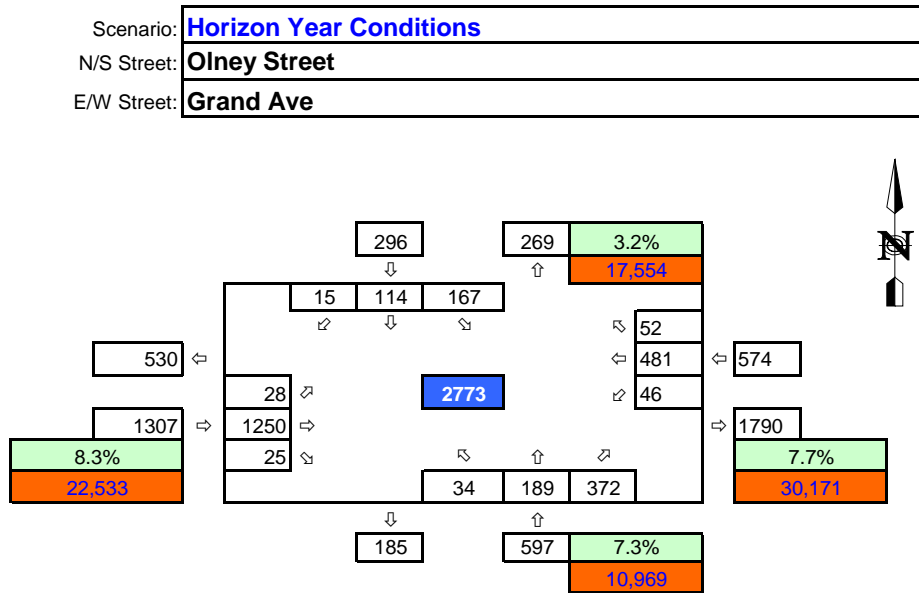
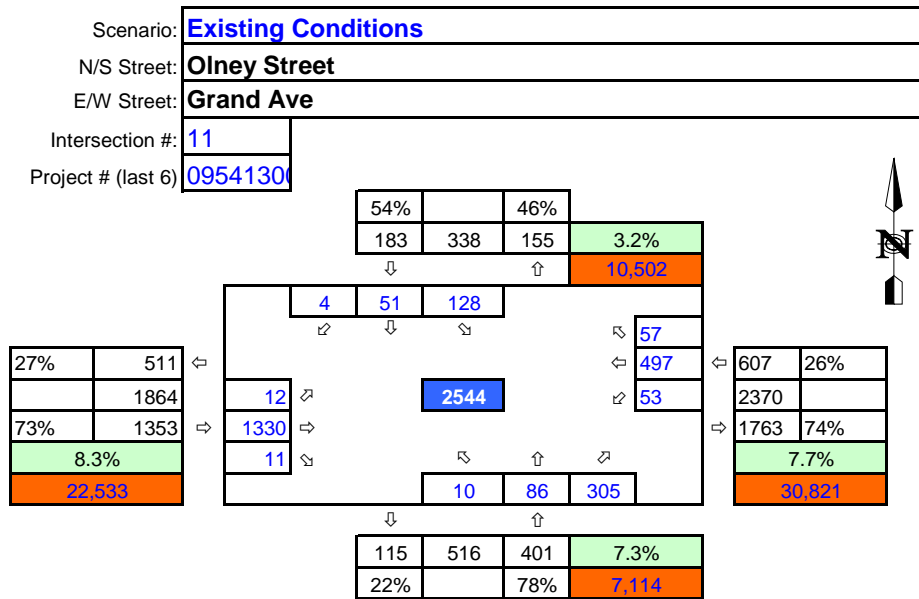
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 10 AM Peak Volumes



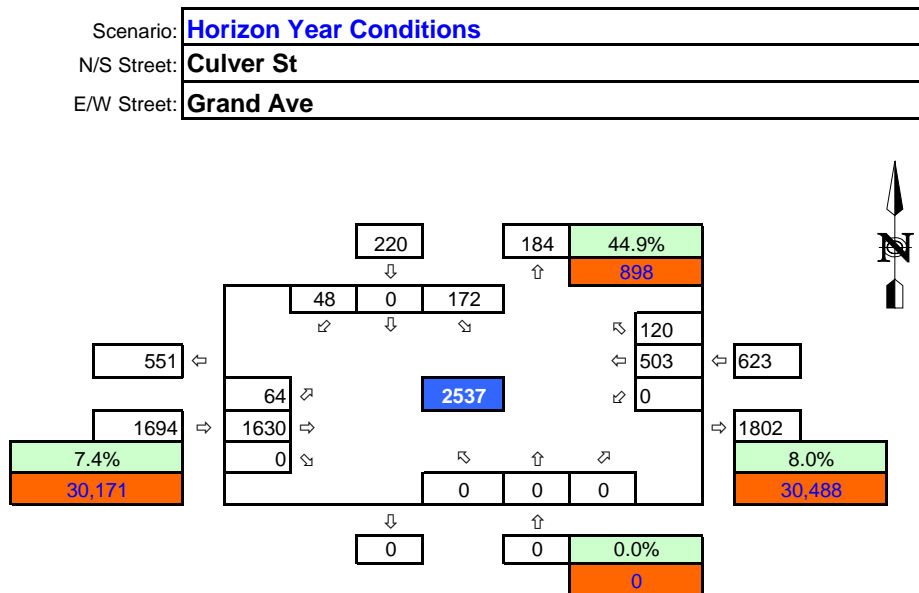
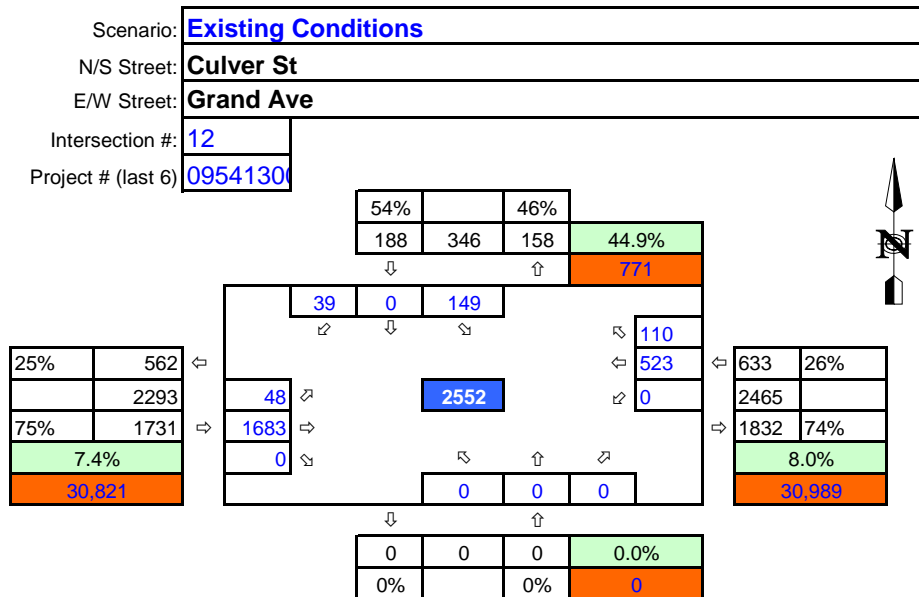
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 11 AM Peak Volumes



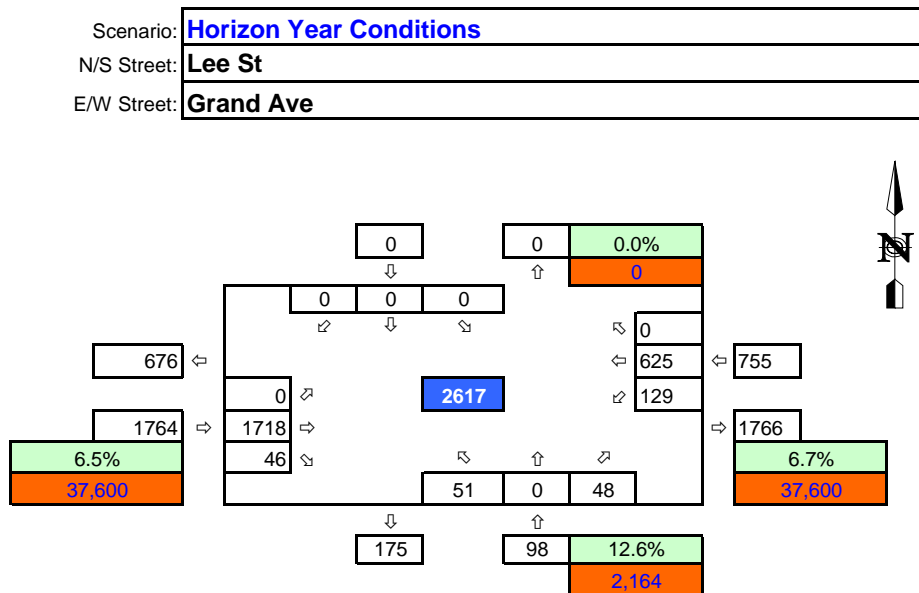
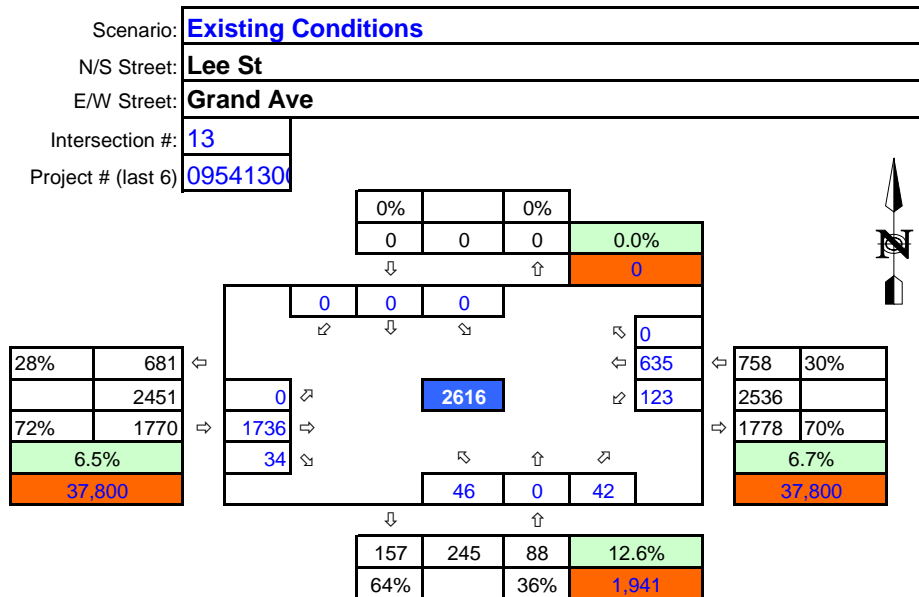
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 12 AM Peak Volumes



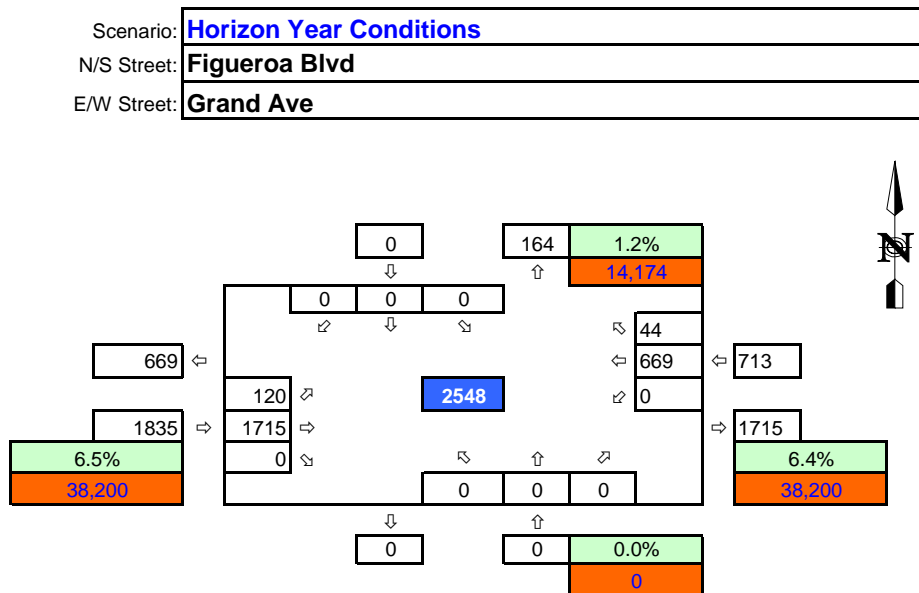
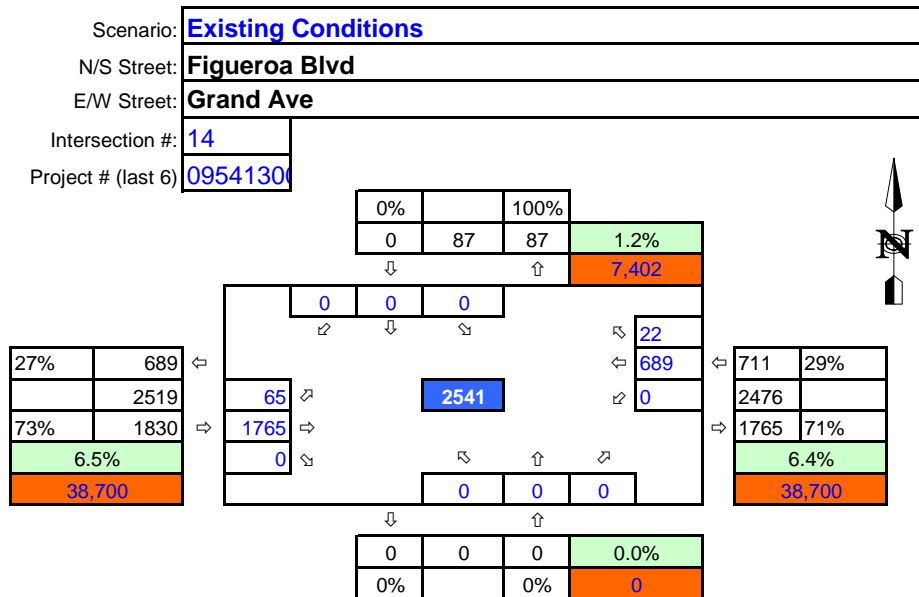
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 13 AM Peak Volumes



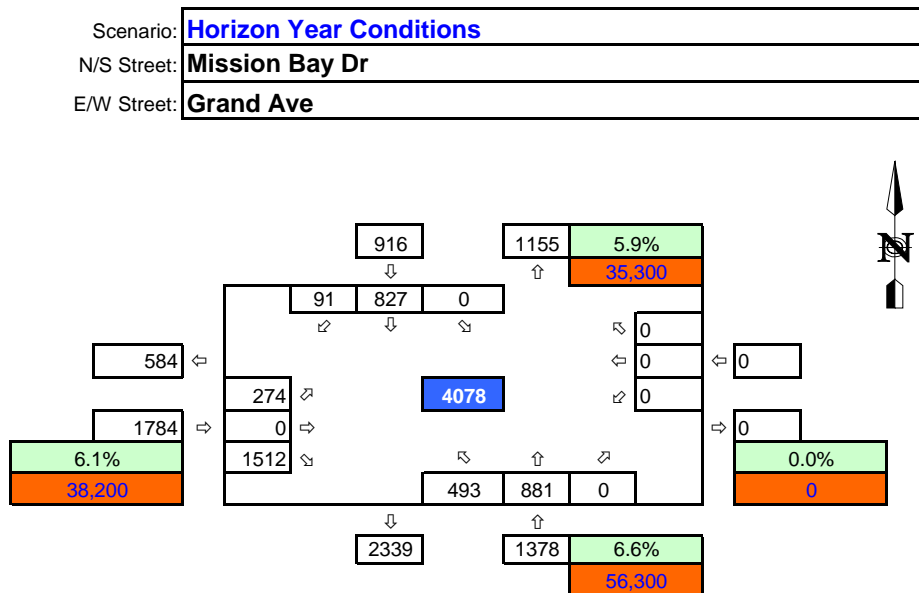
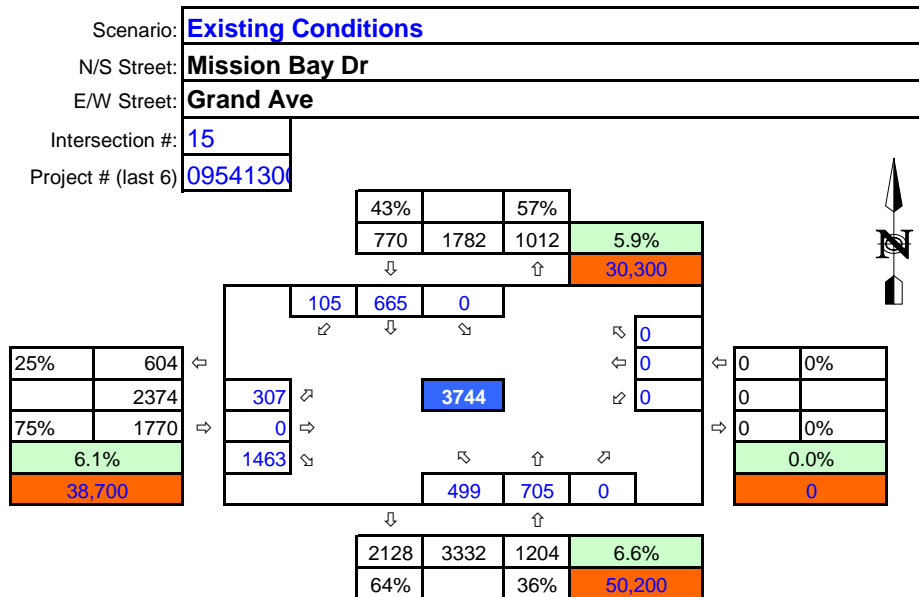
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 14 AM Peak Volumes



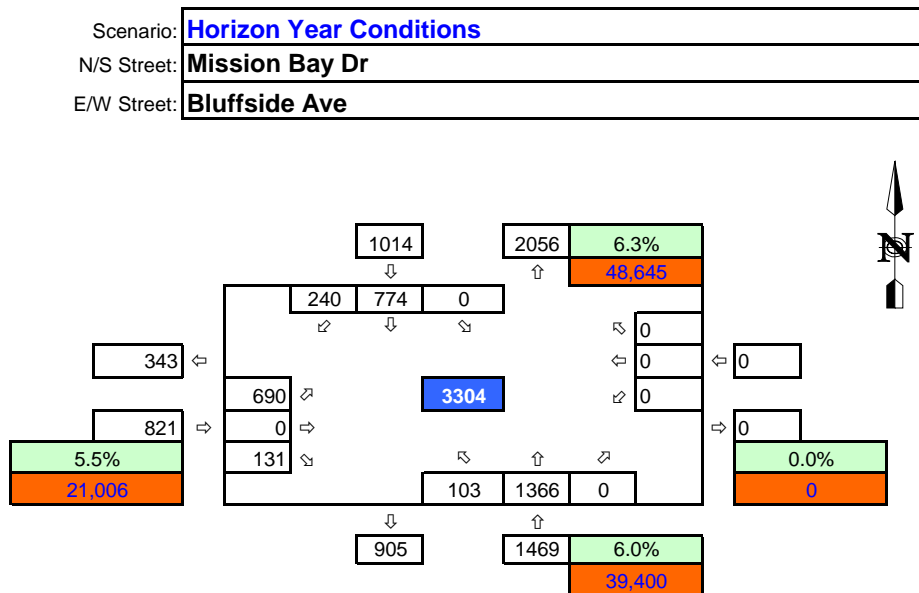
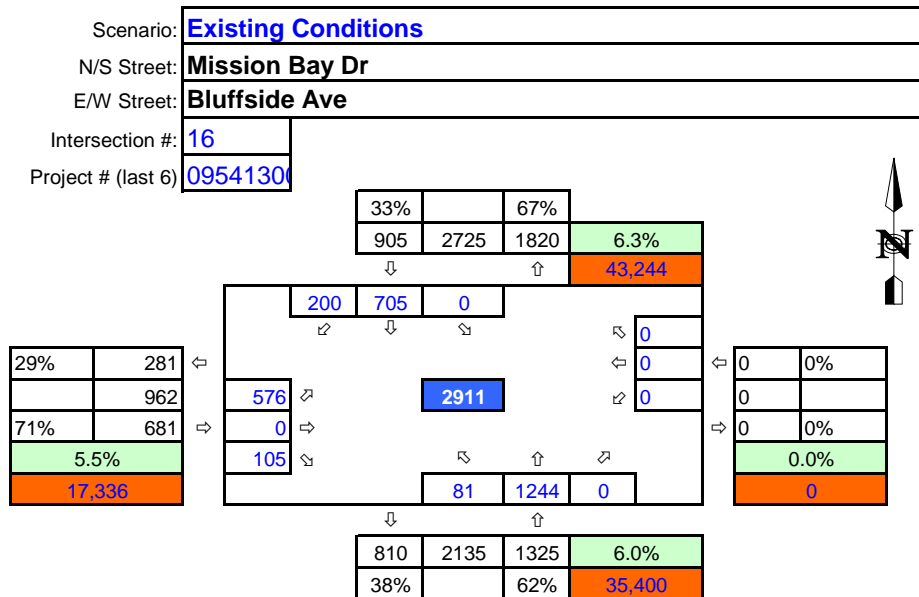
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 15 AM Peak Volumes



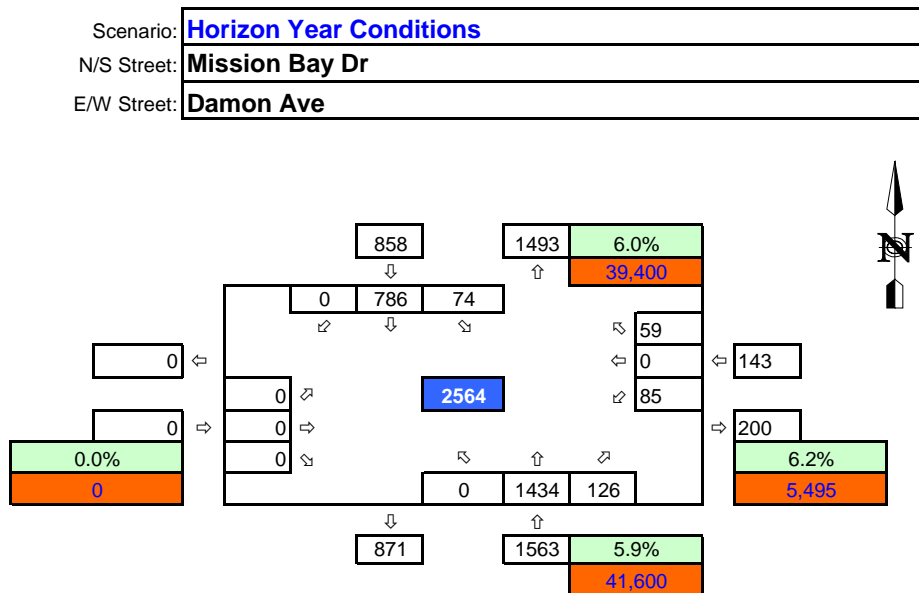
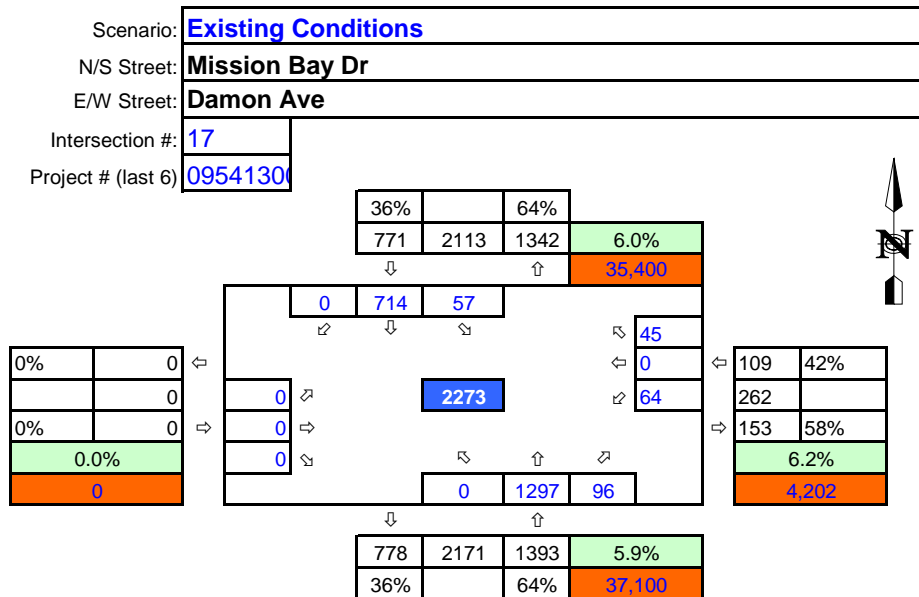
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 16 AM Peak Volumes



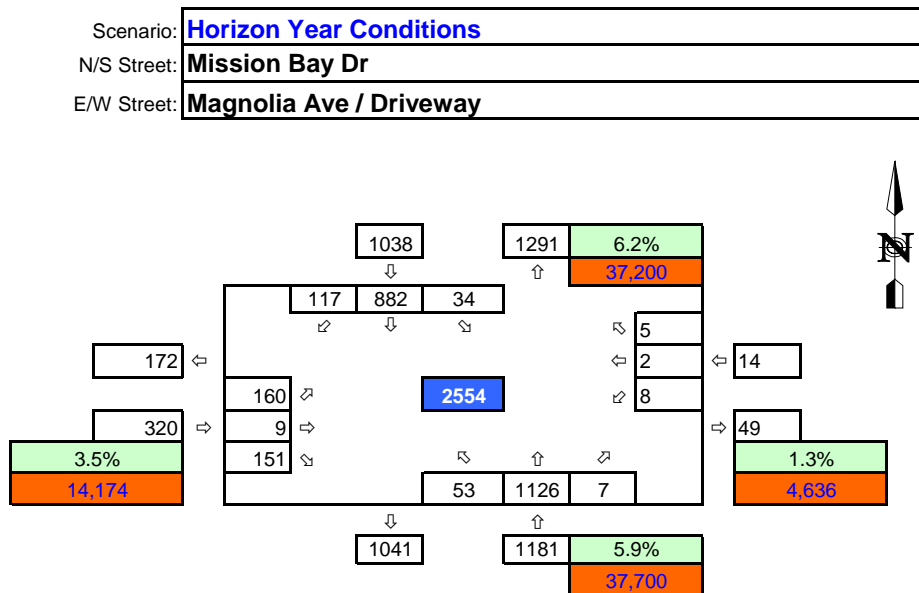
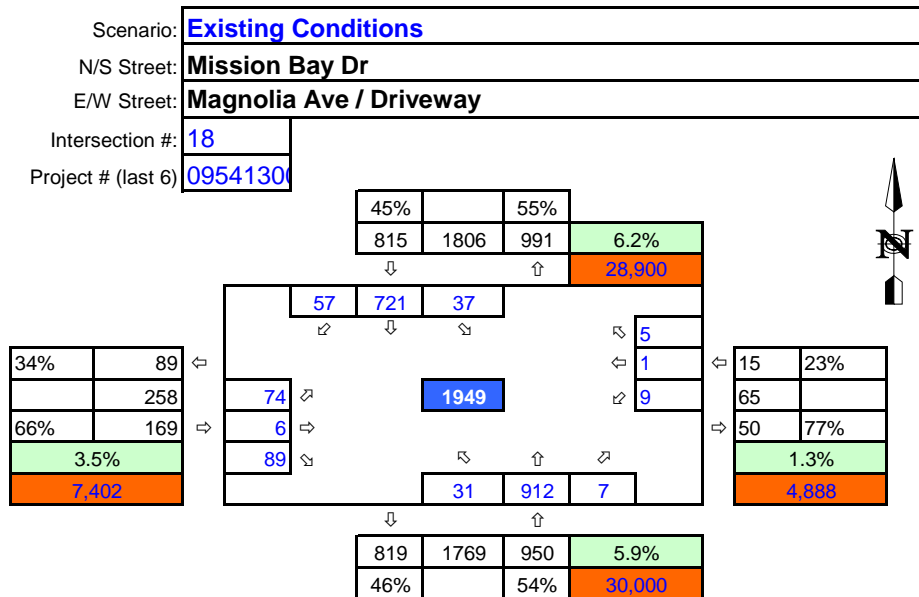
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 17 AM Peak Volumes



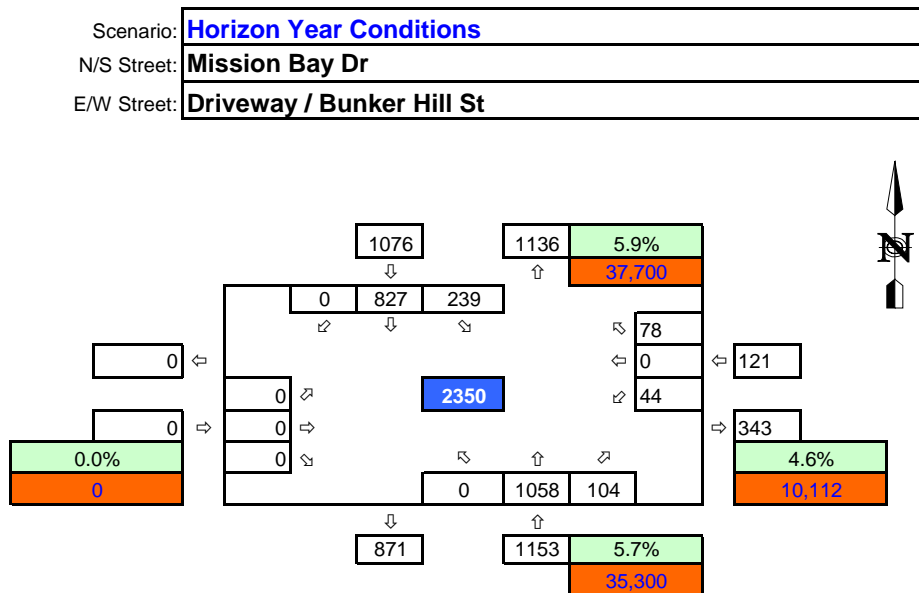
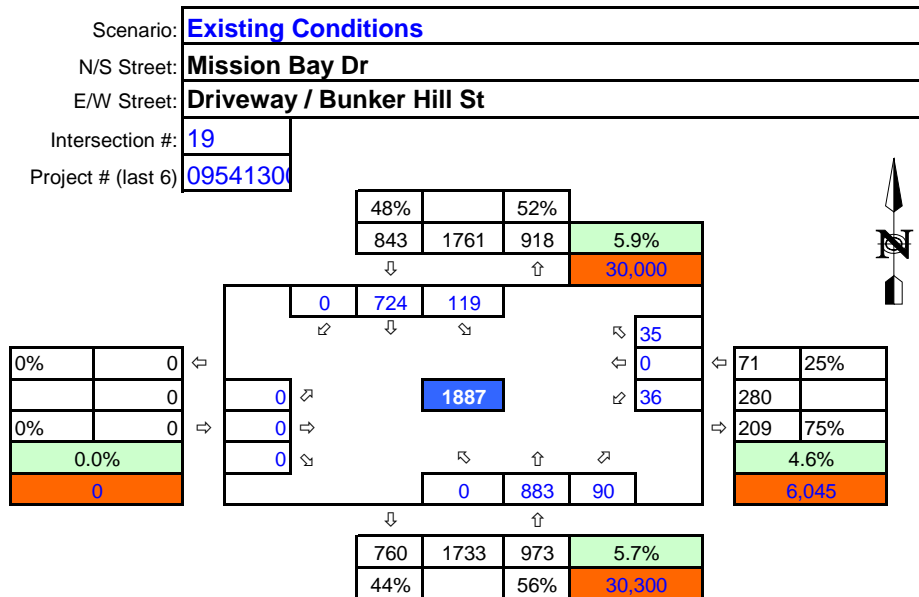
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 18 AM Peak Volumes



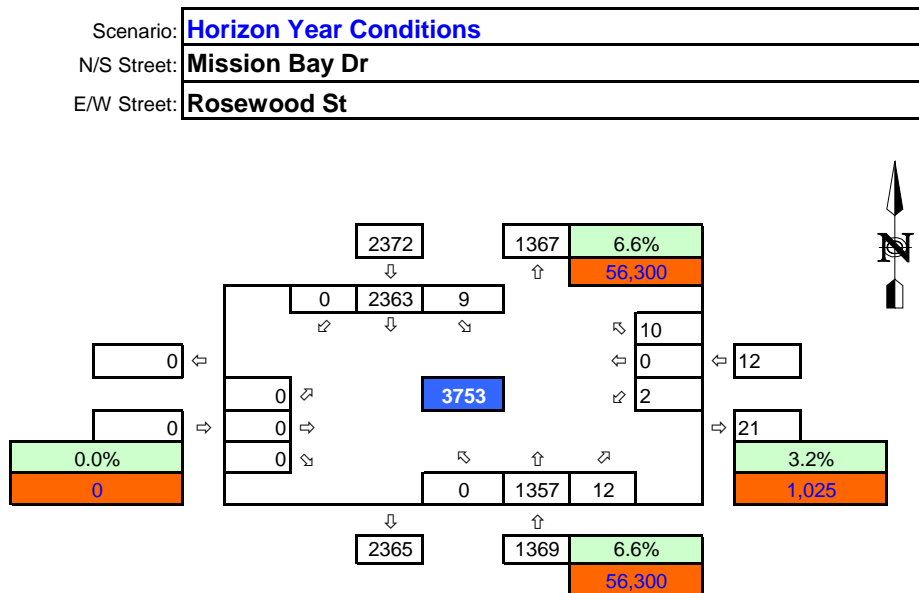
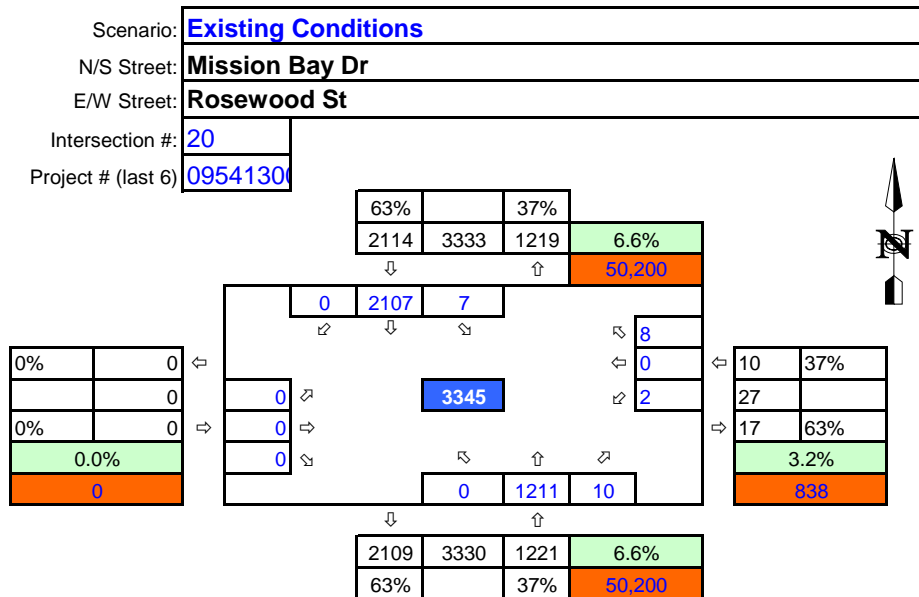
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 19 AM Peak Volumes



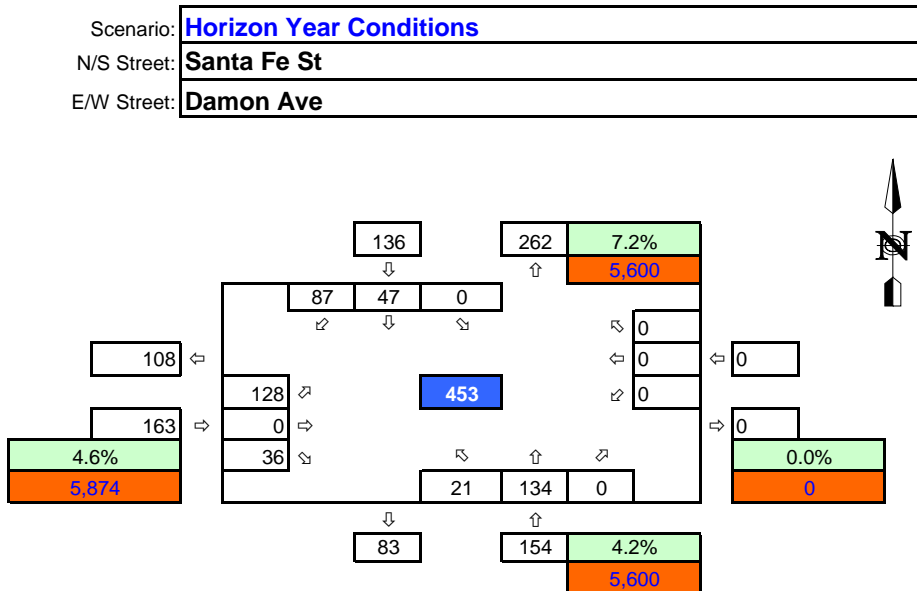
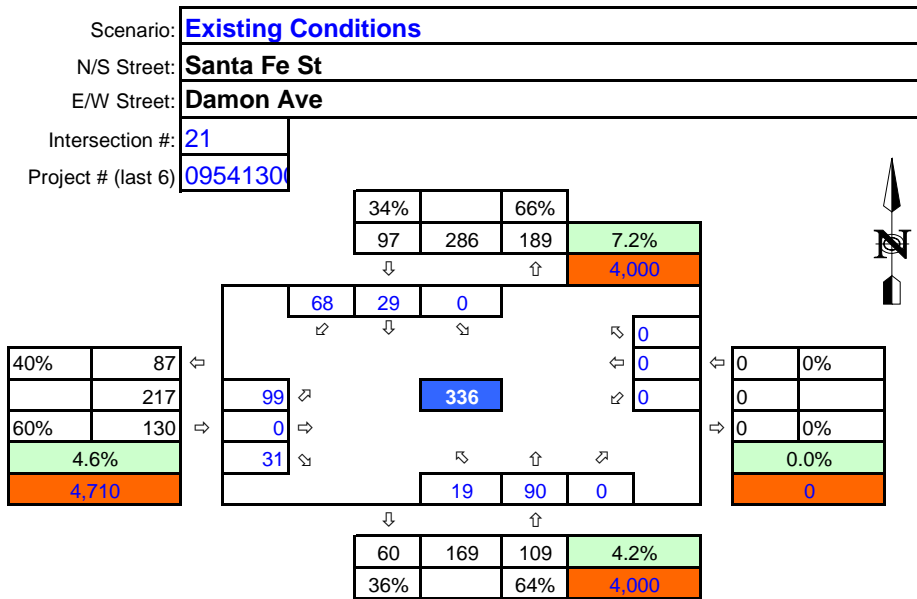
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 20 AM Peak Volumes



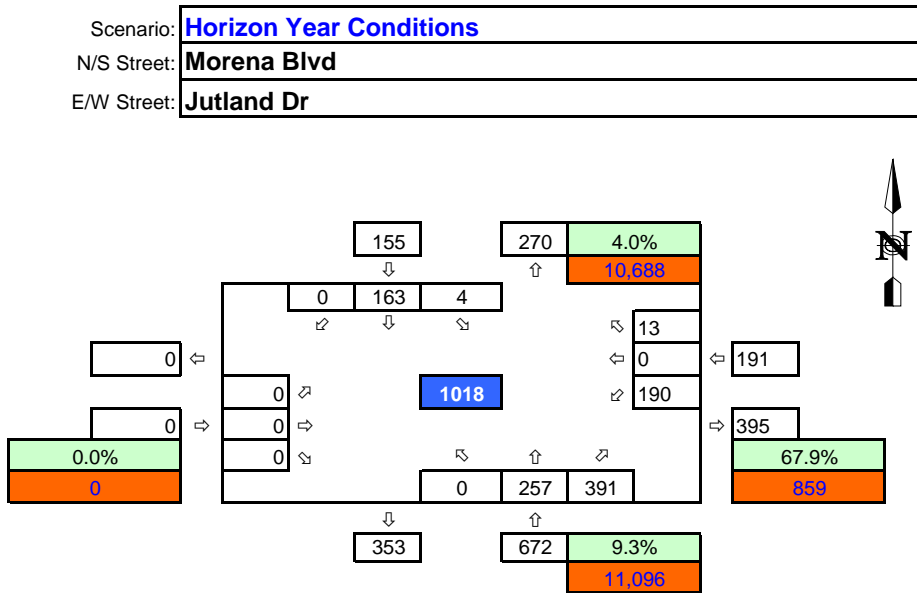
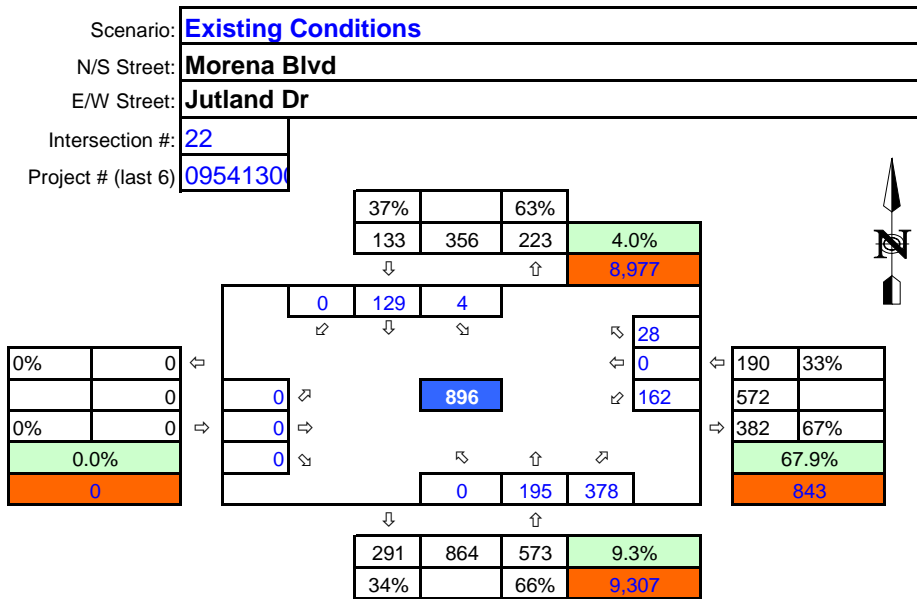
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 21 AM Peak Volumes



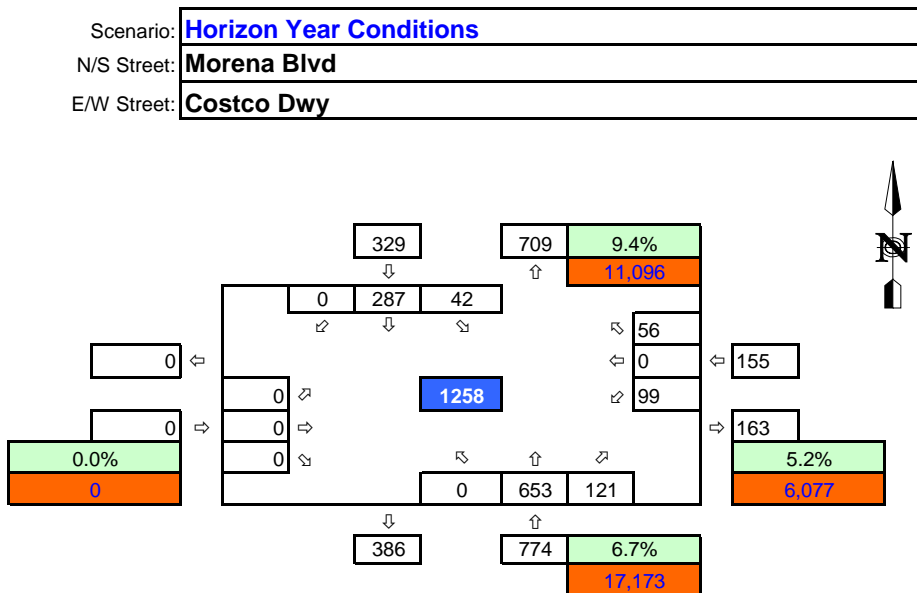
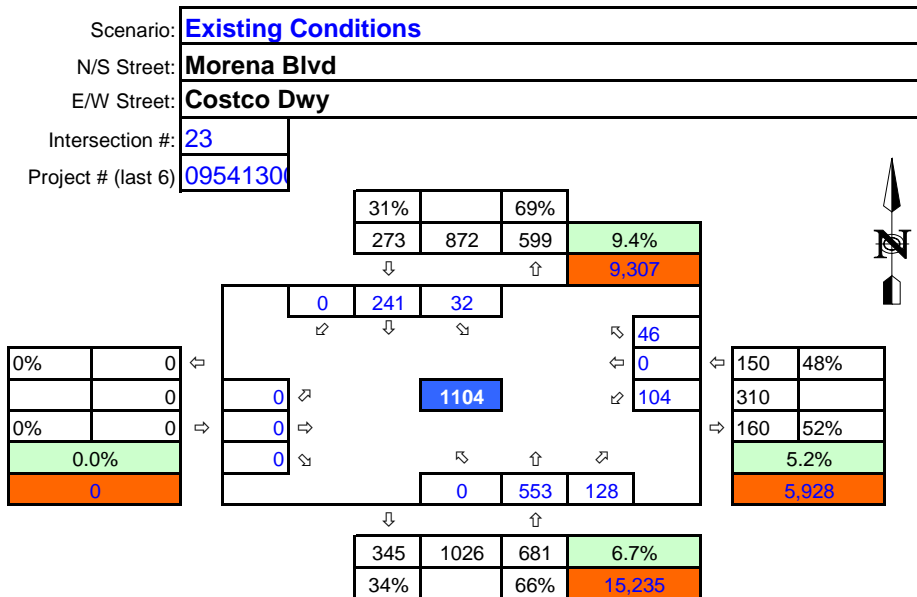
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 22 AM Peak Volumes



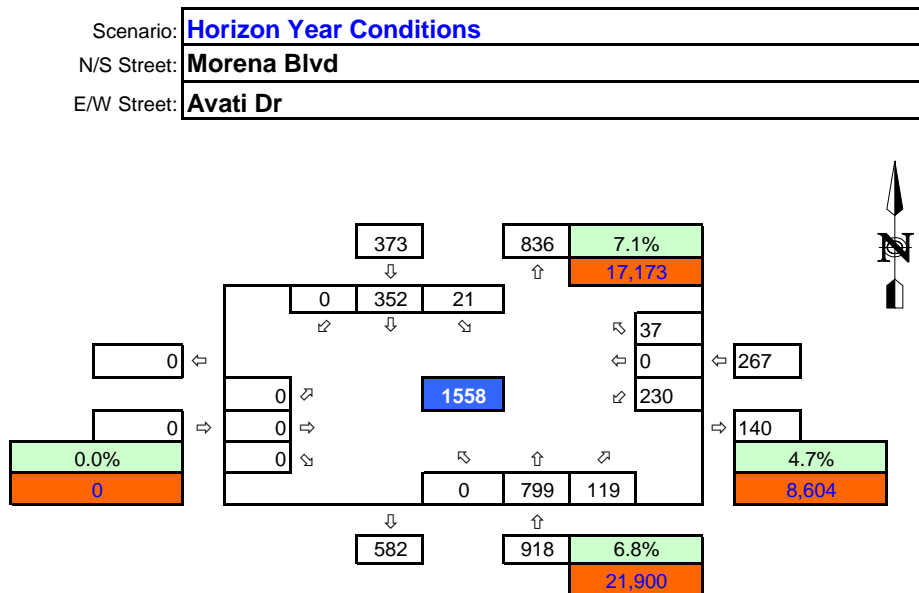
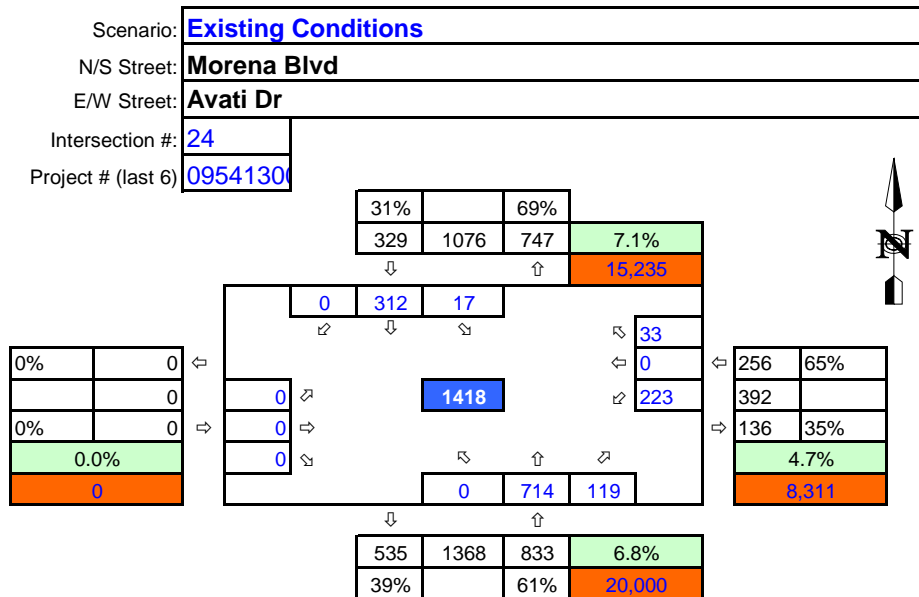
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 23 AM Peak Volumes



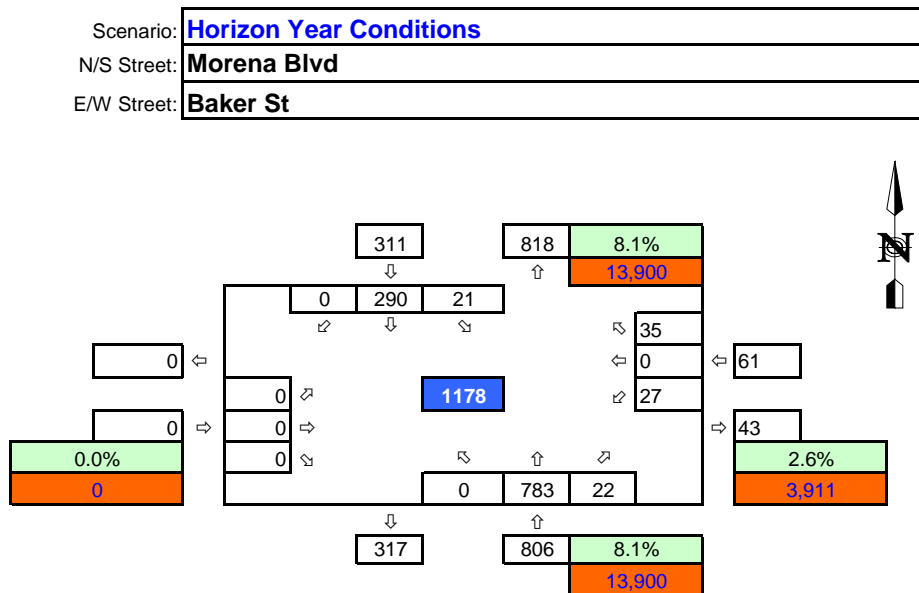
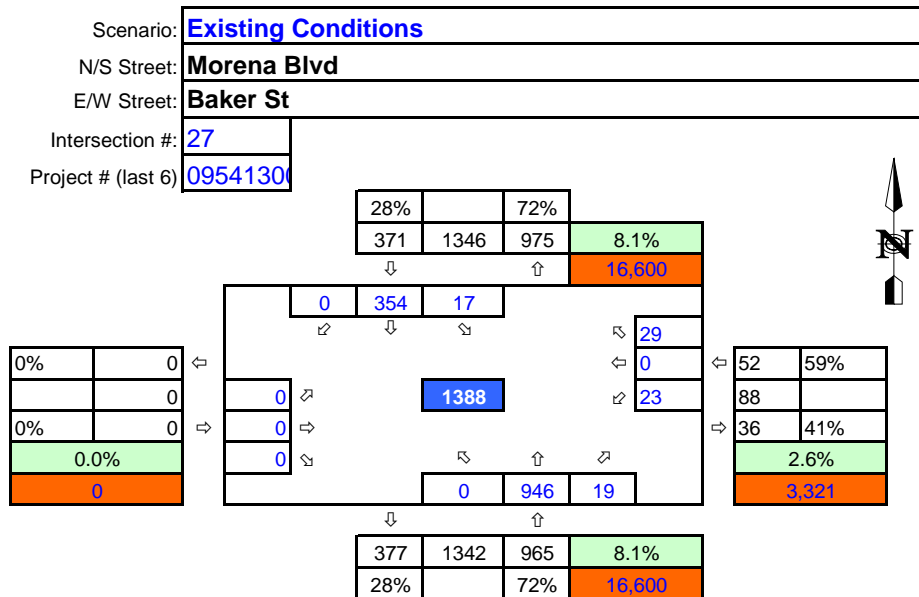
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 24 AM Peak Volumes



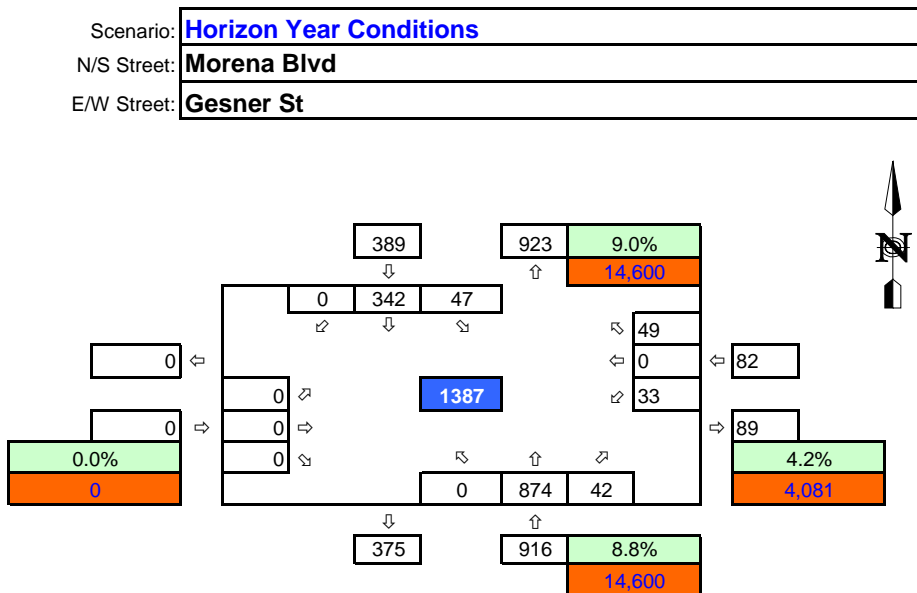
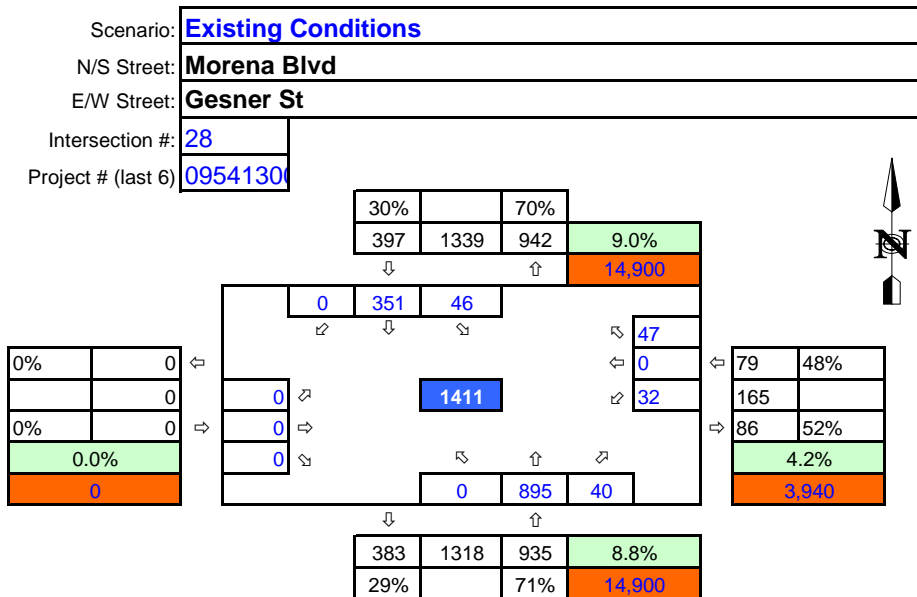
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 27 AM Peak Volumes



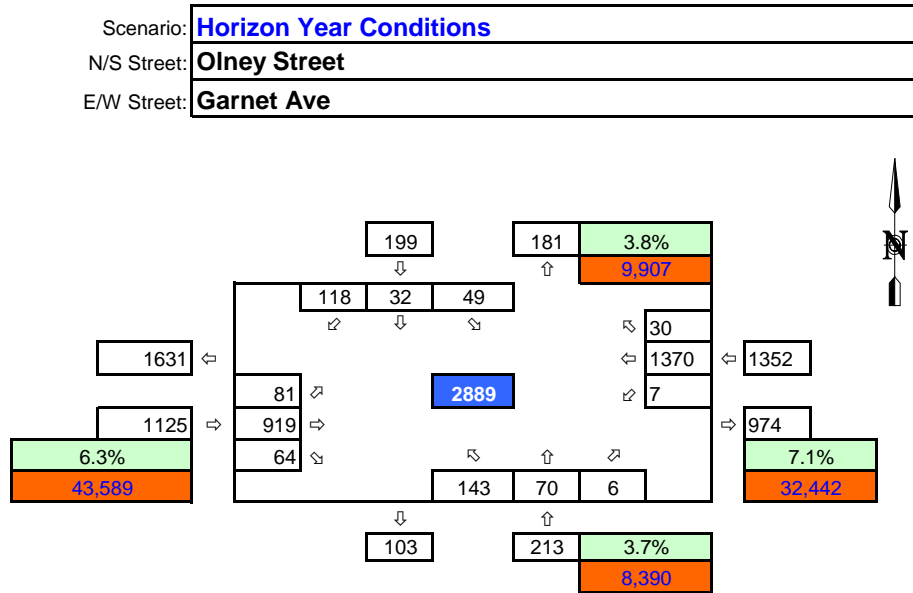
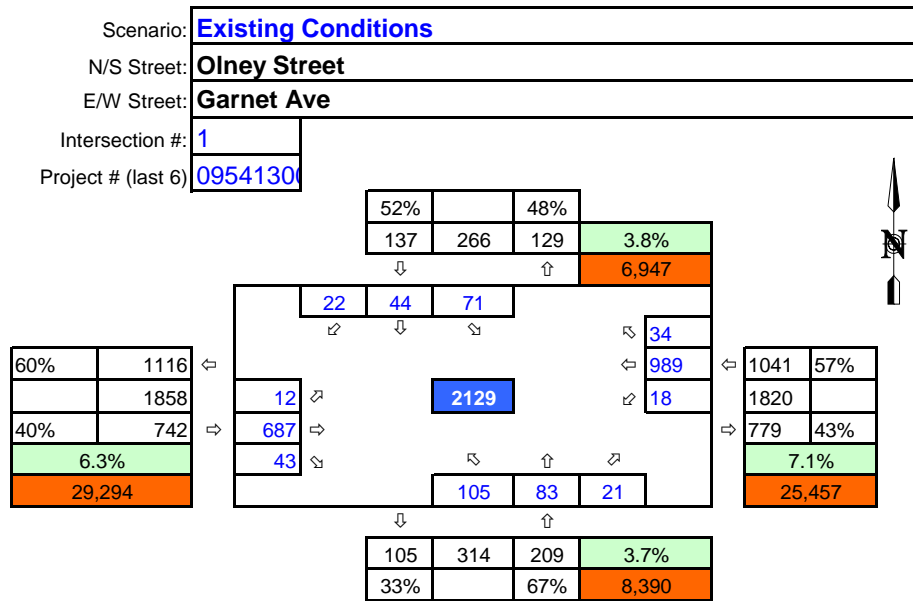
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 28 AM Peak Volumes



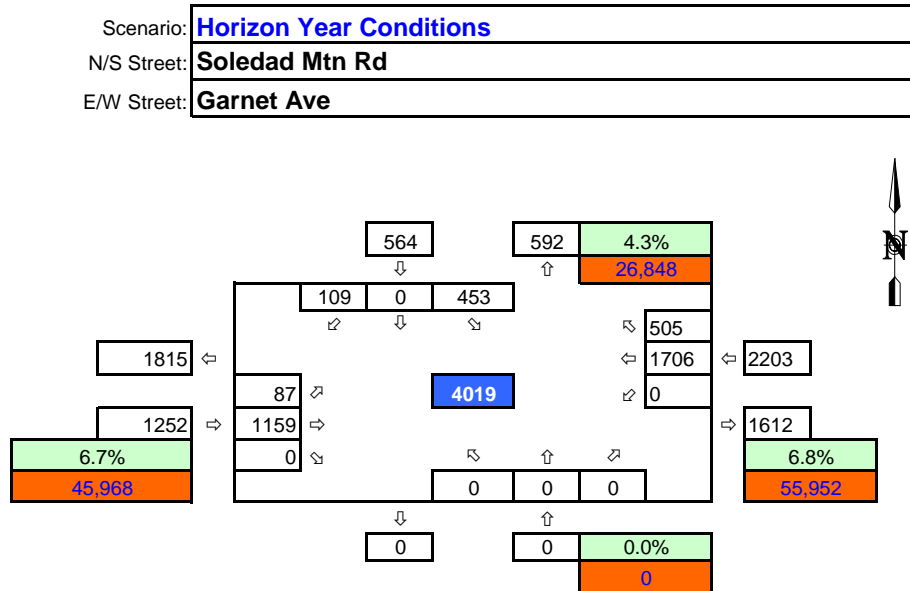
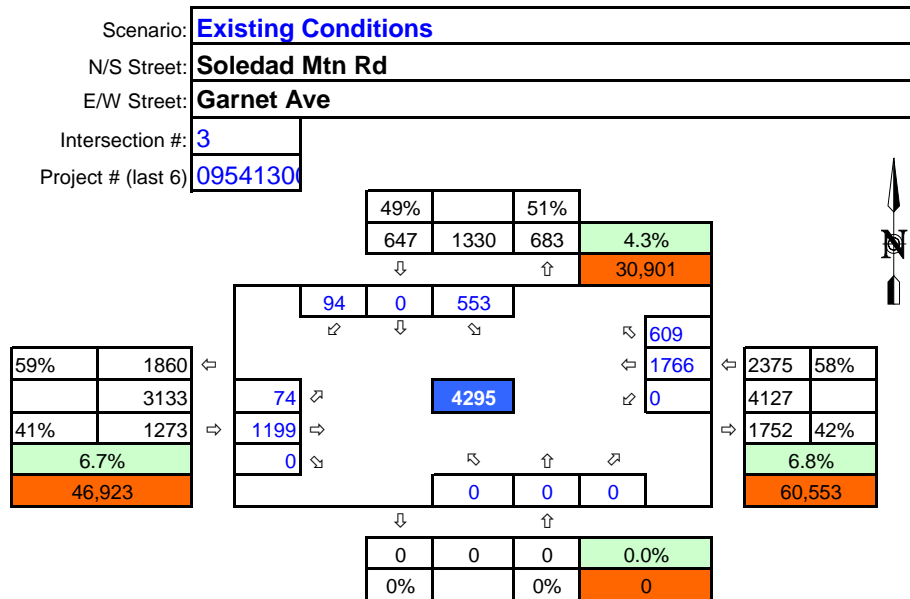
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 1 PM Peak Volumes



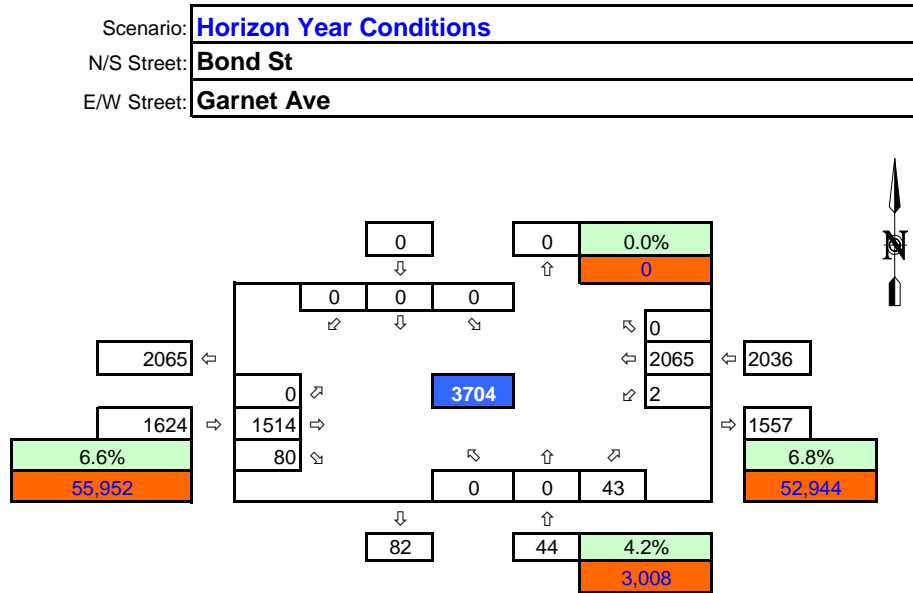
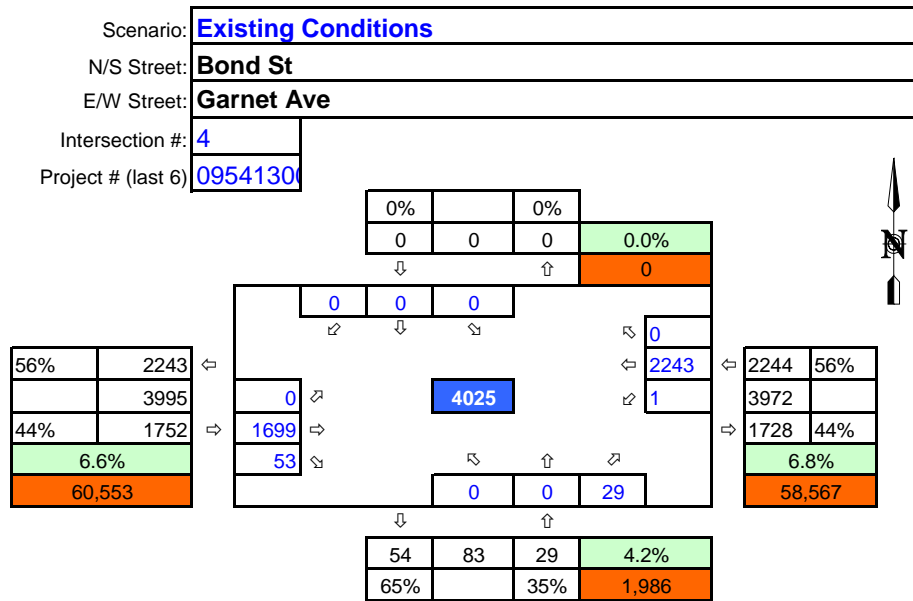
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 3 PM Peak Volumes



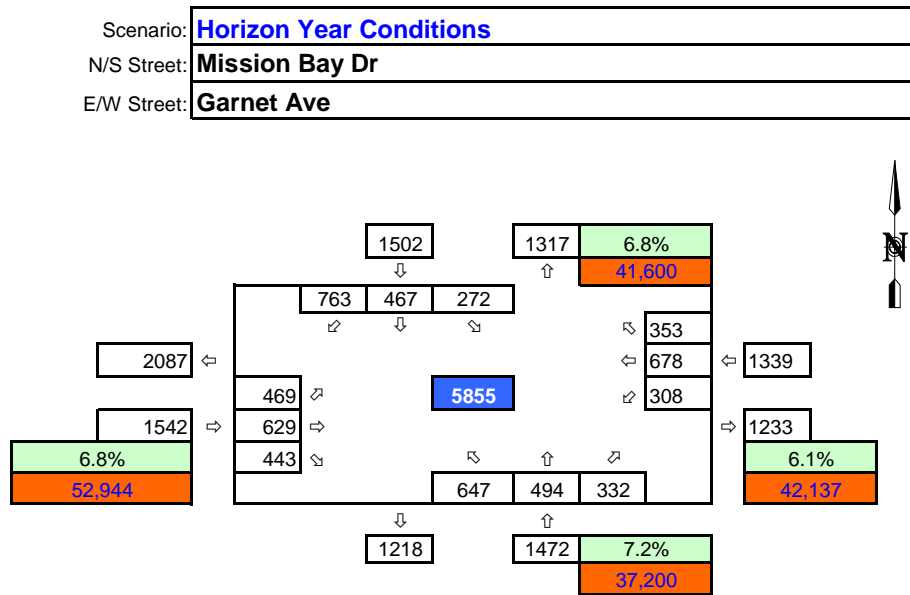
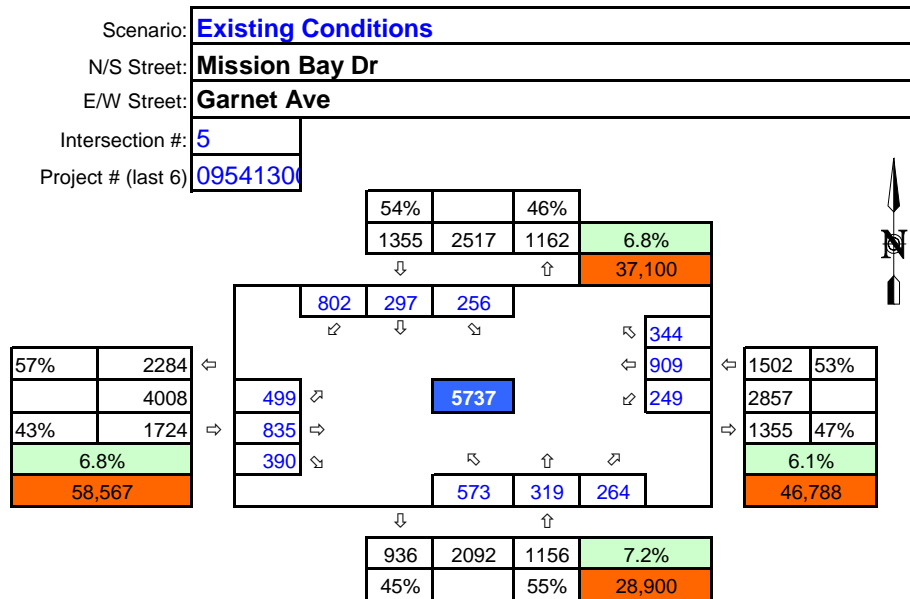
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 4 PM Peak Volumes



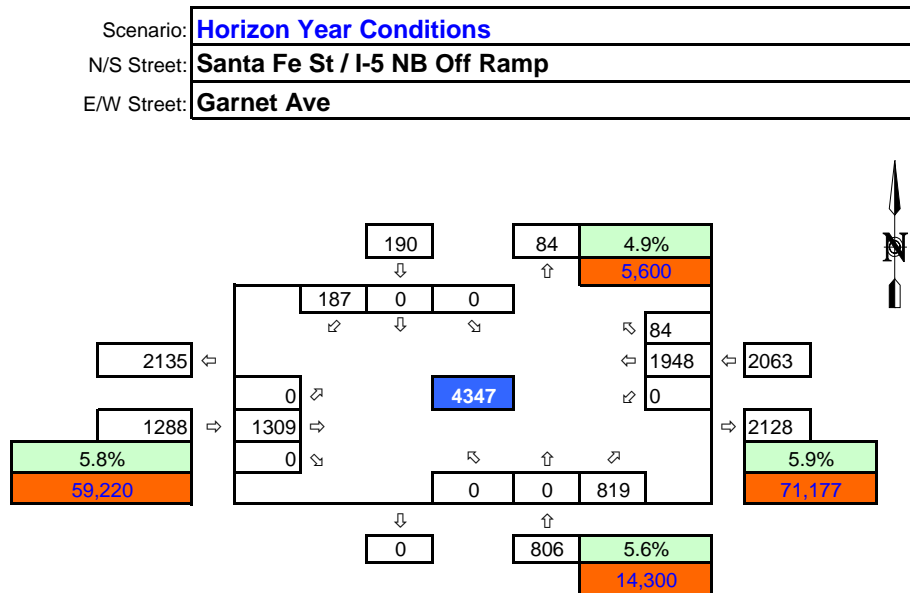
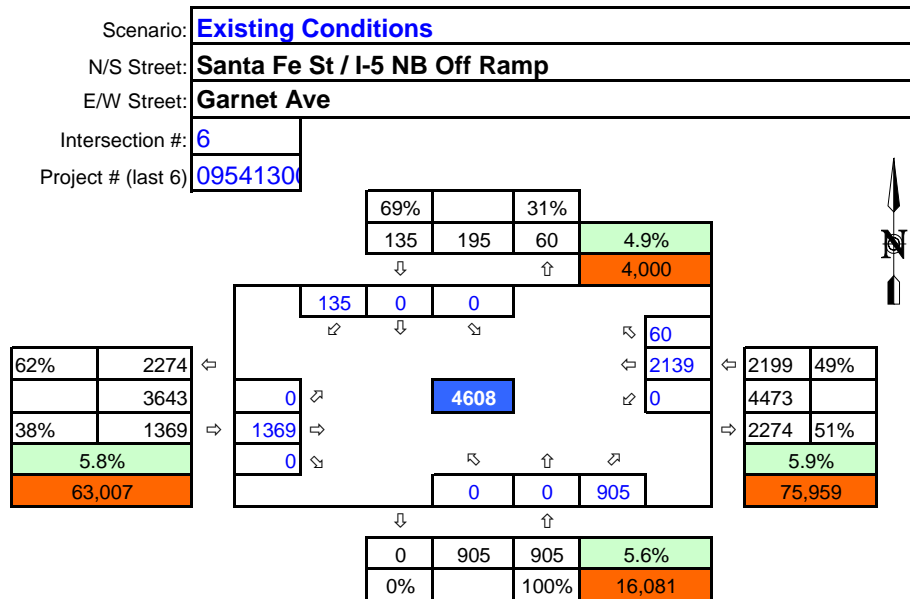
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 5 PM Peak Volumes



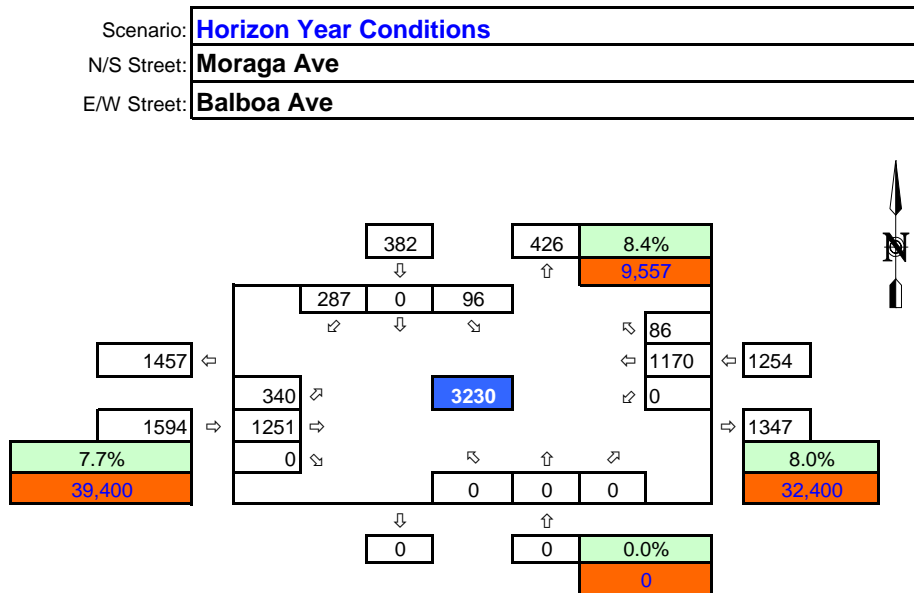
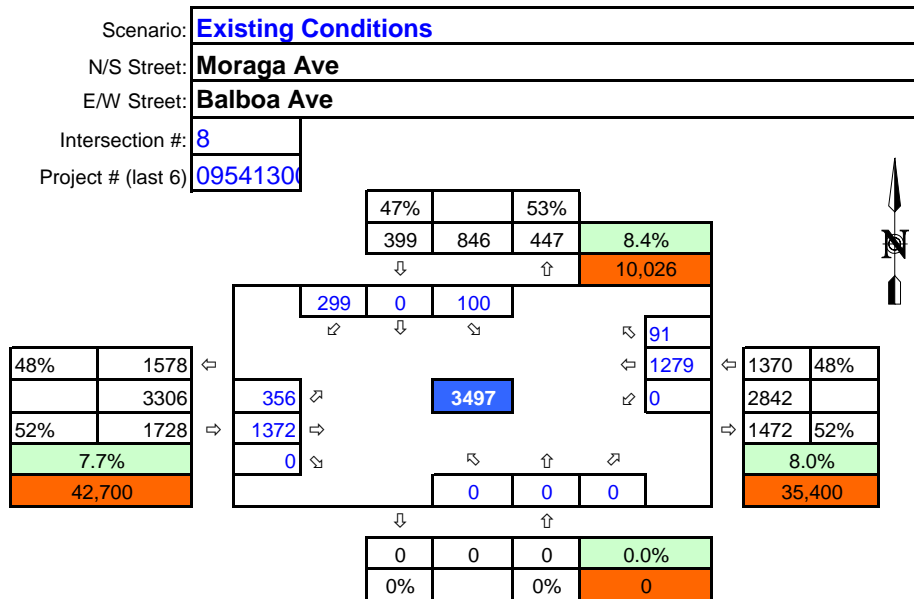
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 6 PM Peak Volumes



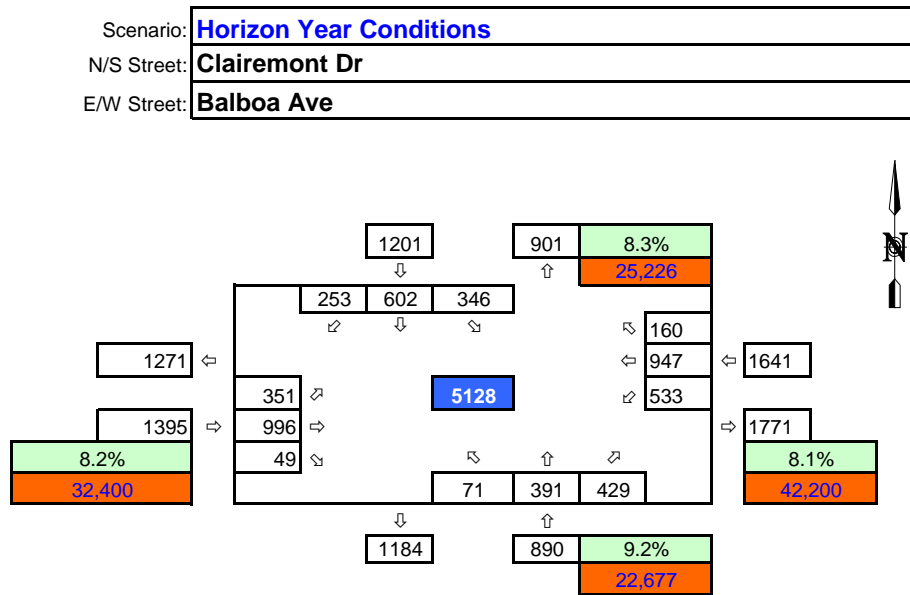
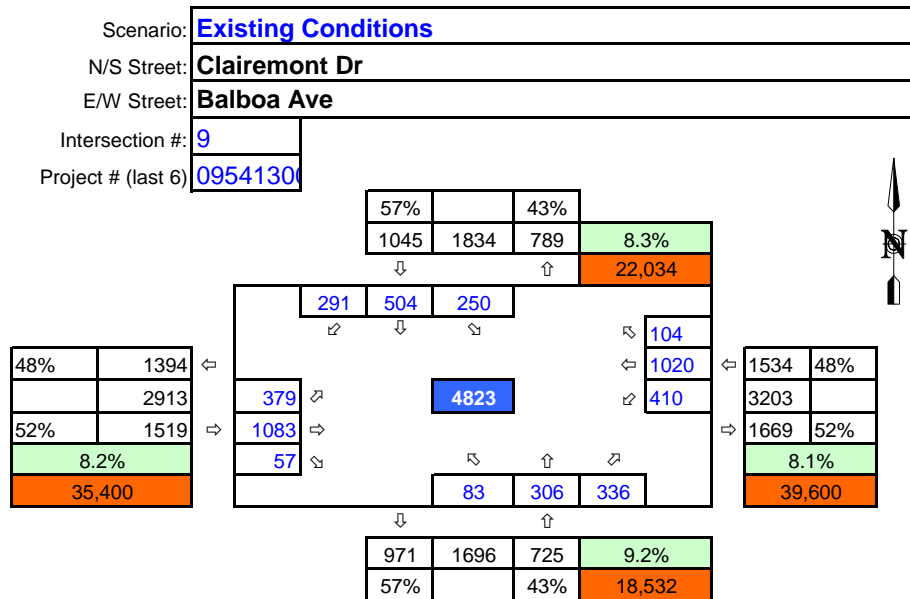
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 8 PM Peak Volumes



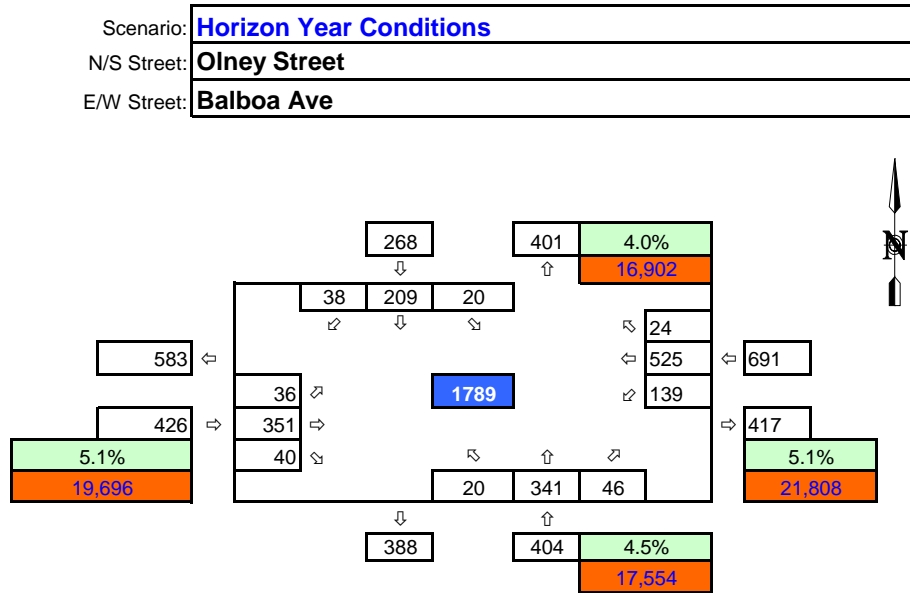
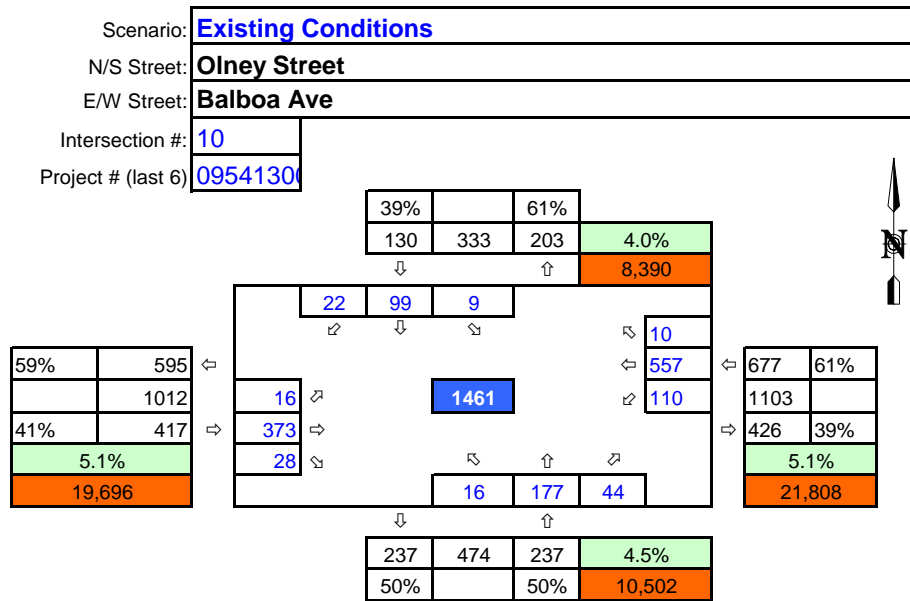
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 9 PM Peak Volumes



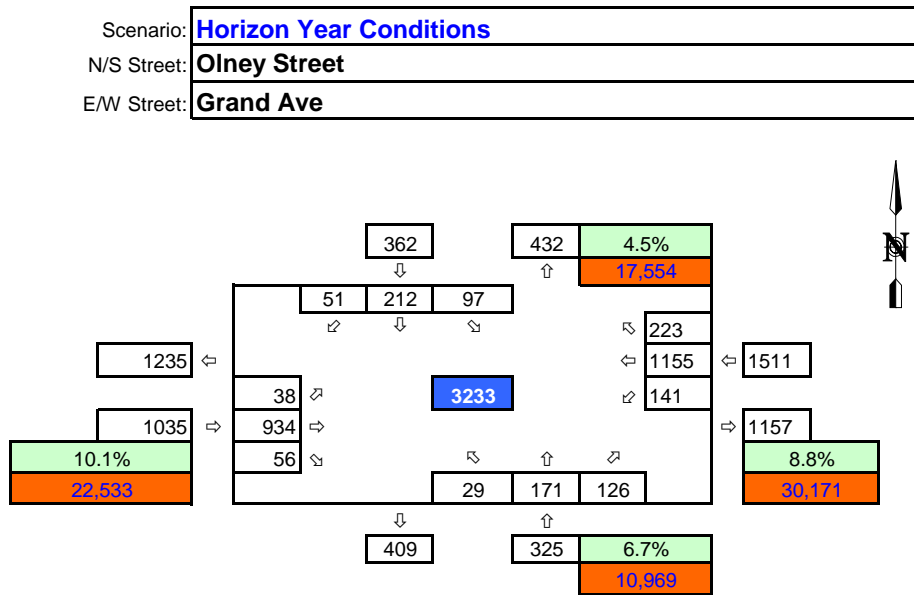
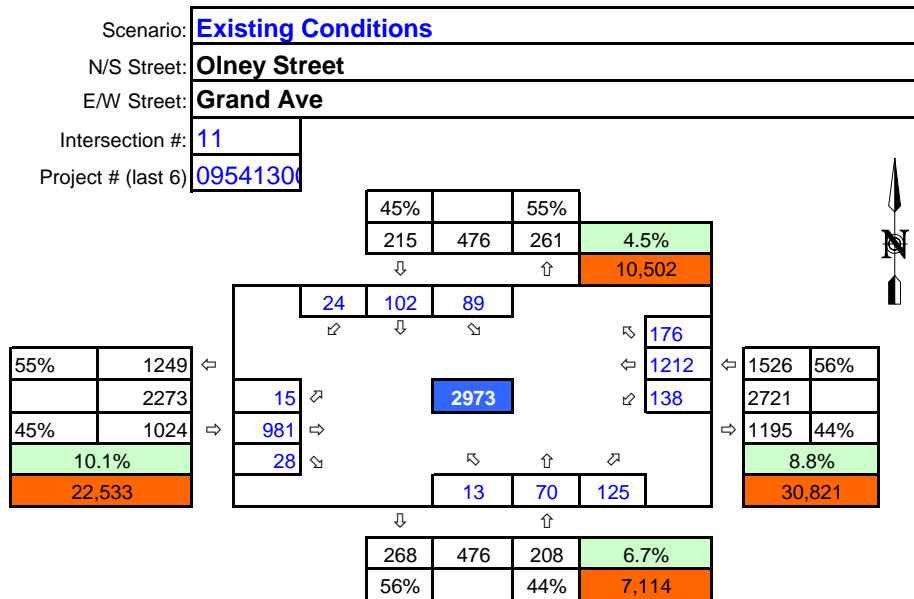
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 10 PM Peak Volumes



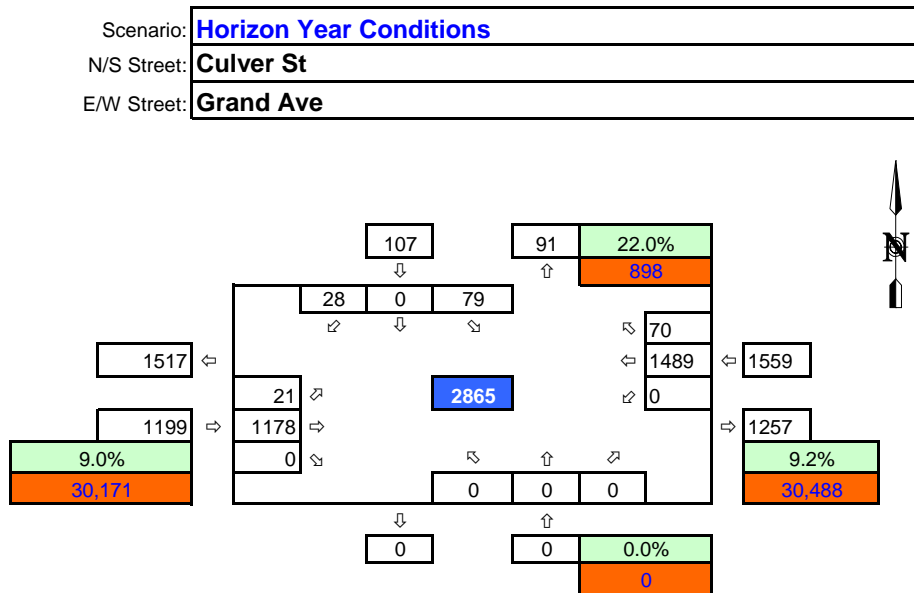
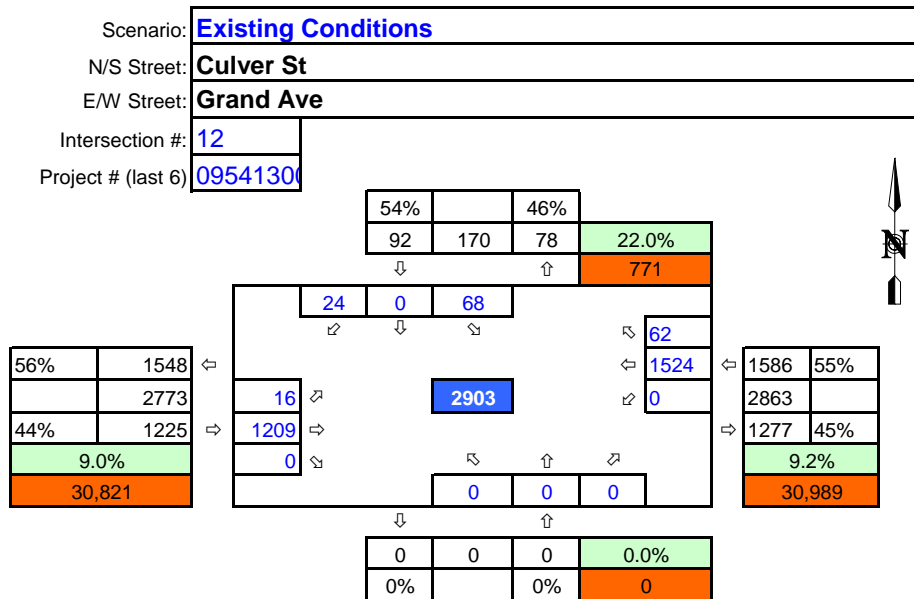
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 11 PM Peak Volumes



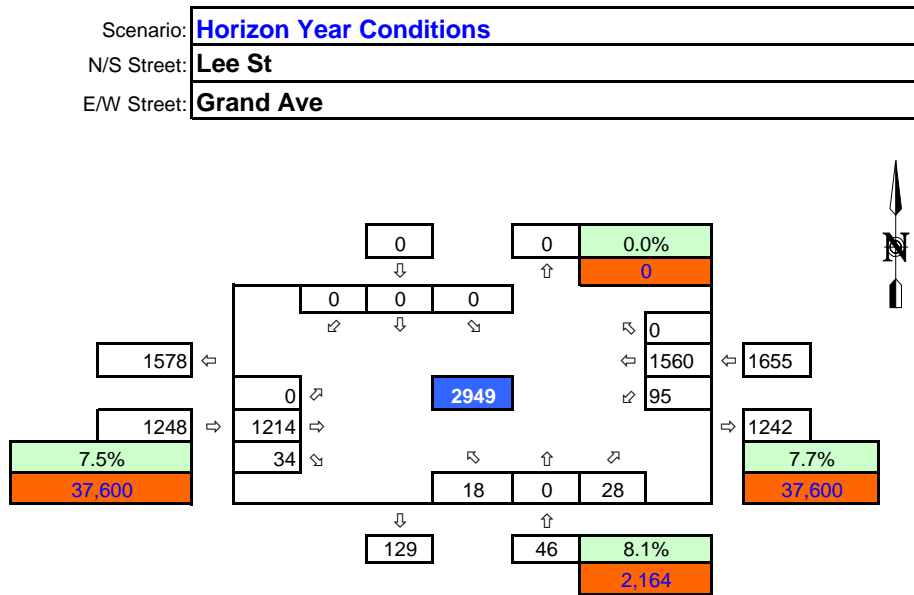
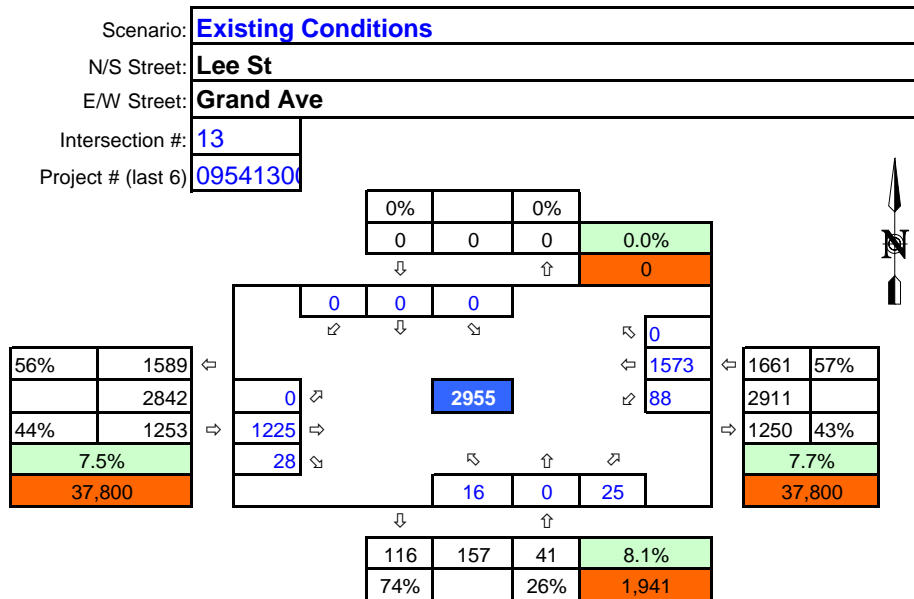
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 12 PM Peak Volumes



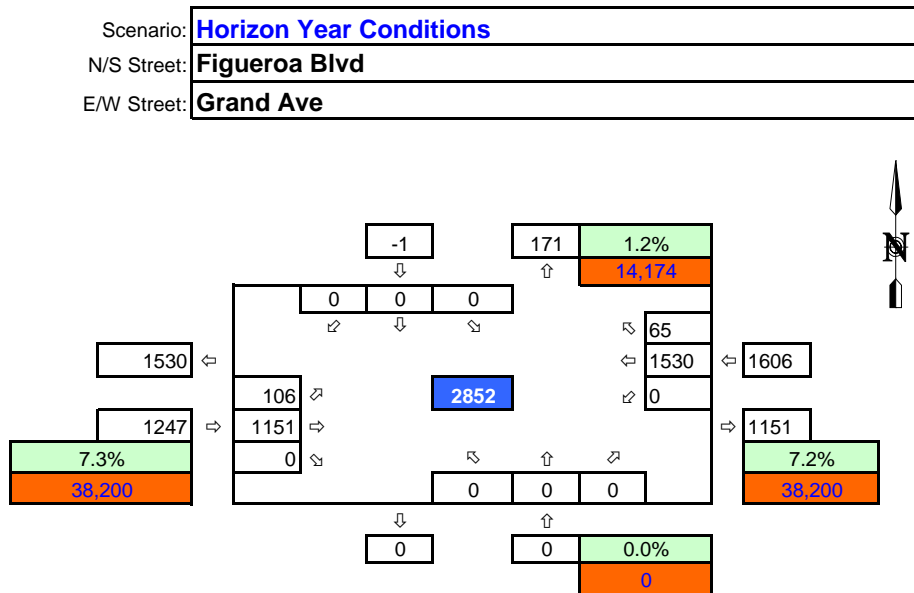
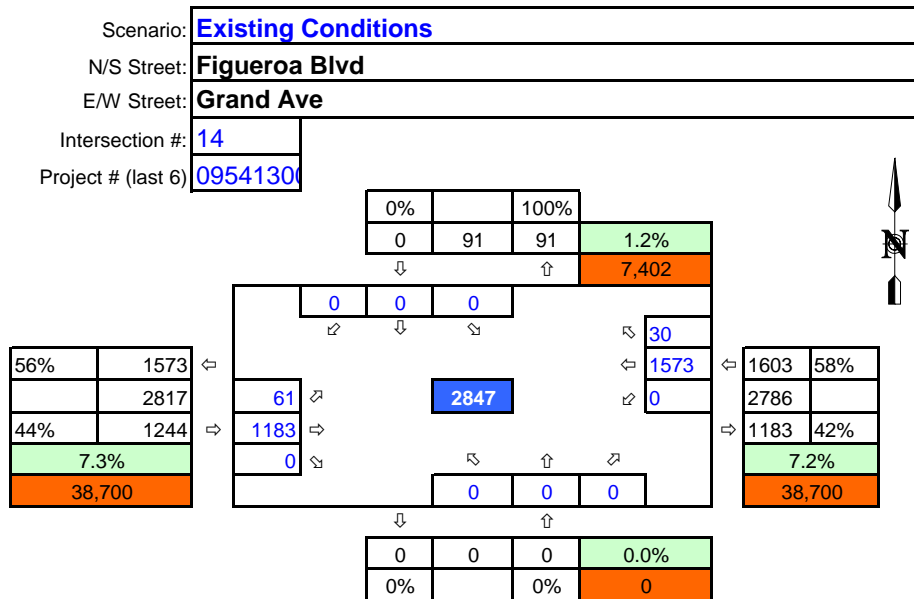
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 13 PM Peak Volumes



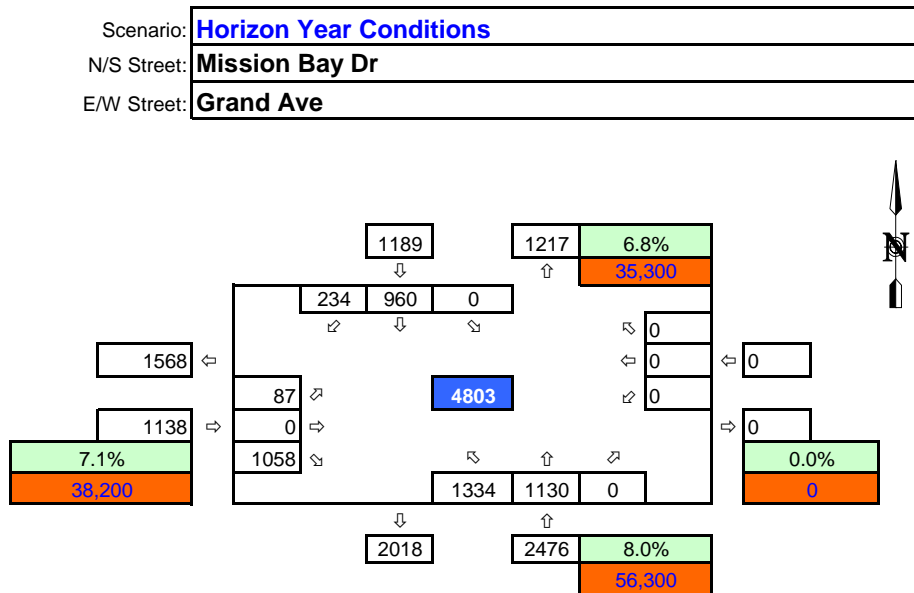
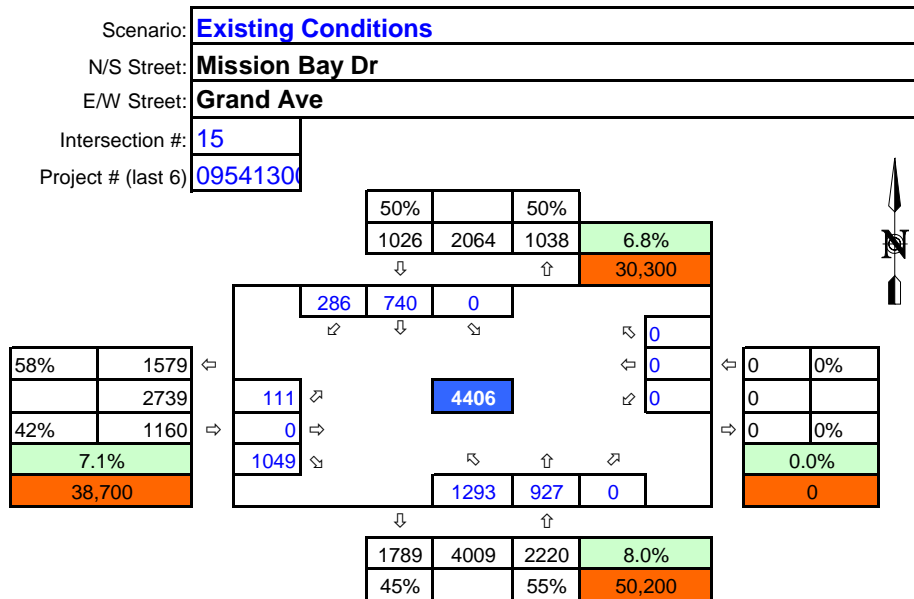
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 14 PM Peak Volumes



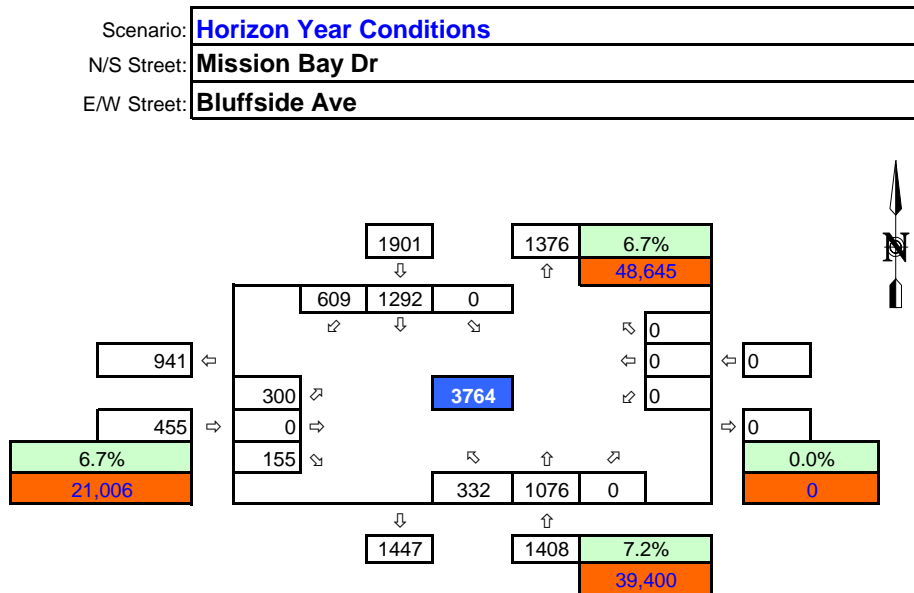
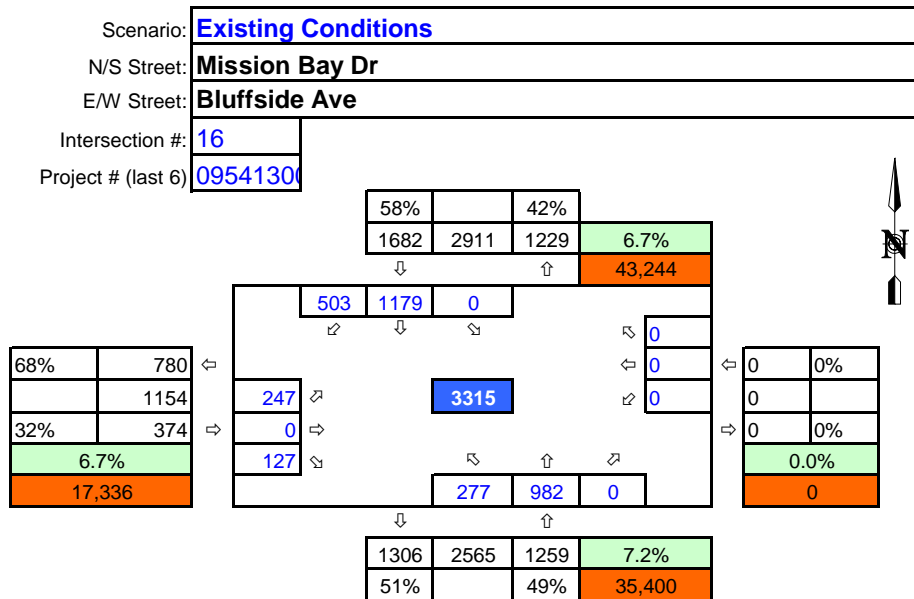
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 15 PM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 16 PM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Scenario: **Horizon Year Conditions**

N/S Street: **Mission Bay Dr**

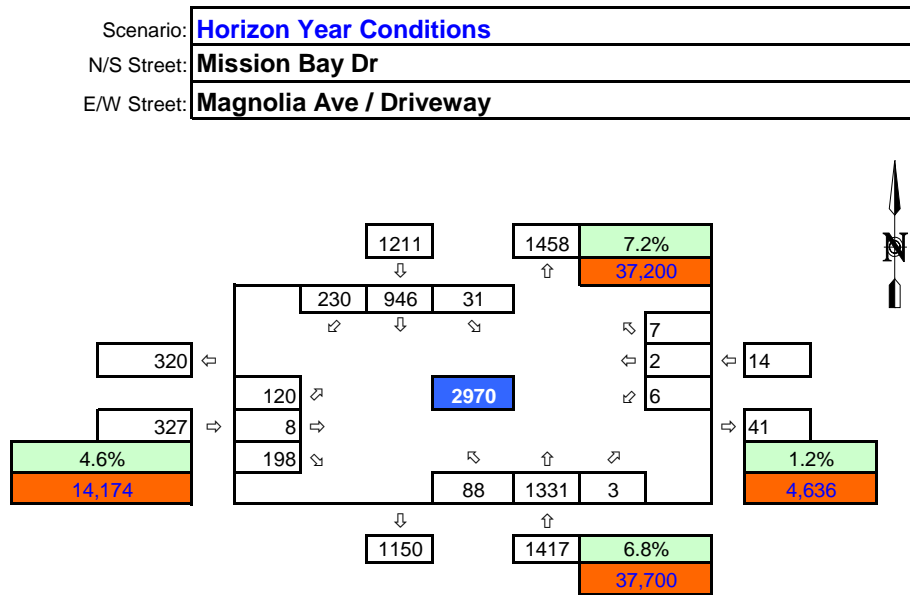
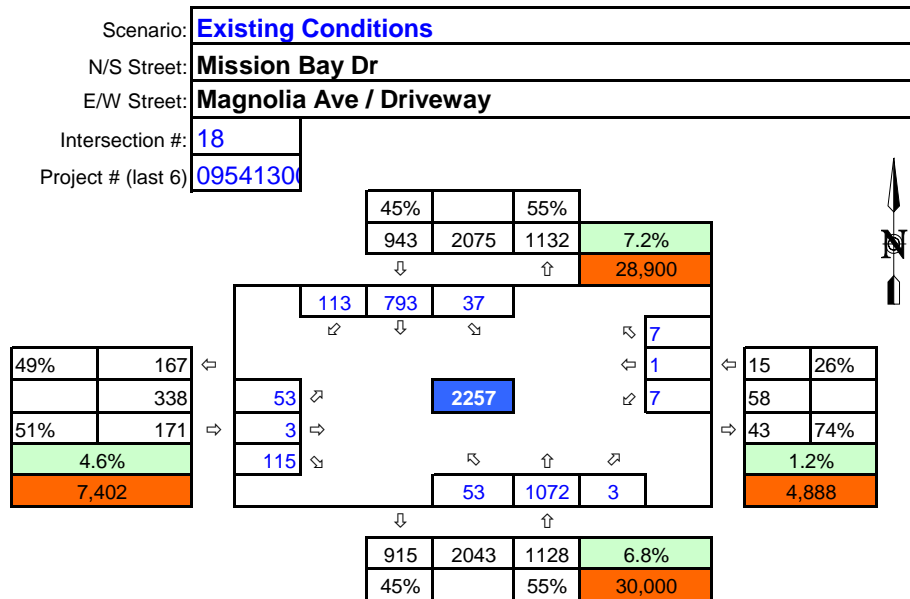
E/W Street: **Damon Ave**

The diagram illustrates the traffic flow and counts for Mission Bay Dr and Damon Ave. Key data points include:

- Mission Bay Dr (Northbound):** 1473 vehicles, 7.3% (39,400) percentage.
- Mission Bay Dr (Southbound):** 1407 vehicles, 7.2% (41,600) percentage.
- Damon Ave (Eastbound):** 1562 vehicles, 12.7% (5,495) percentage.
- Damon Ave (Westbound):** 1442 vehicles, 7.2% (41,600) percentage.
- Intersection Data:**
 - Northbound Lane: 0, 1376, 98
 - Southbound Lane: 0, 3290, 0, 0, 0
 - Eastbound Lane: 0, 1217, 223
 - Westbound Lane: 0, 186, 321

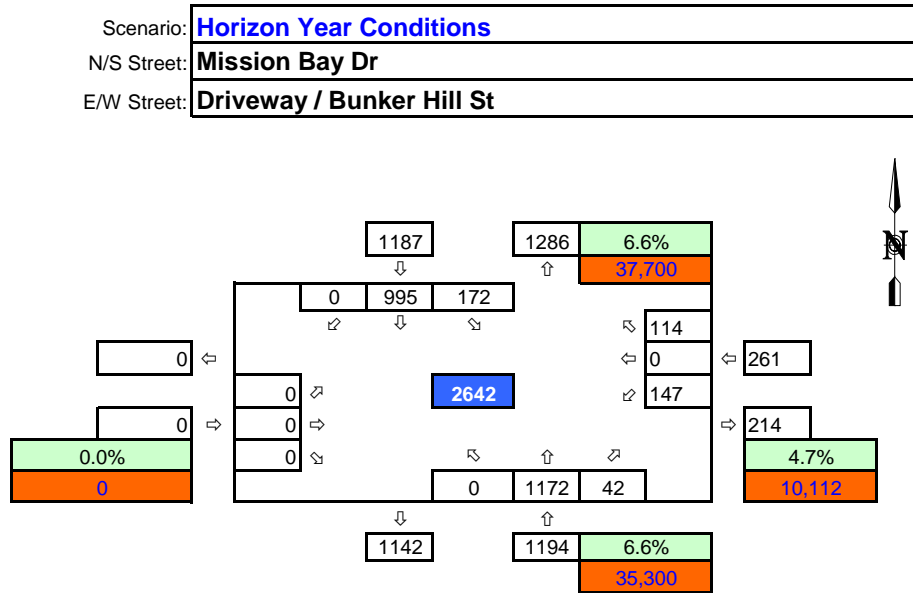
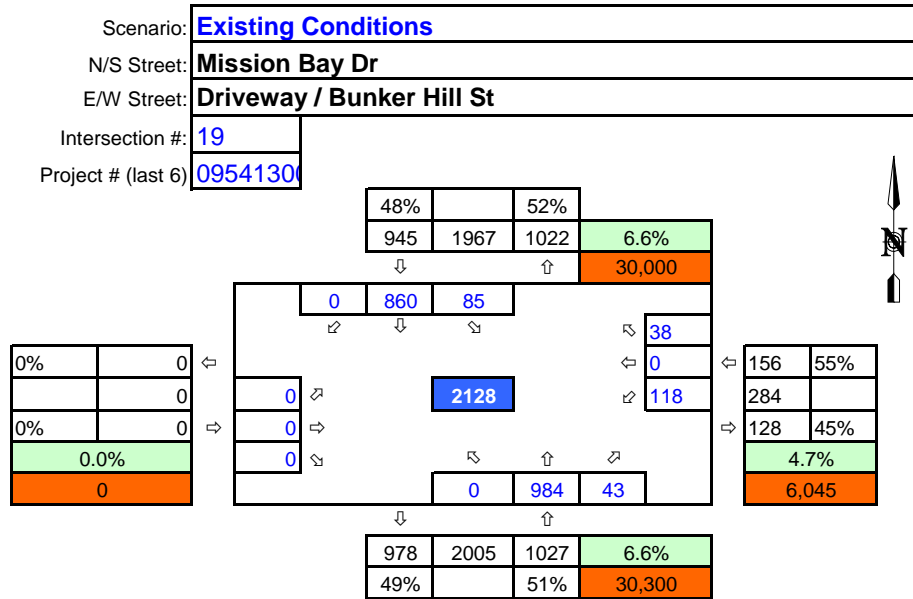
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 18 PM Peak Volumes



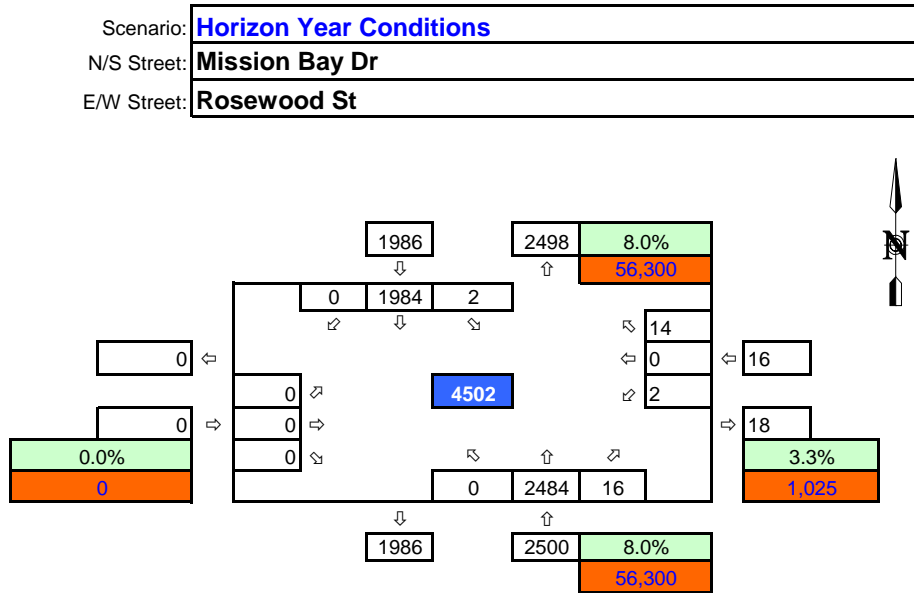
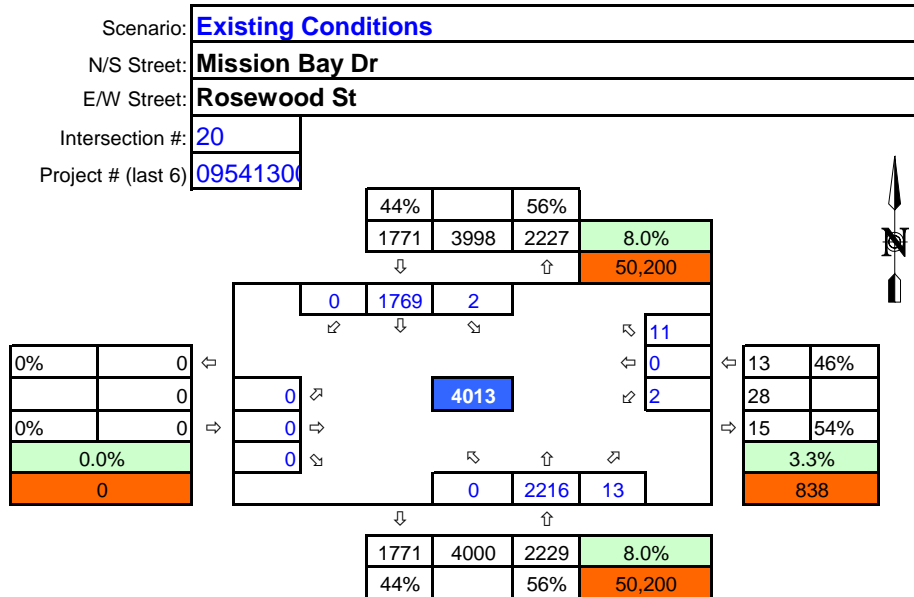
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 19 PM Peak Volumes



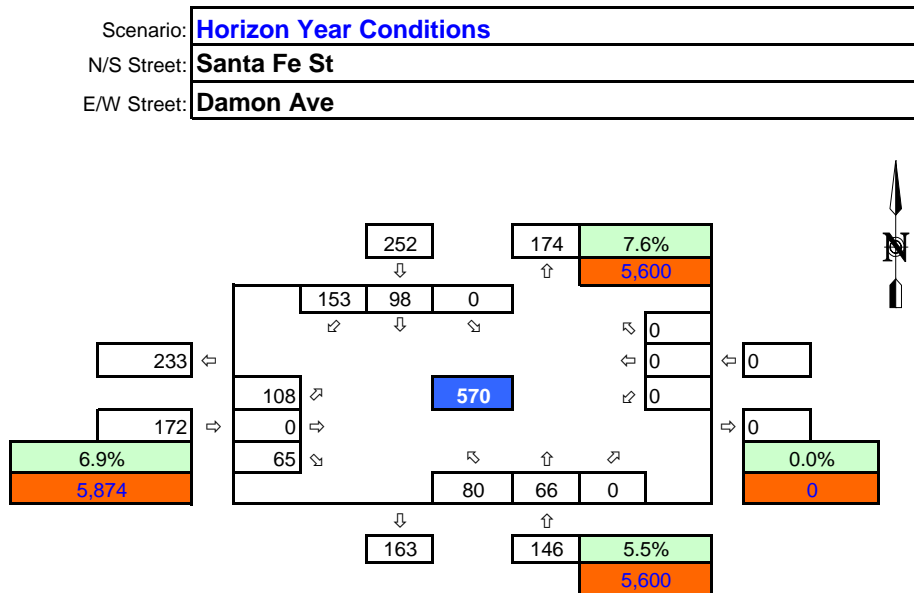
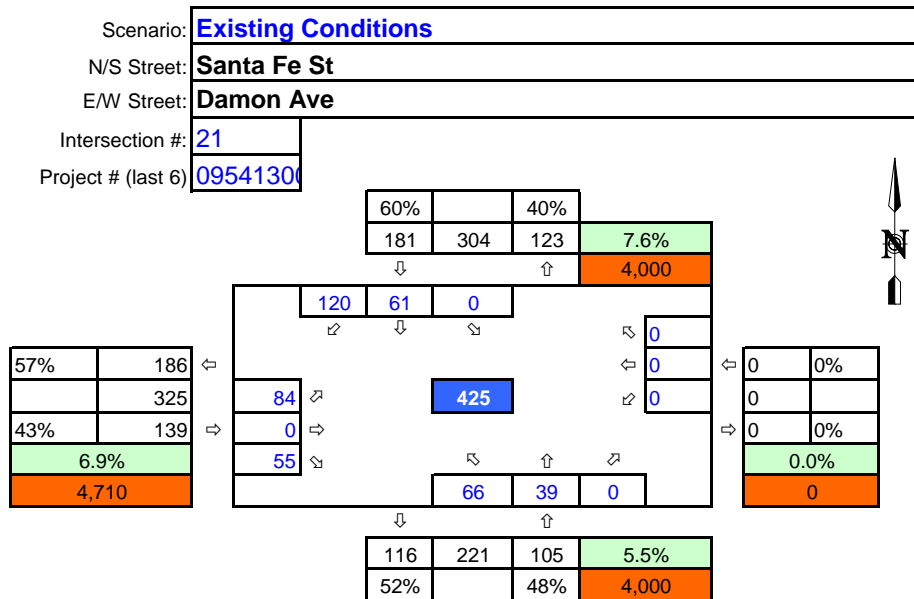
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 20 PM Peak Volumes



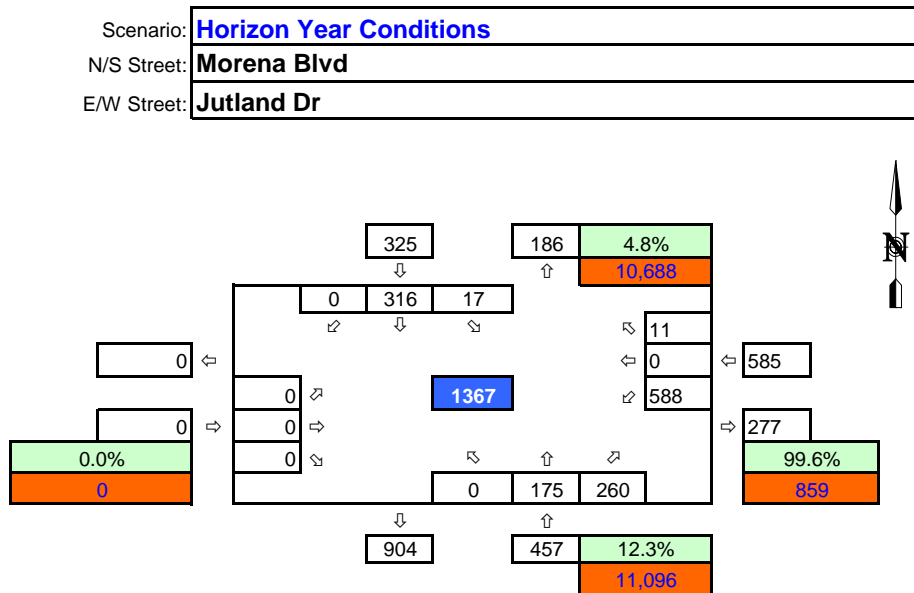
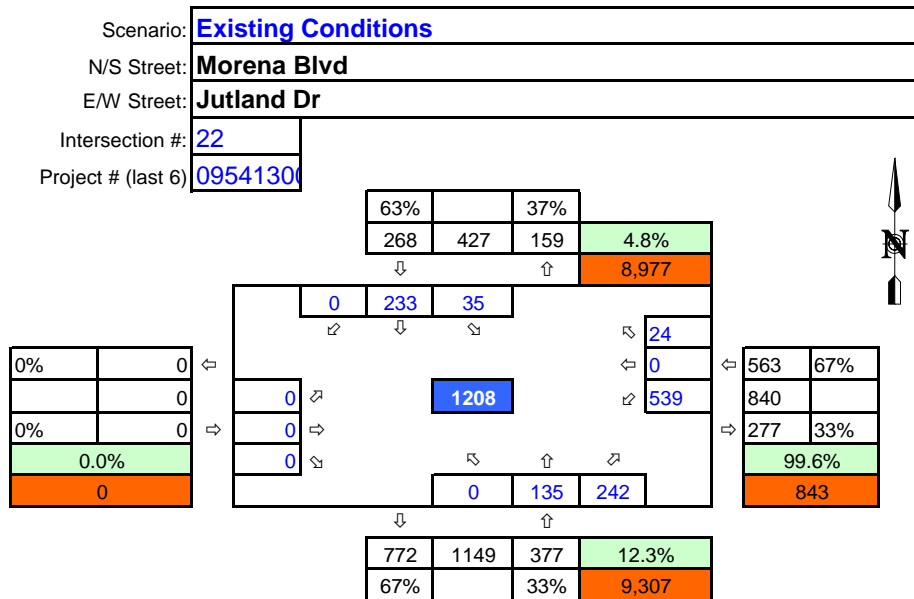
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 21 PM Peak Volumes



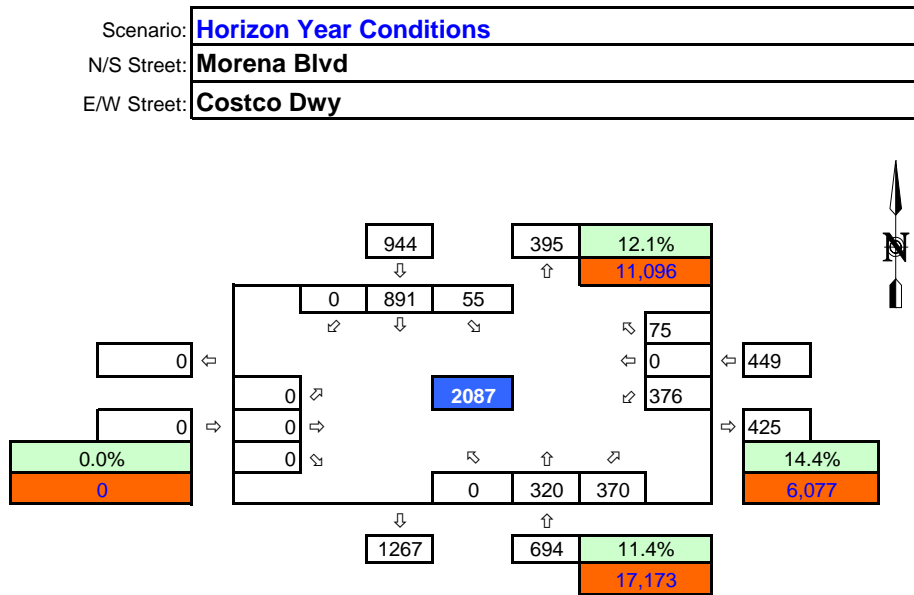
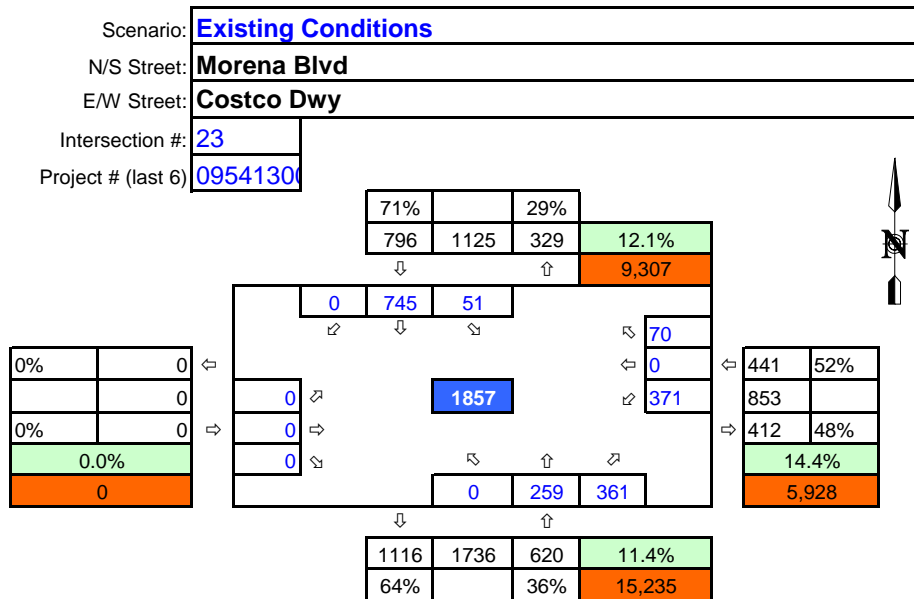
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 22 PM Peak Volumes



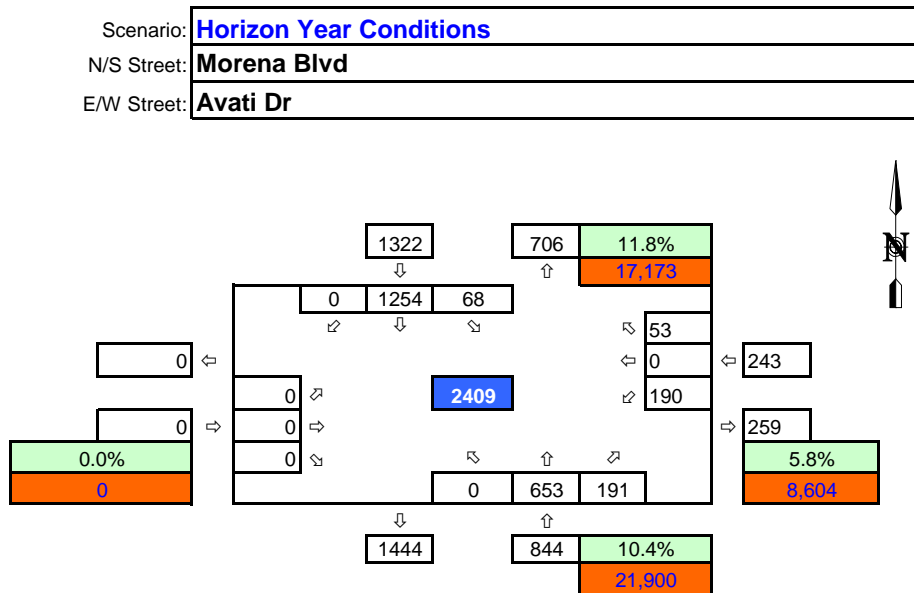
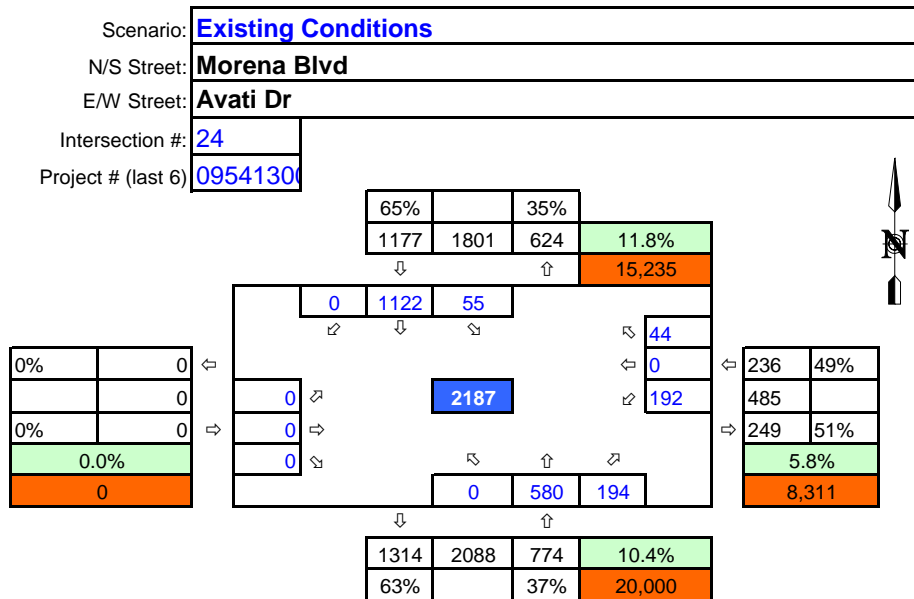
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 23 PM Peak Volumes



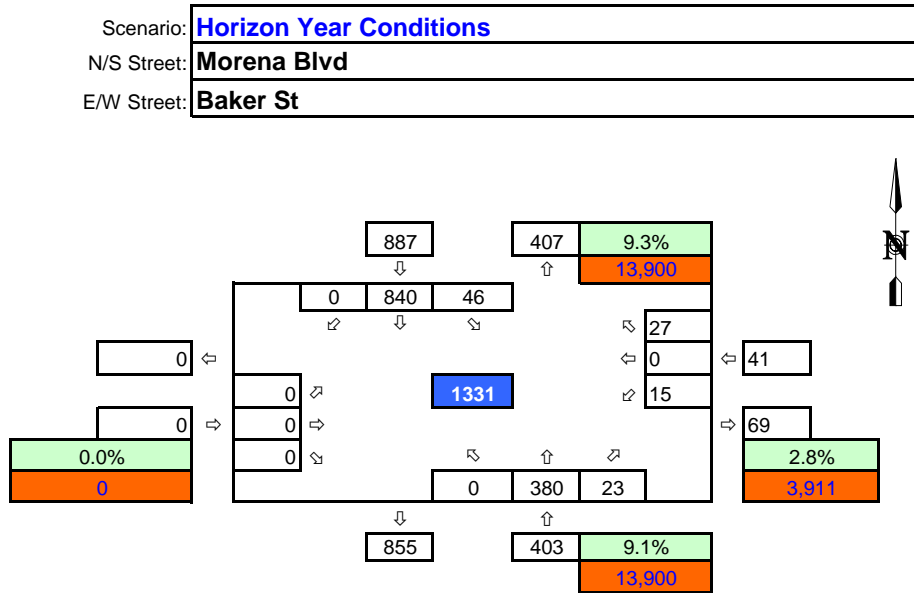
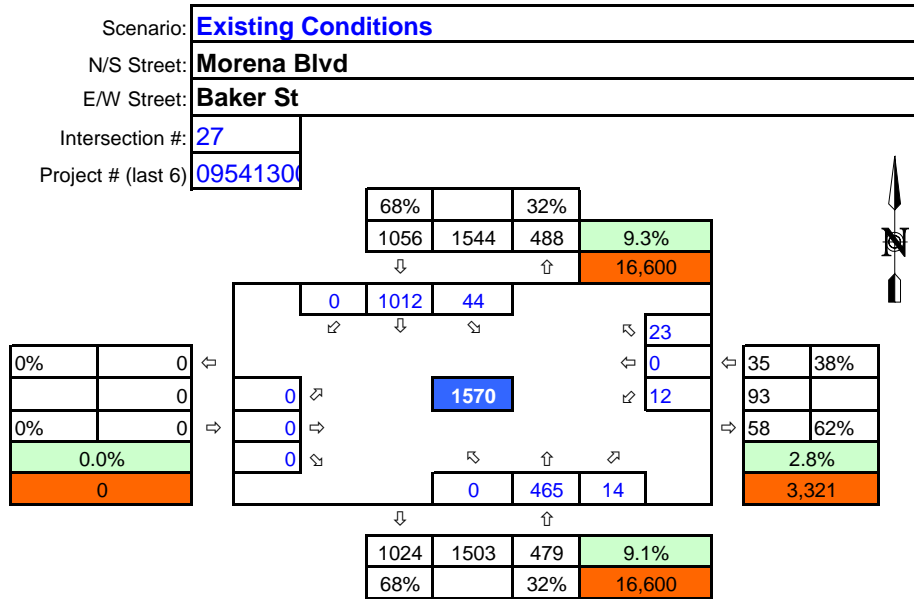
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 24 PM Peak Volumes



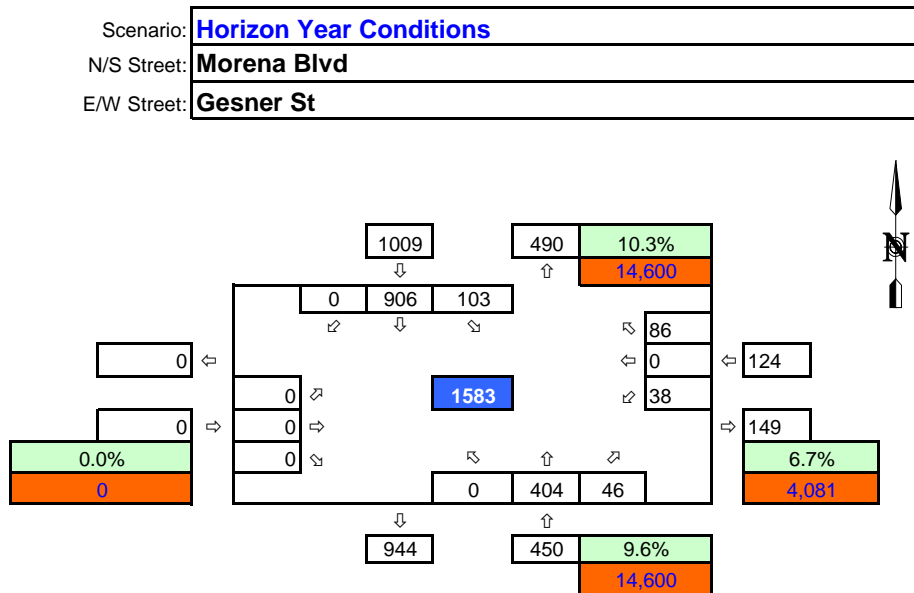
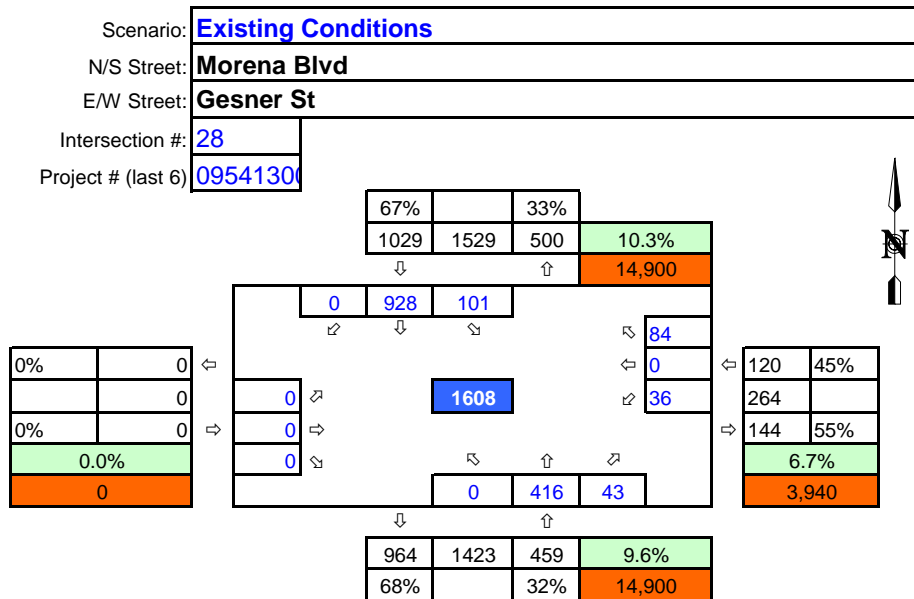
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 27 PM Peak Volumes



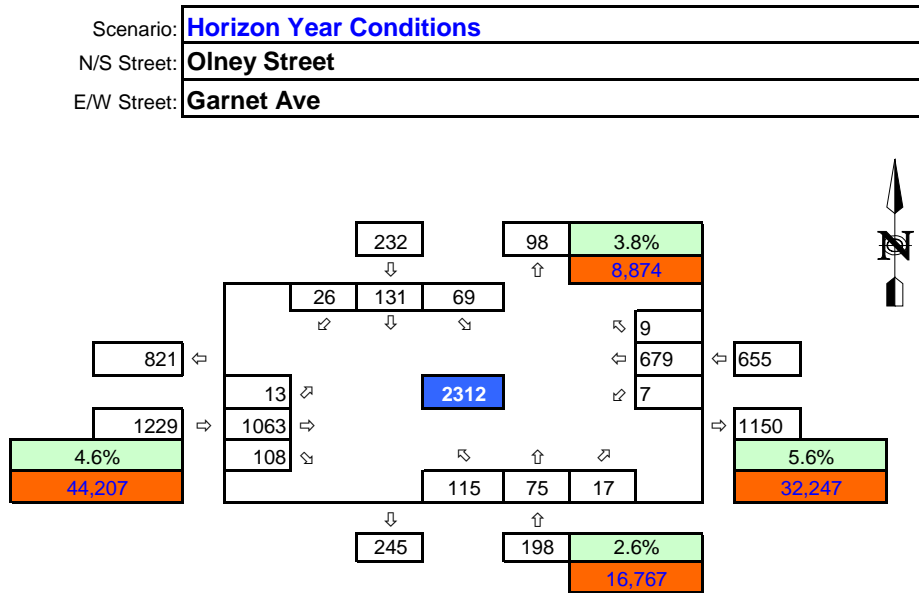
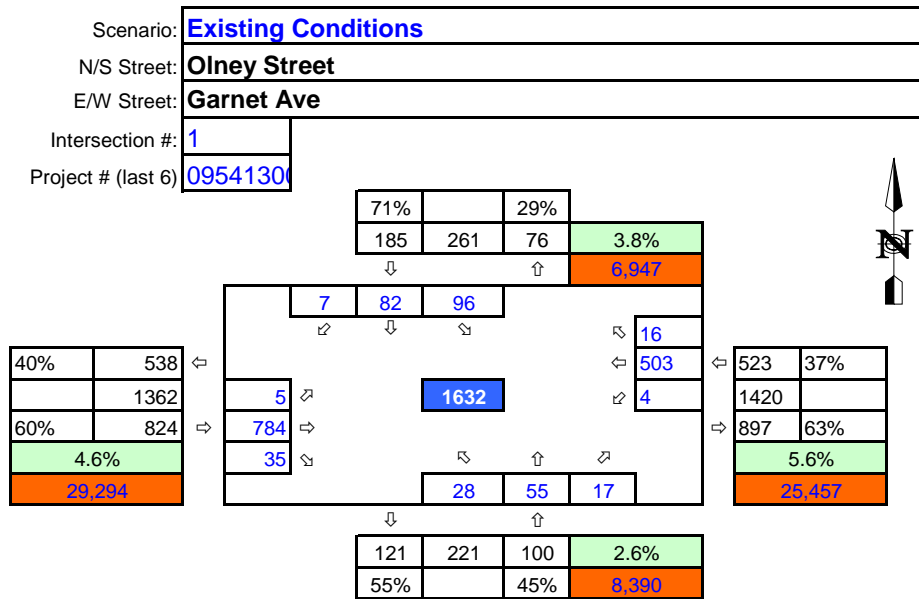
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 28 PM Peak Volumes



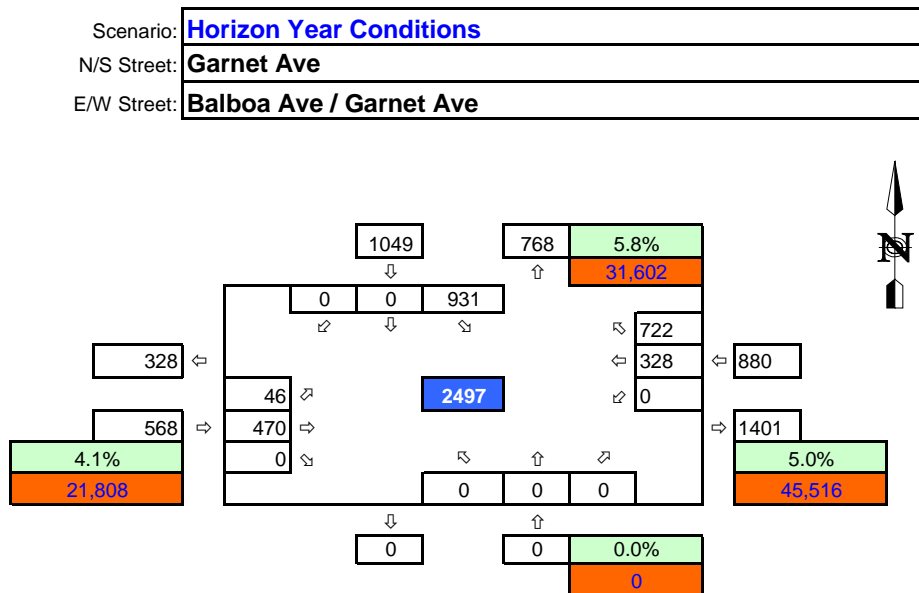
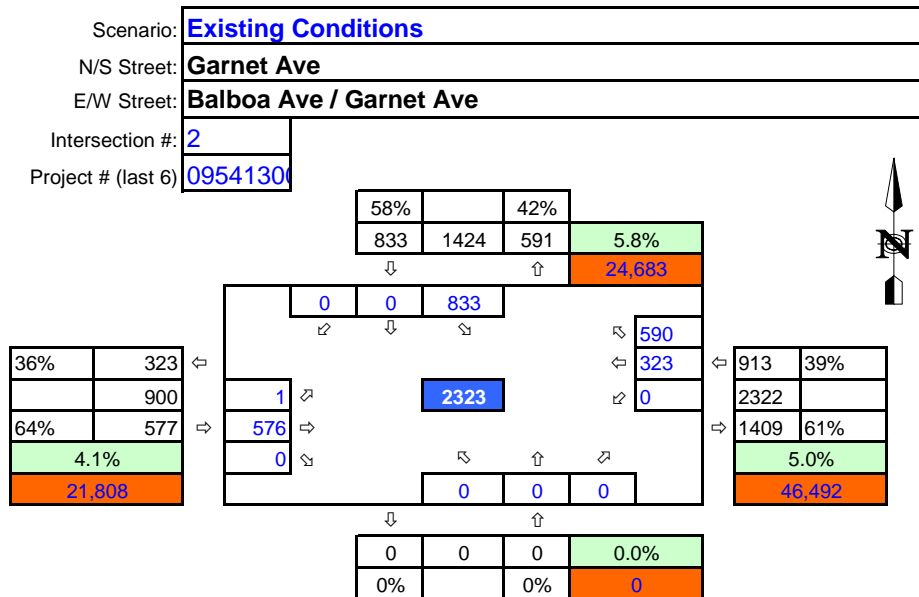
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 1 AM Peak Volumes



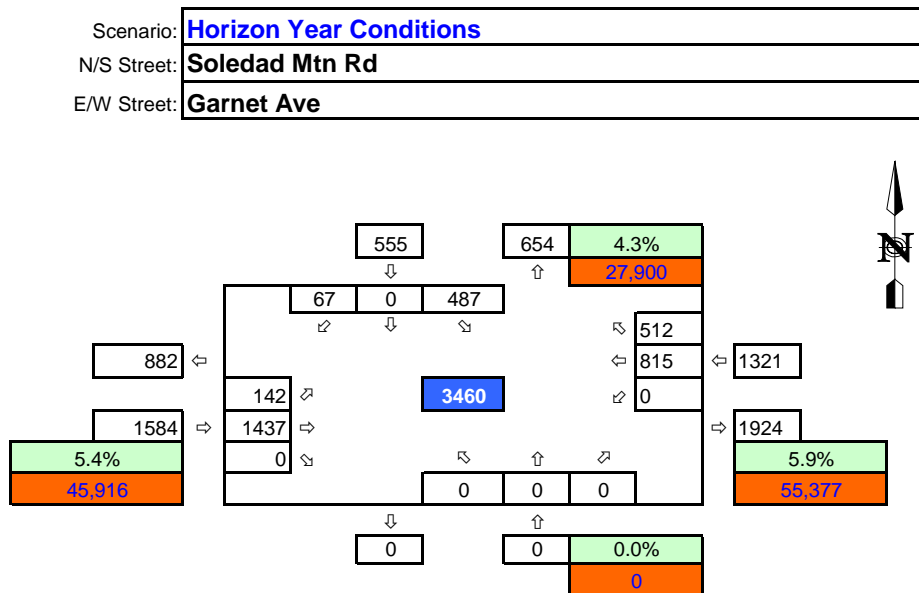
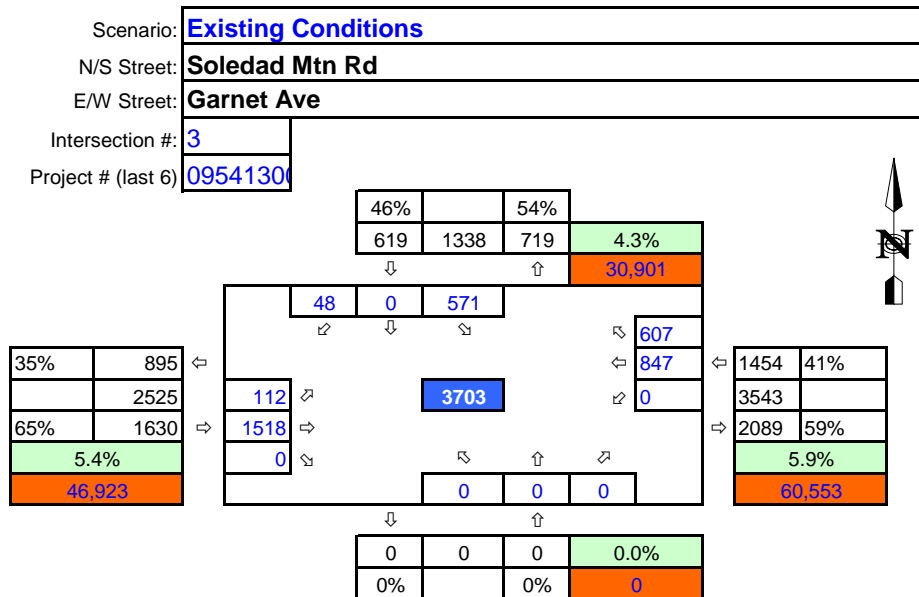
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 2 AM Peak Volumes



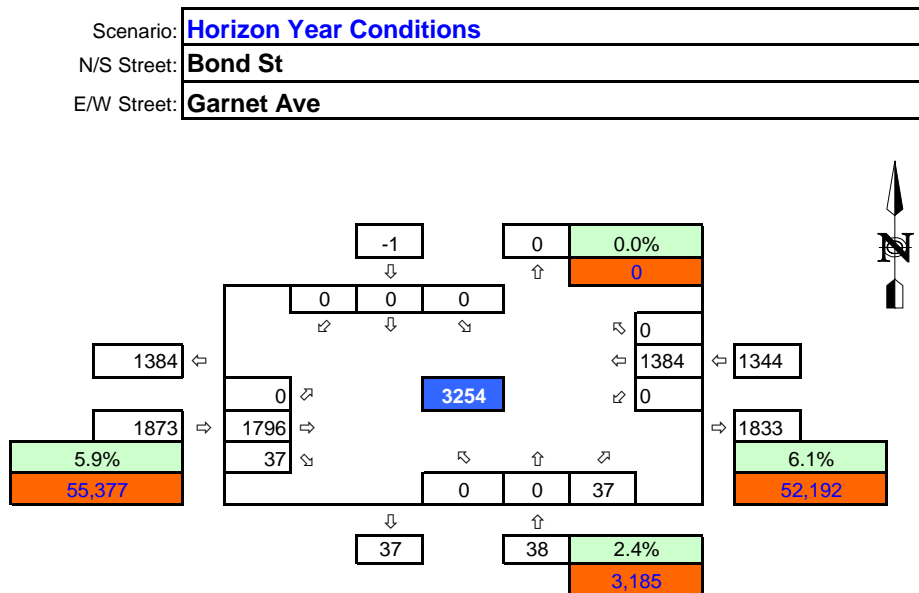
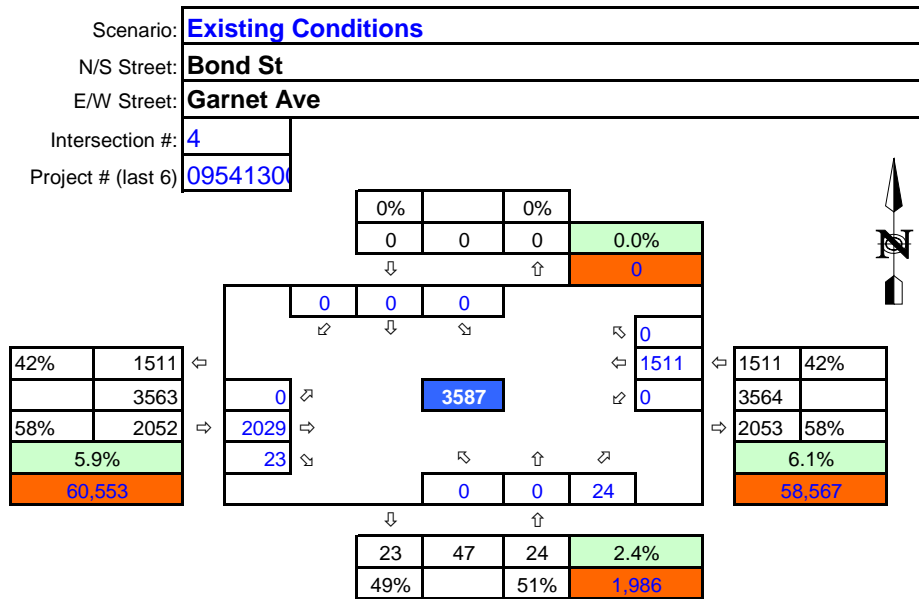
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 3 AM Peak Volumes



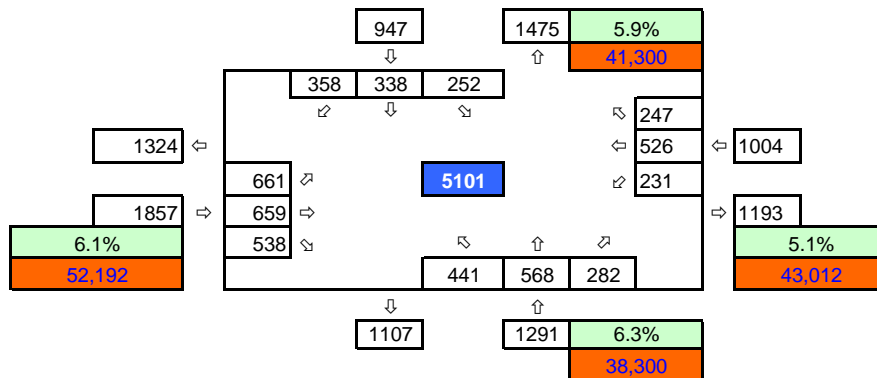
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 4 AM Peak Volumes



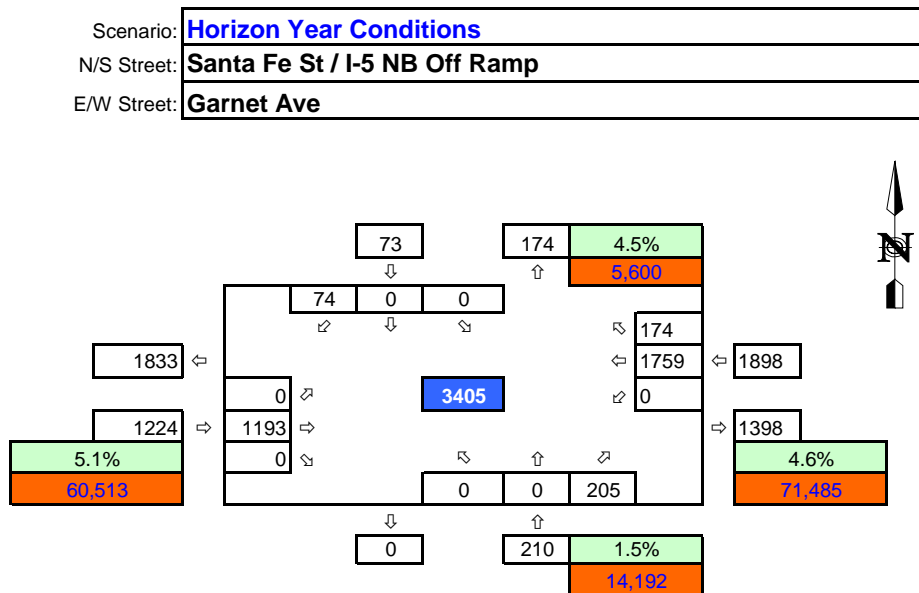
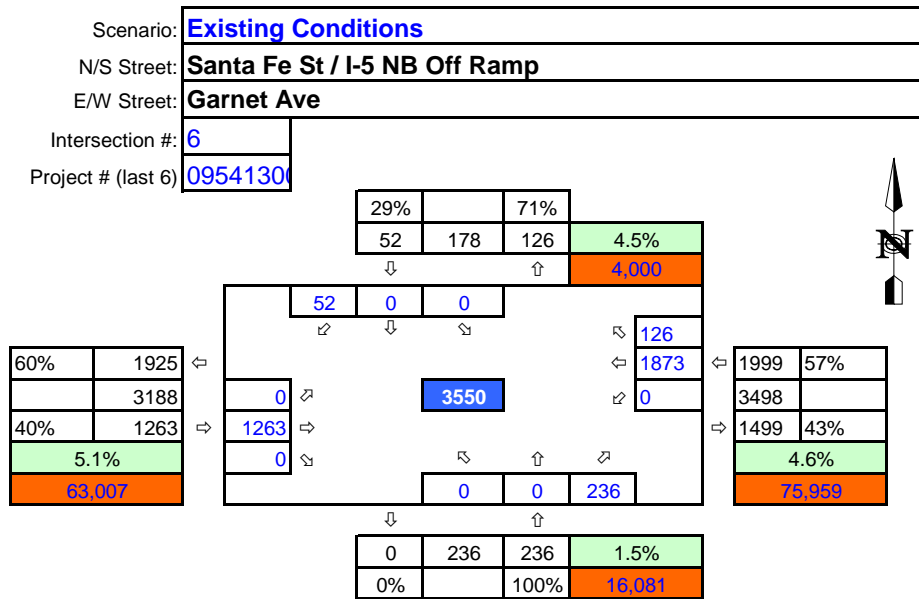
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 5 AM Peak Volumes



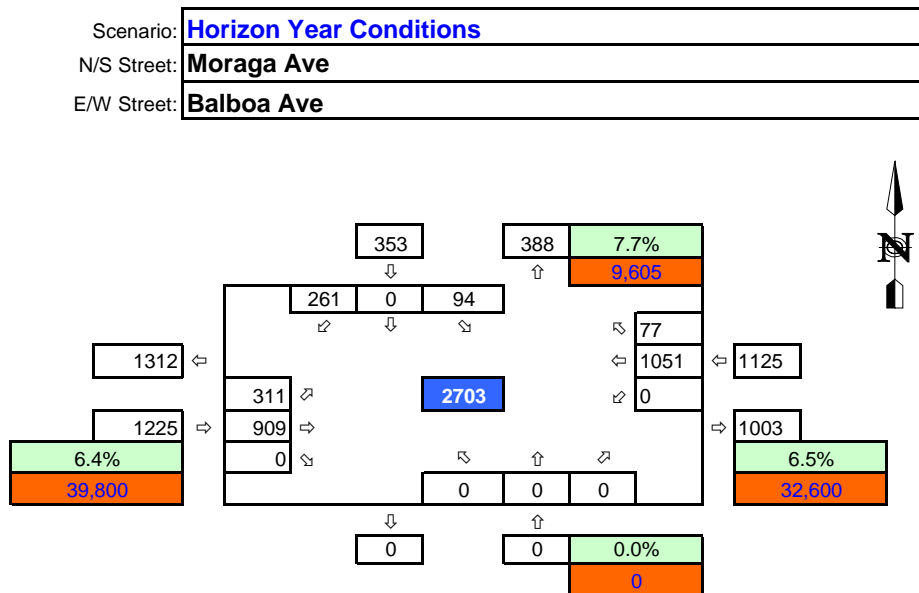
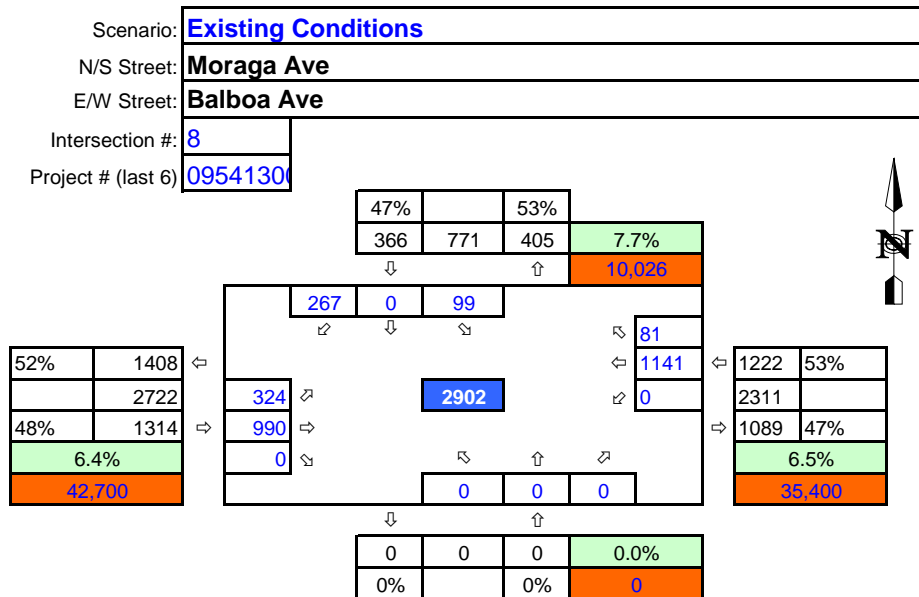
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 6 AM Peak Volumes



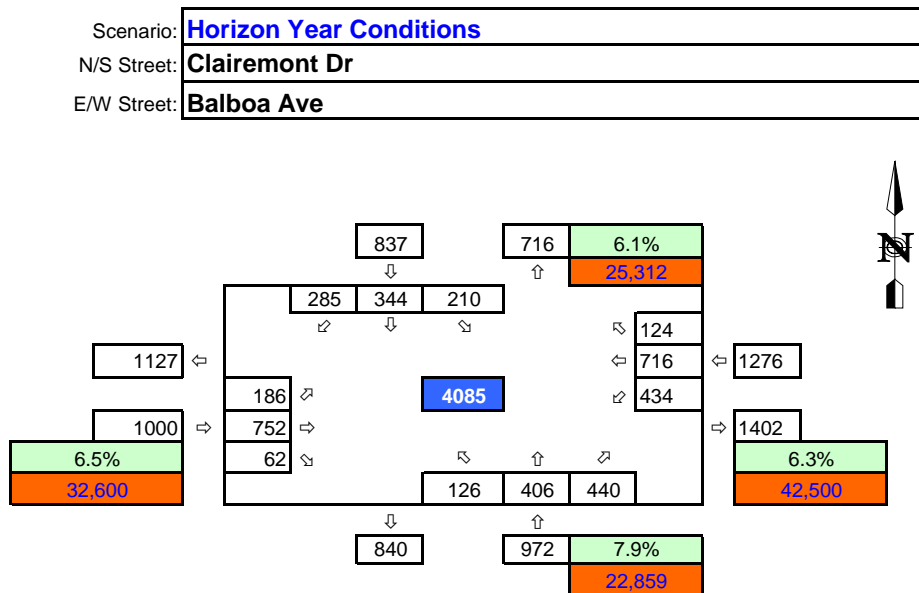
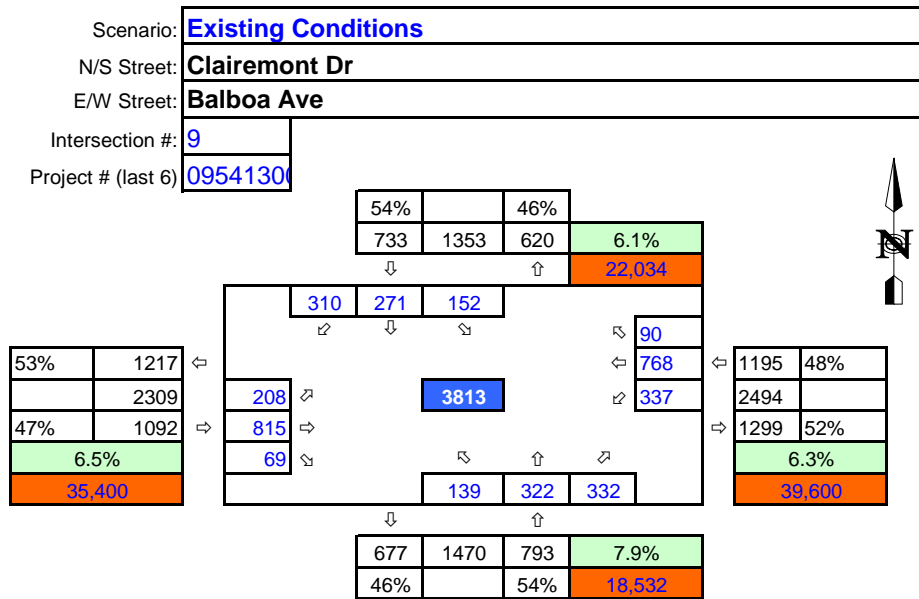
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 8 AM Peak Volumes



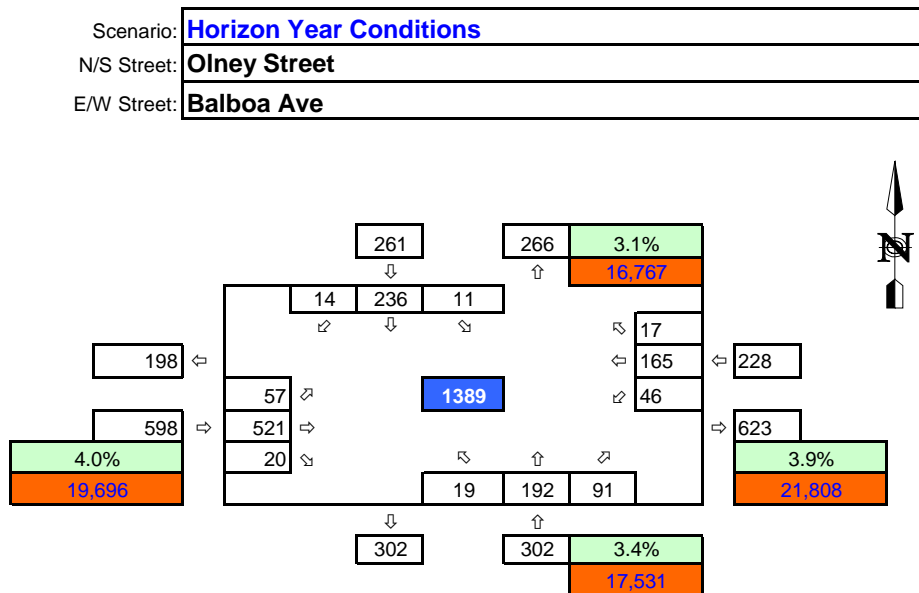
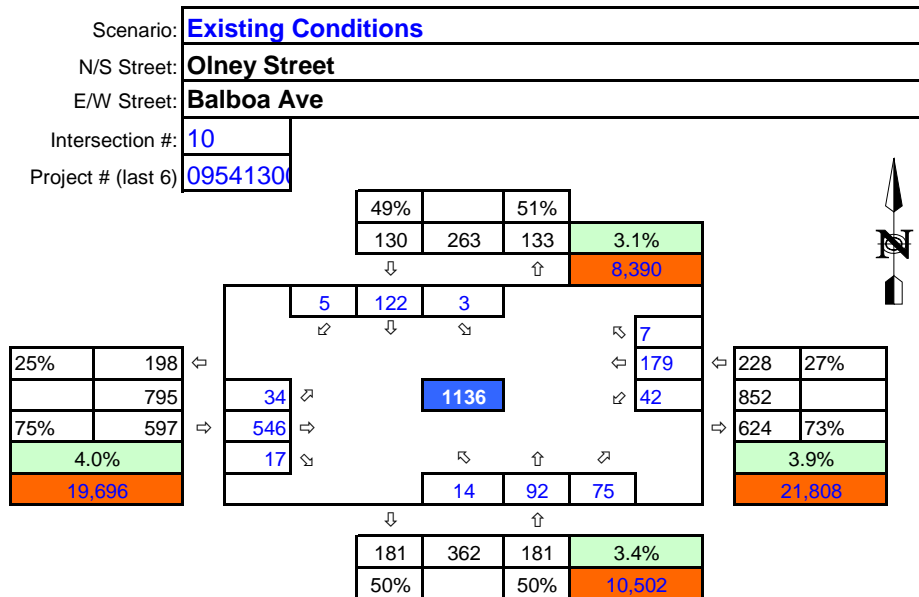
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 9 AM Peak Volumes



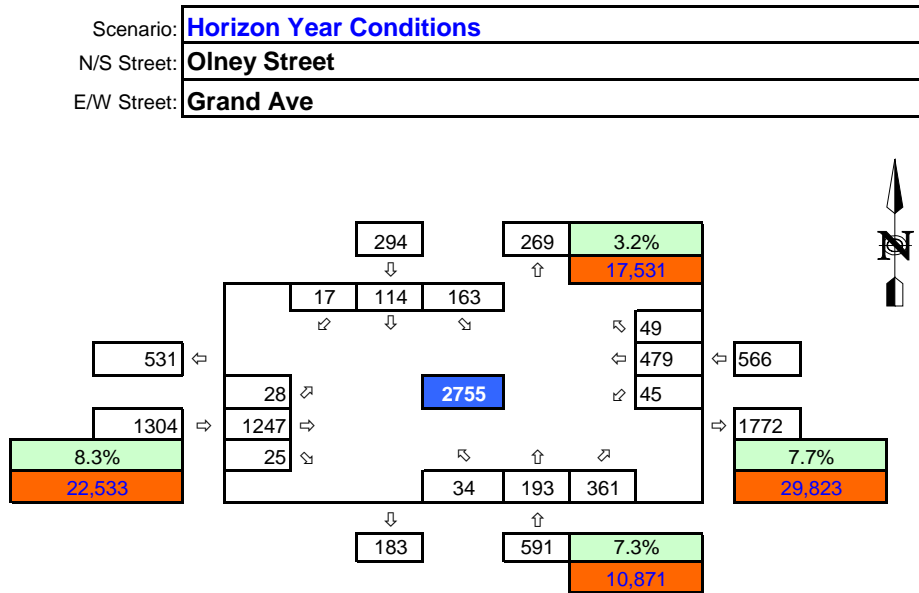
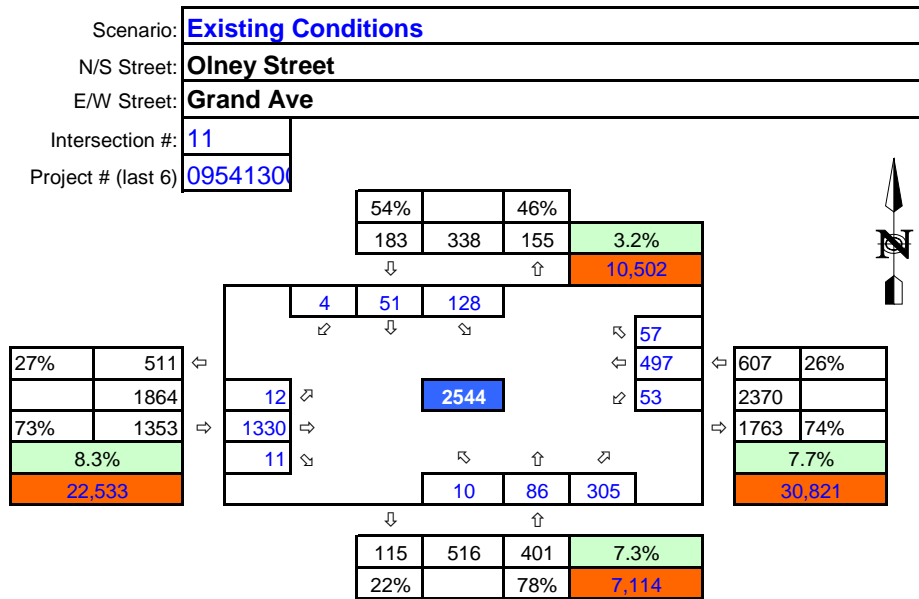
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 10 AM Peak Volumes



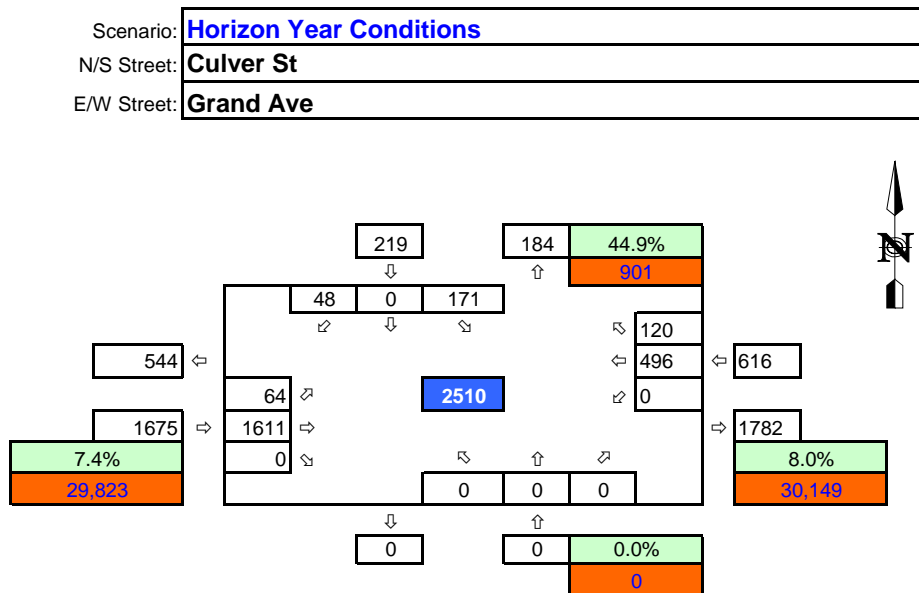
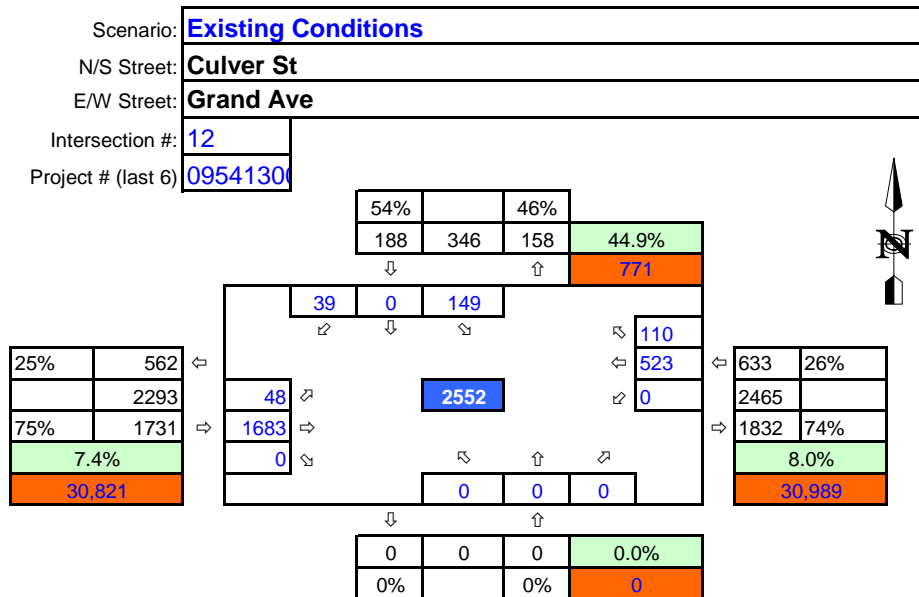
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 11 AM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

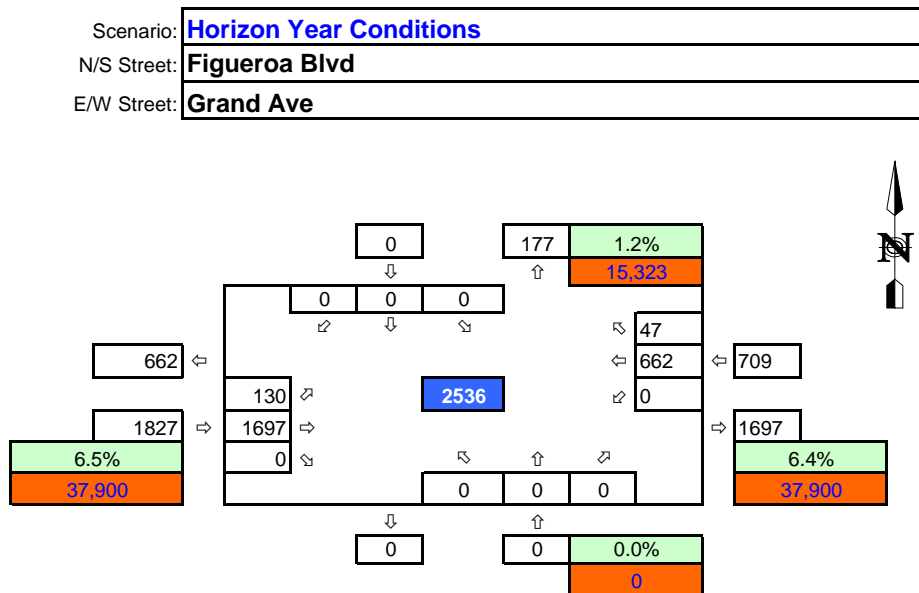
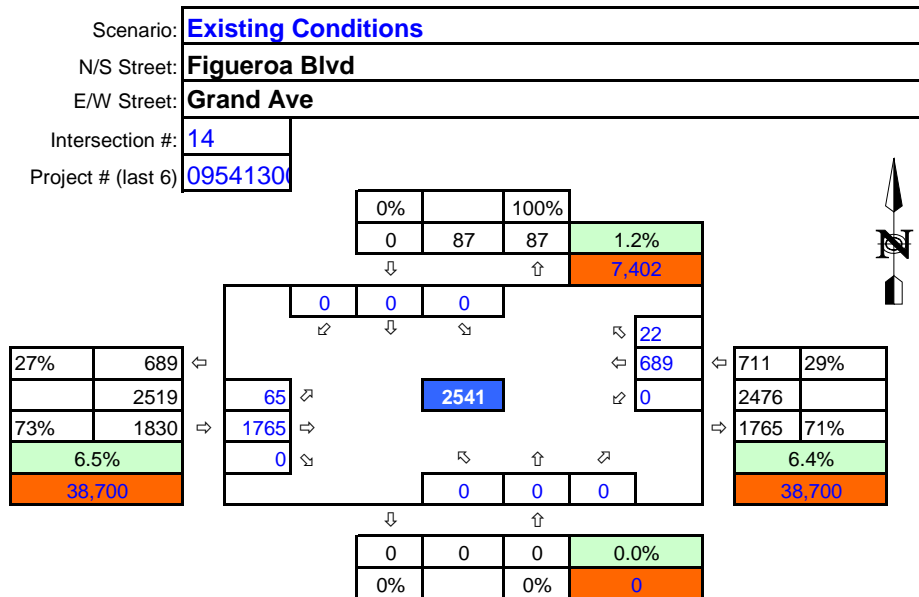
Int 12 AM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

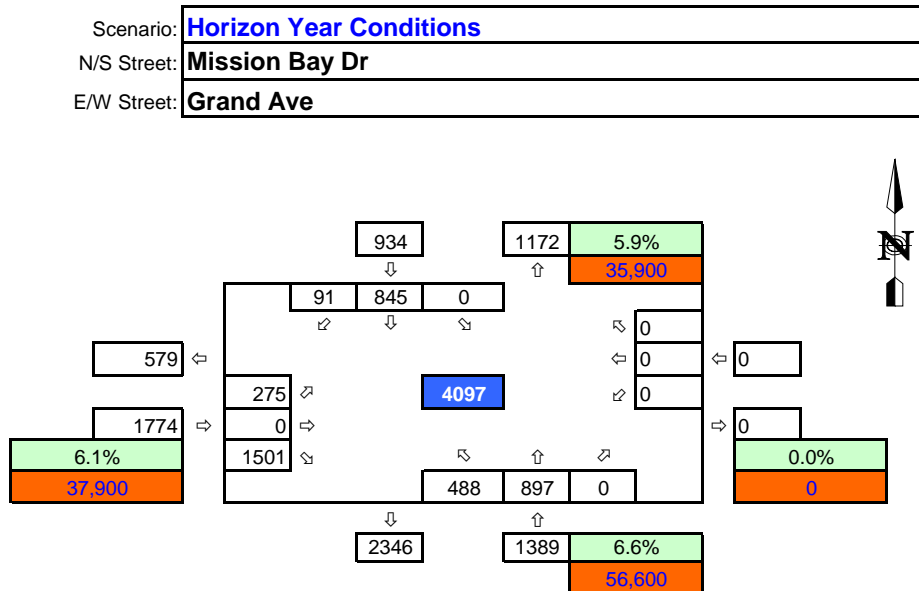
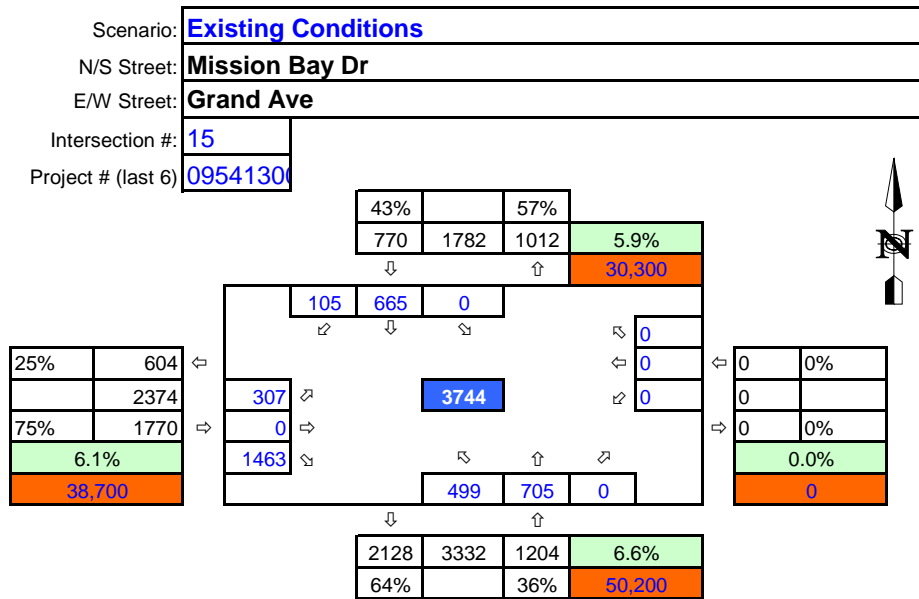
[illegible]

Int 14 AM Peak Volumes



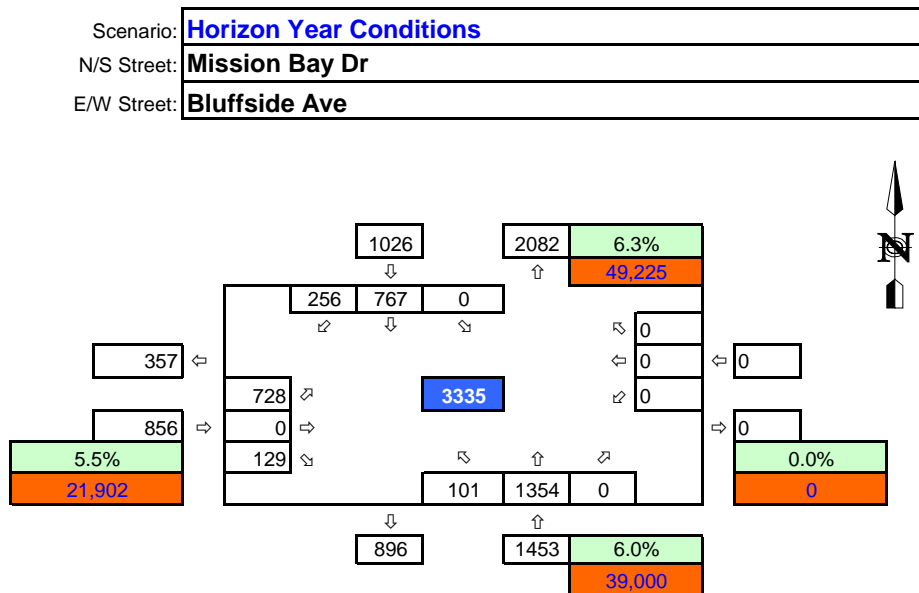
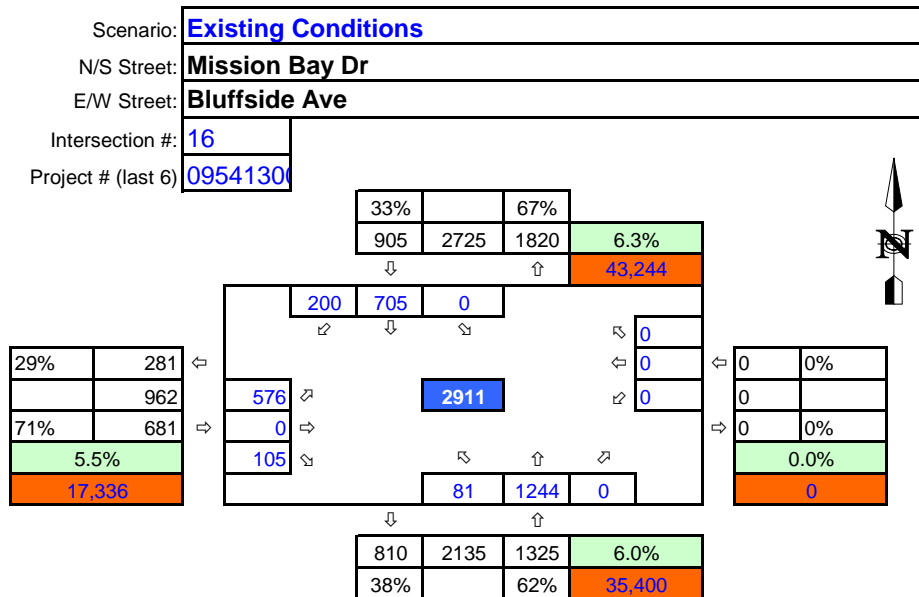
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 15 AM Peak Volumes



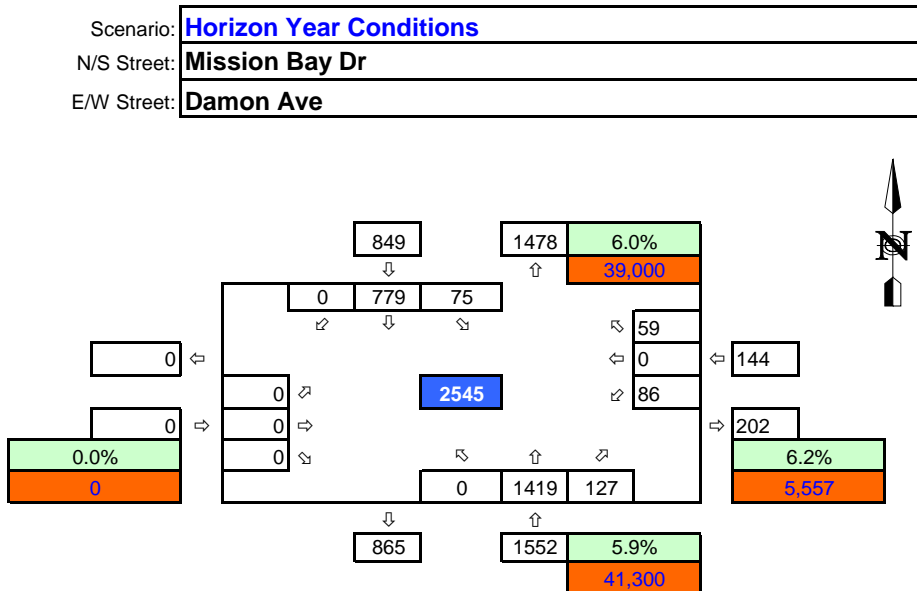
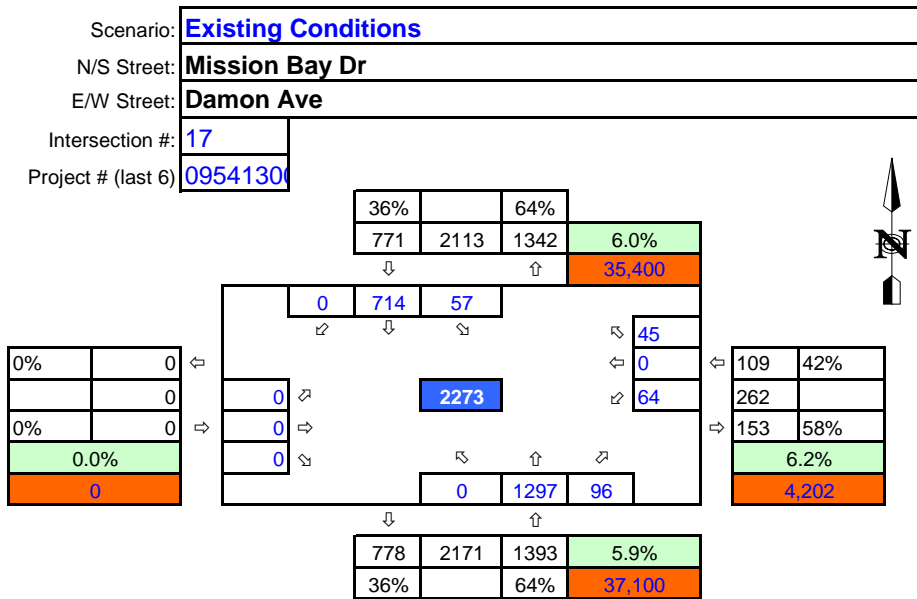
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 16 AM Peak Volumes



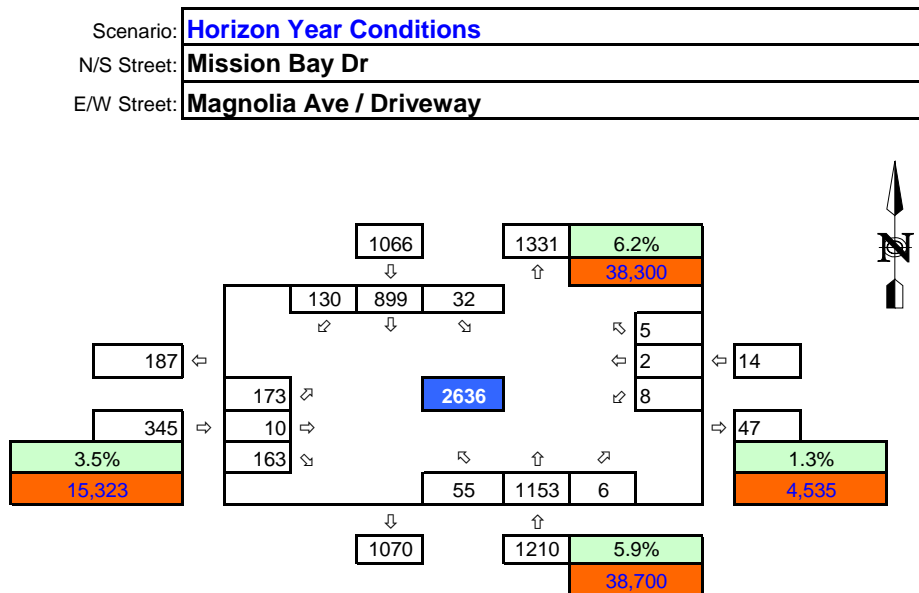
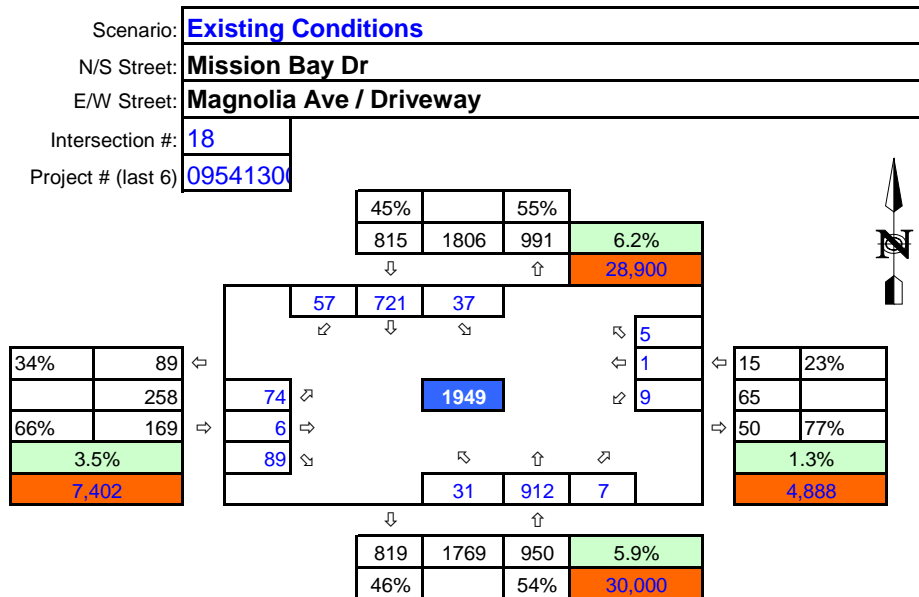
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 17 AM Peak Volumes



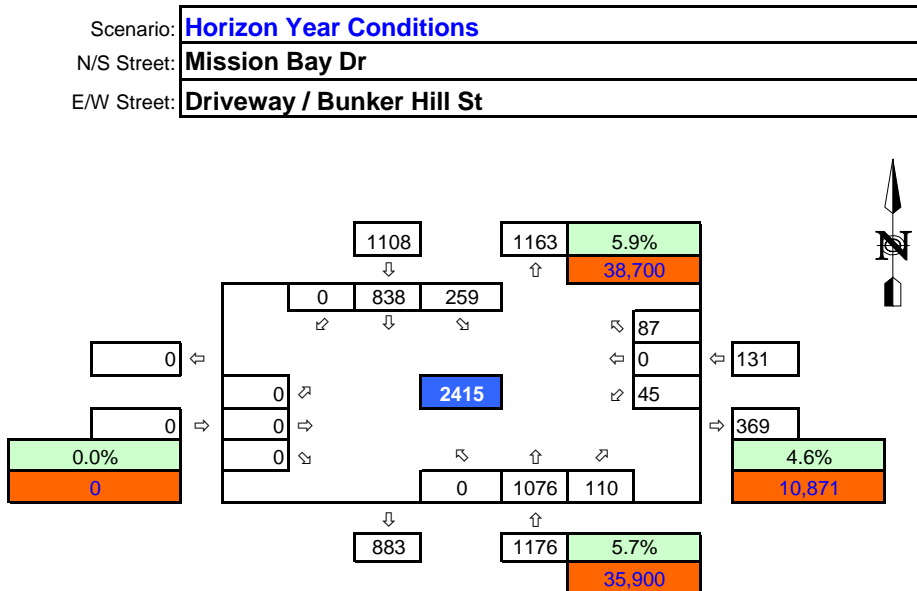
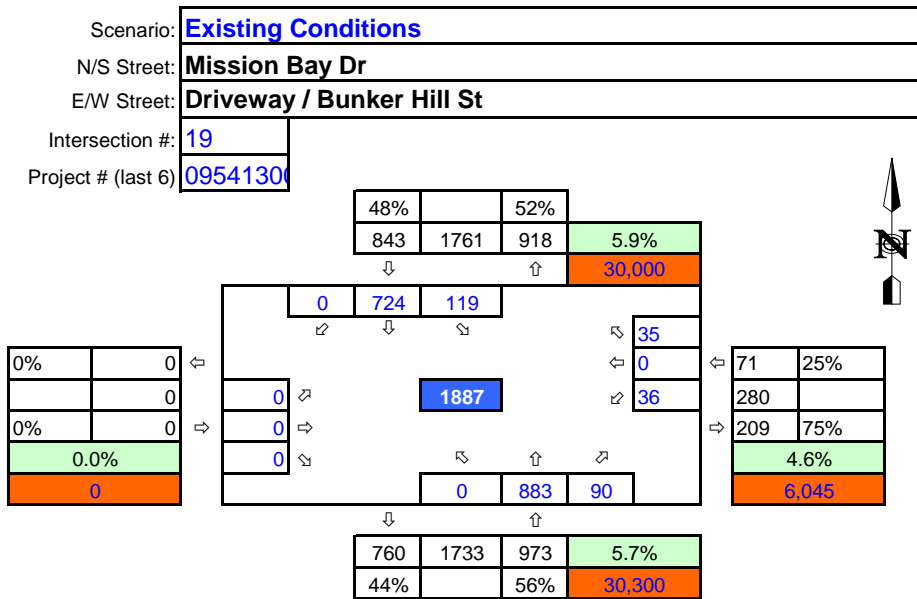
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 18 AM Peak Volumes



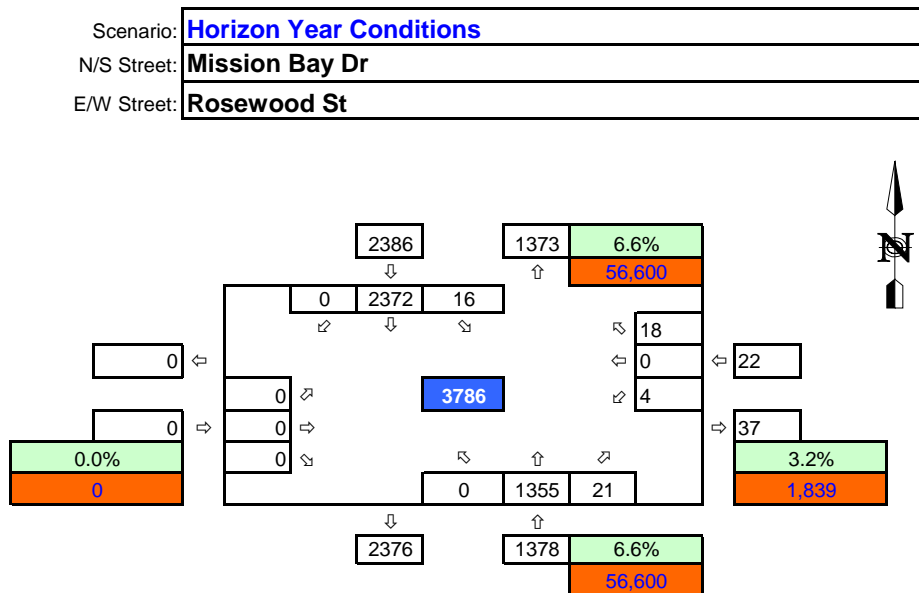
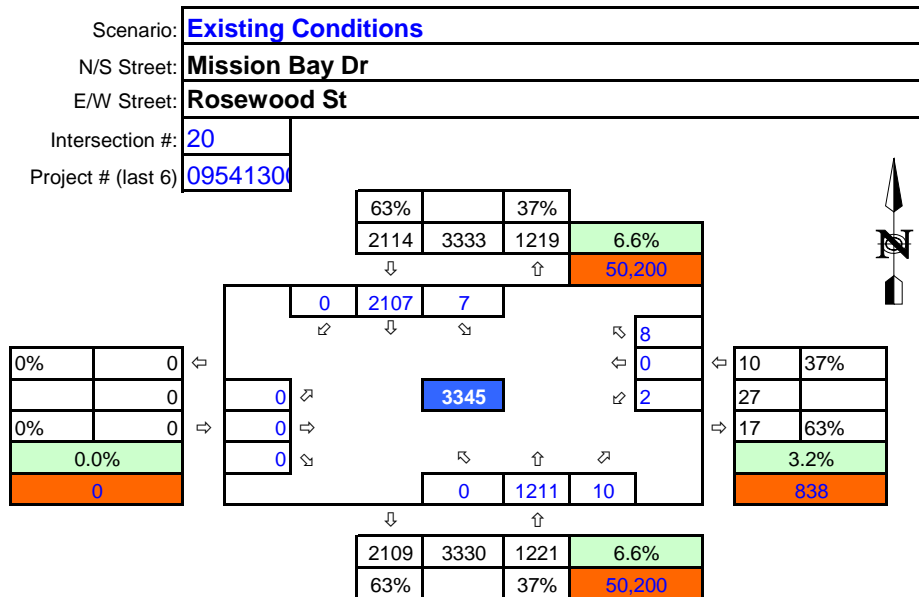
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 19 AM Peak Volumes



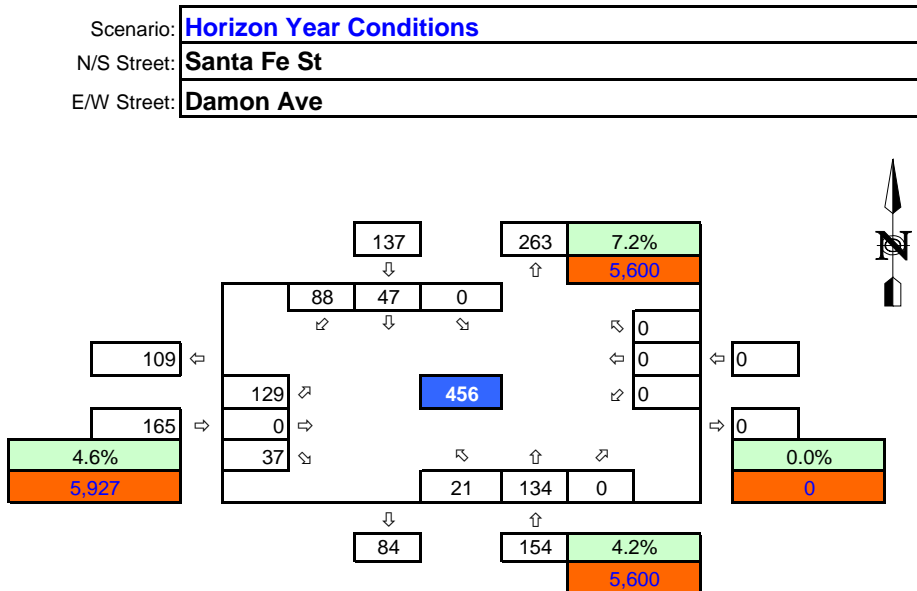
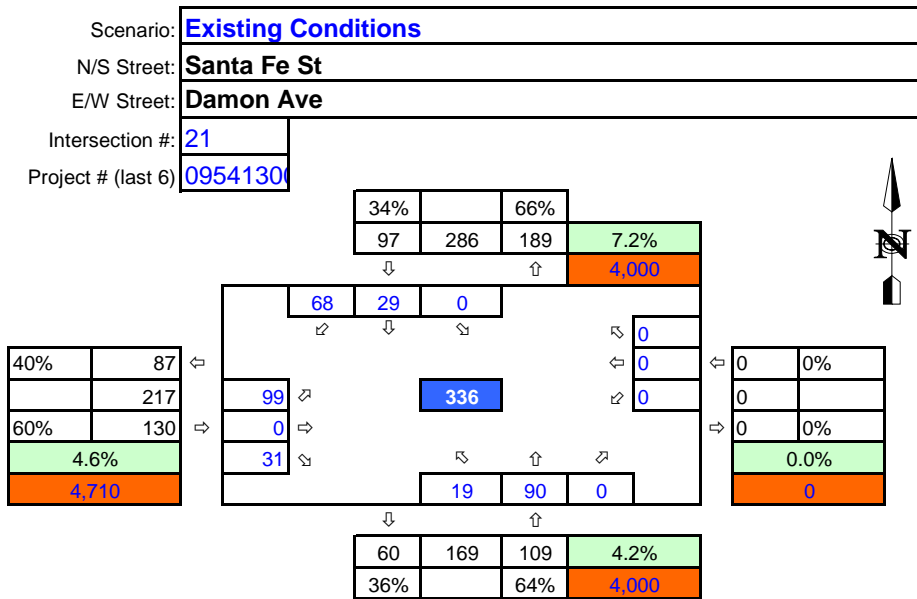
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 20 AM Peak Volumes



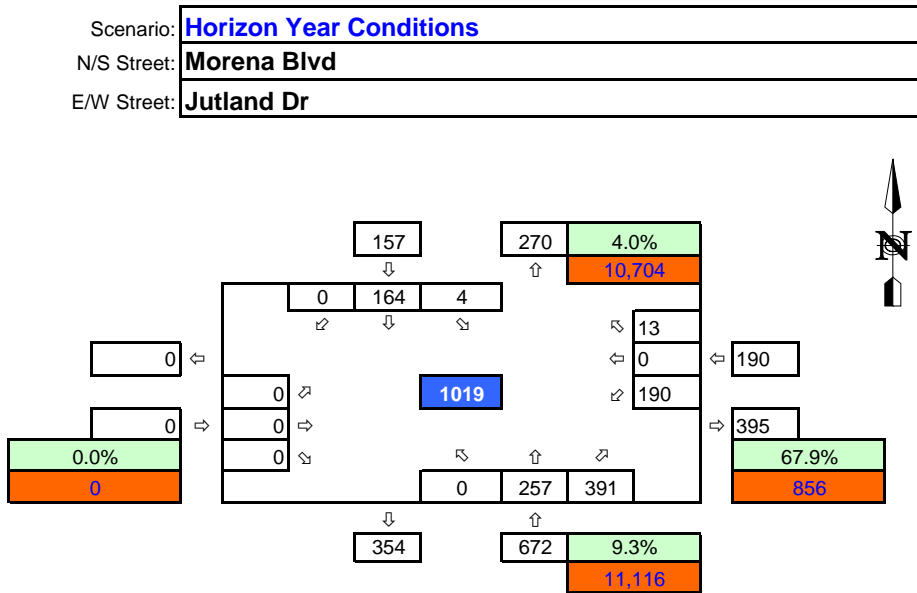
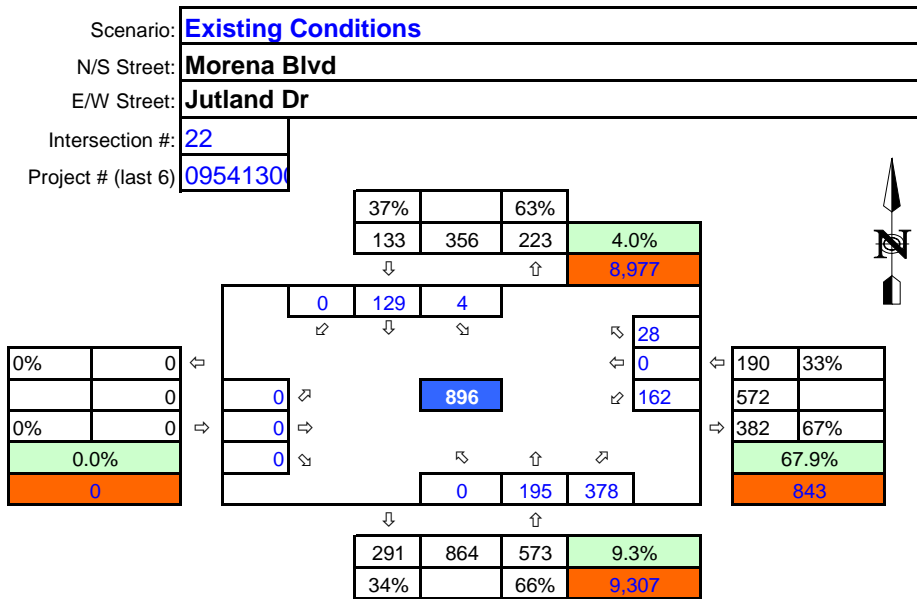
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 21 AM Peak Volumes



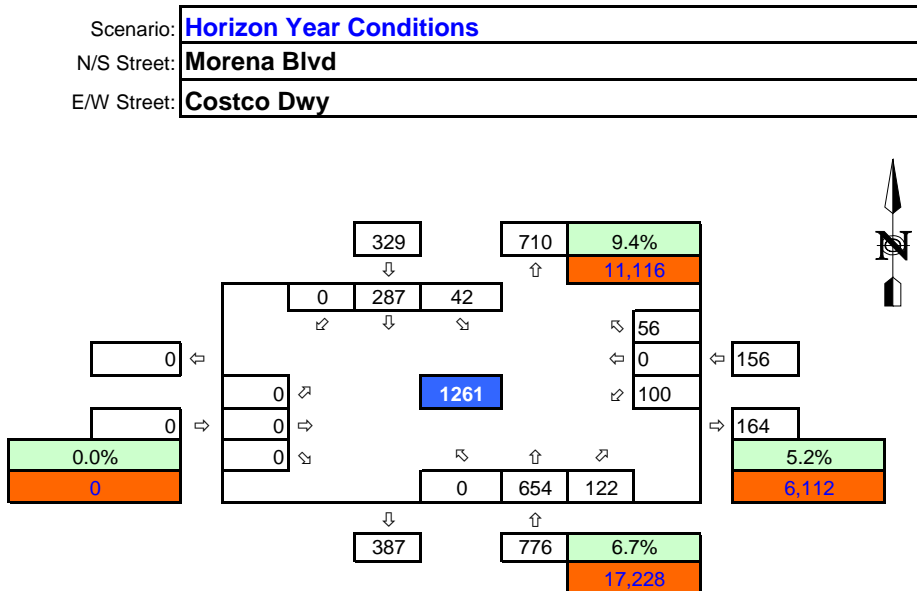
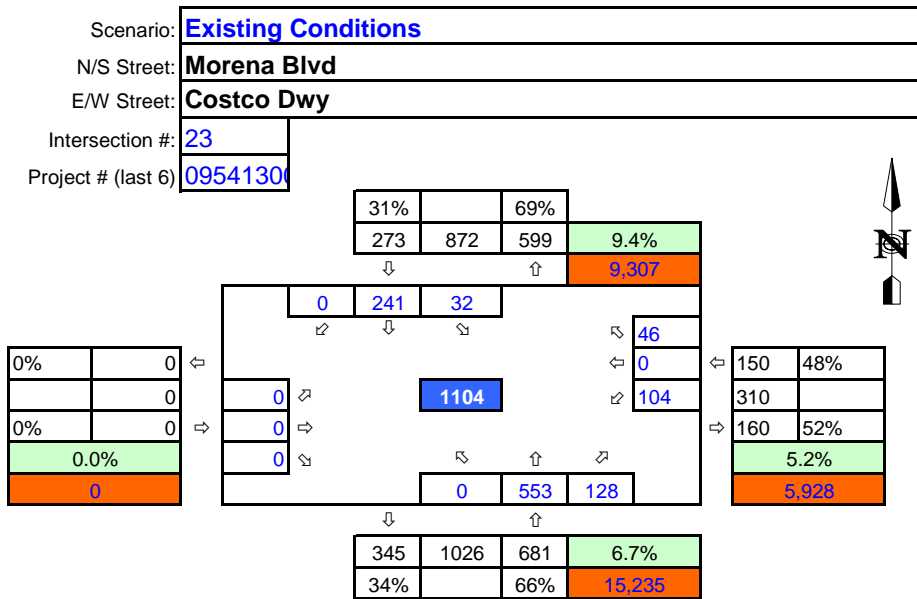
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 22 AM Peak Volumes



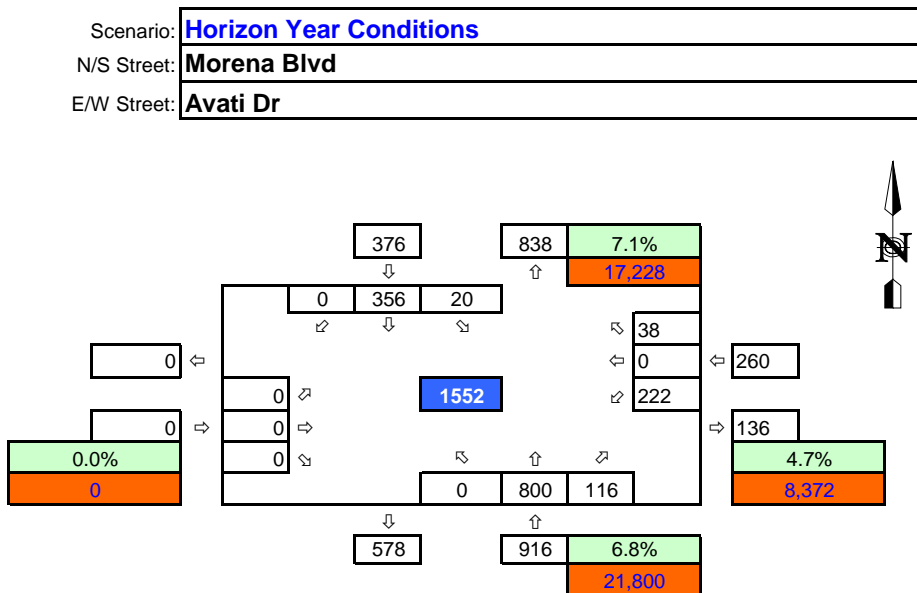
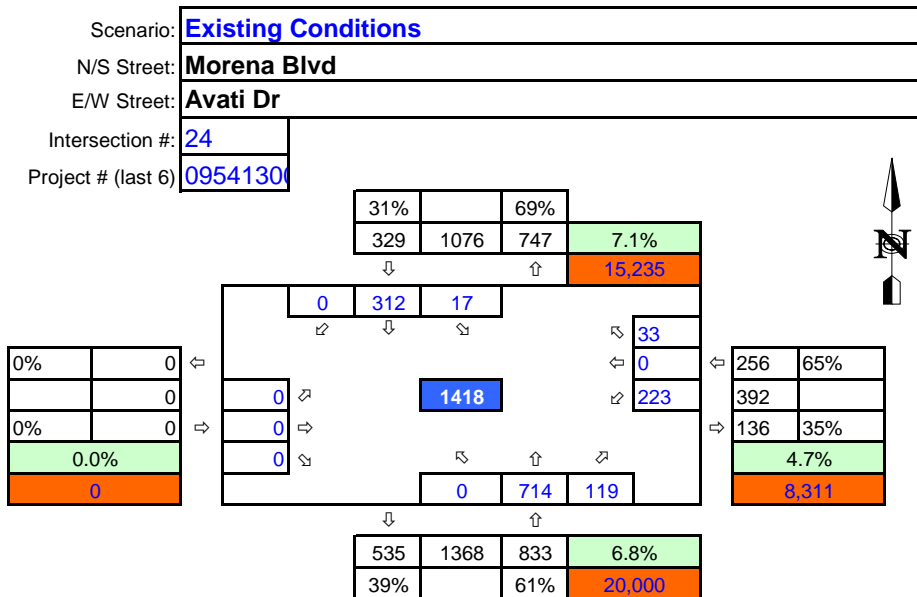
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 23 AM Peak Volumes



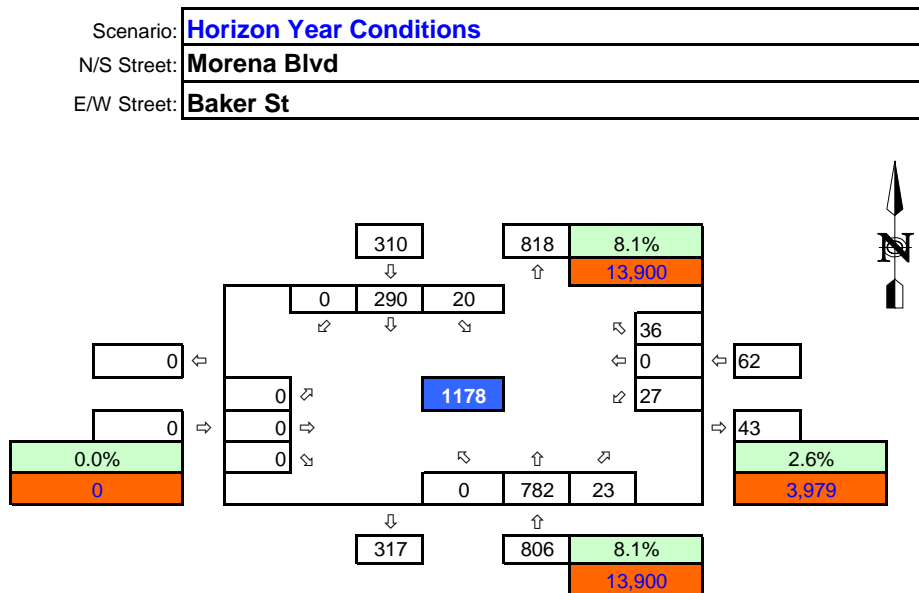
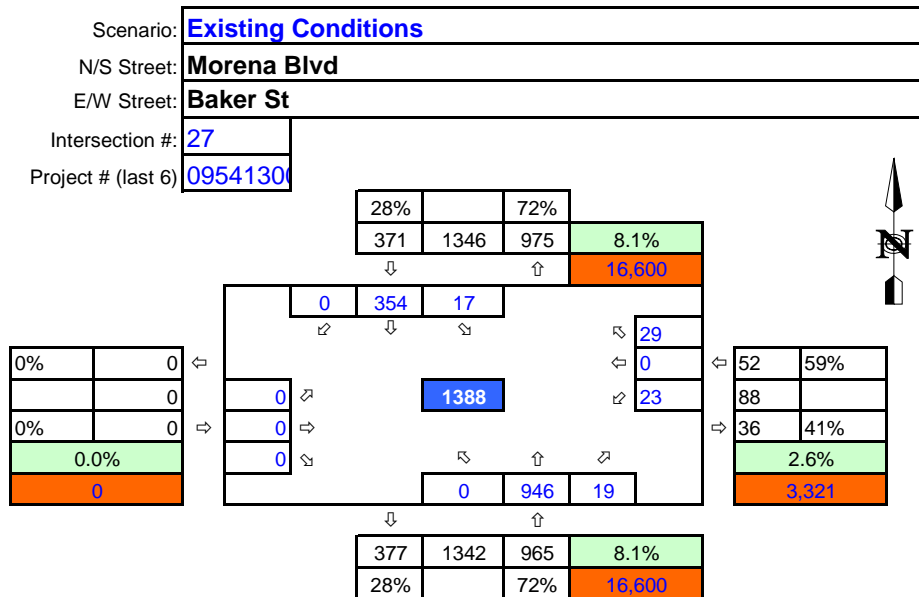
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 24 AM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

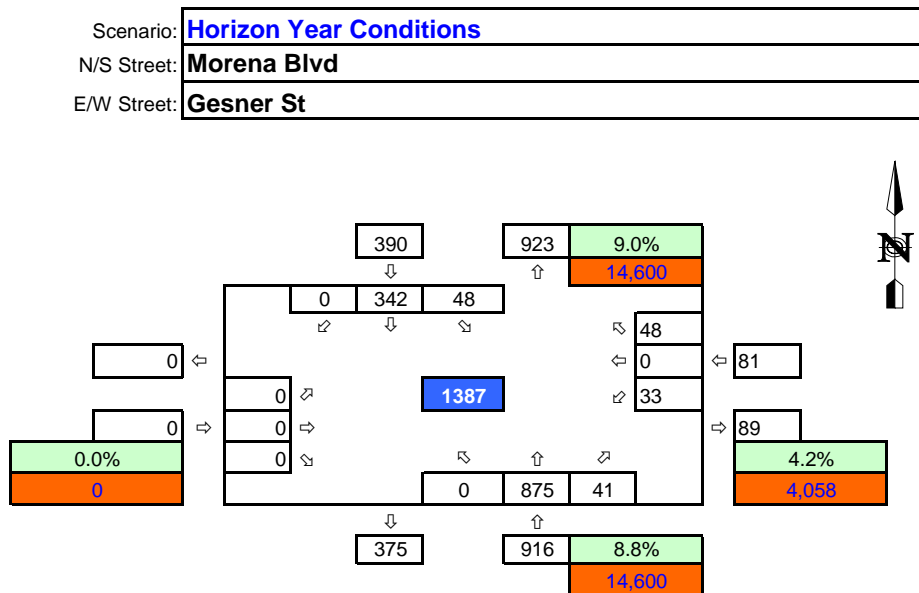
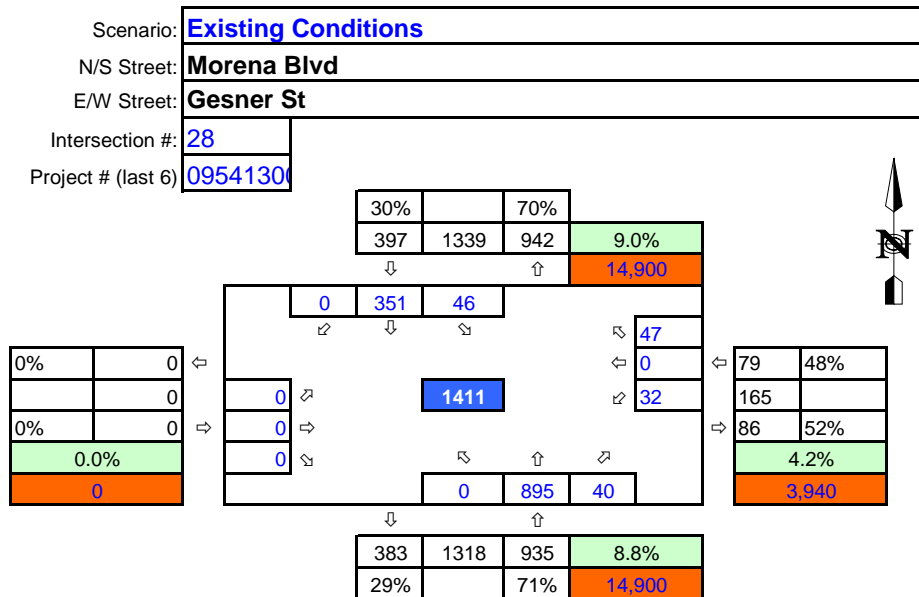
Int 27 AM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

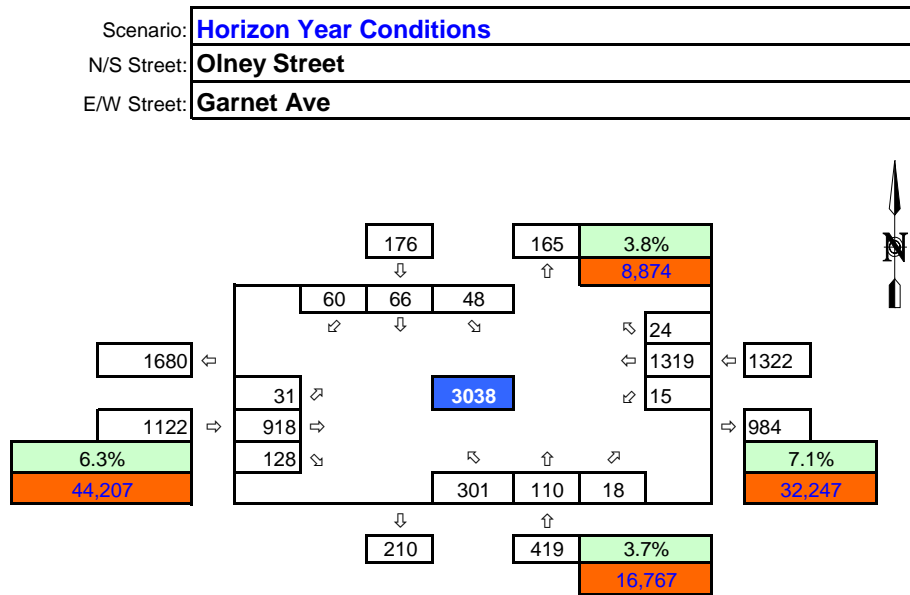
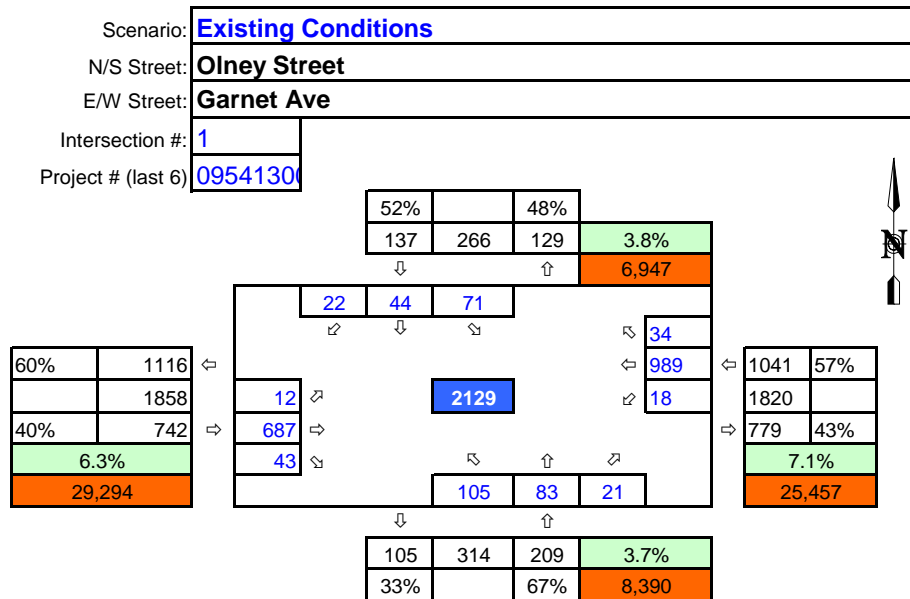
ADJUSTED MODEL VOLUMES

Int 28 AM Peak Volumes



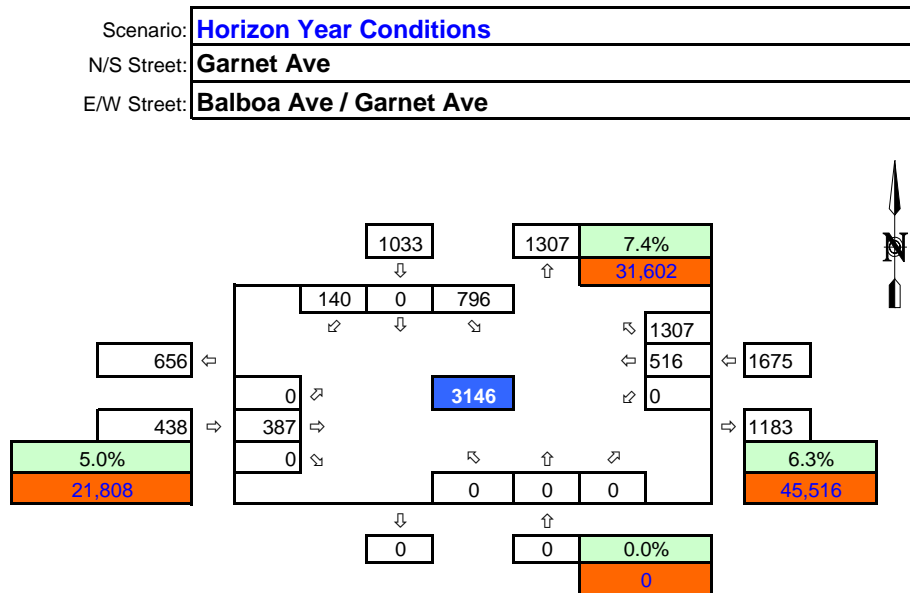
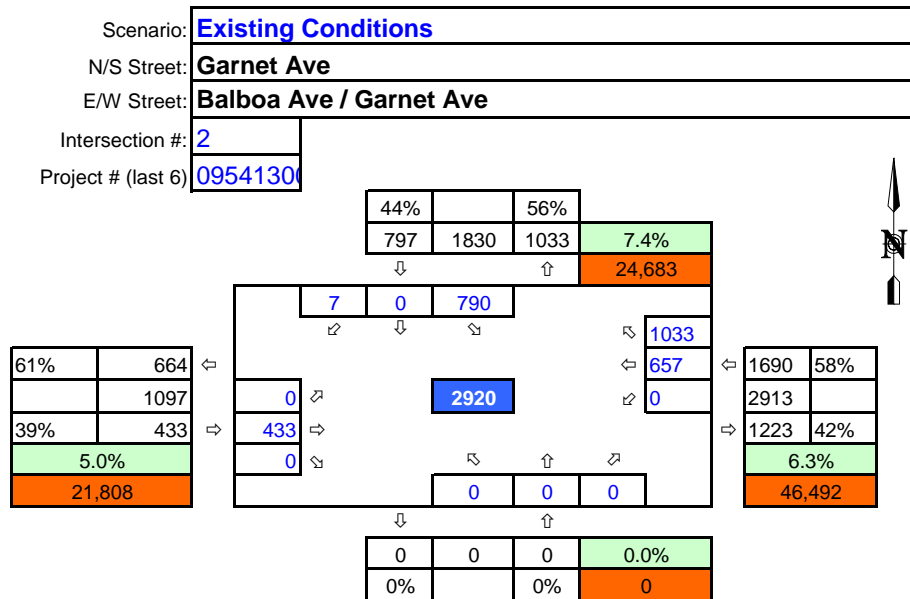
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 1 PM Peak Volumes



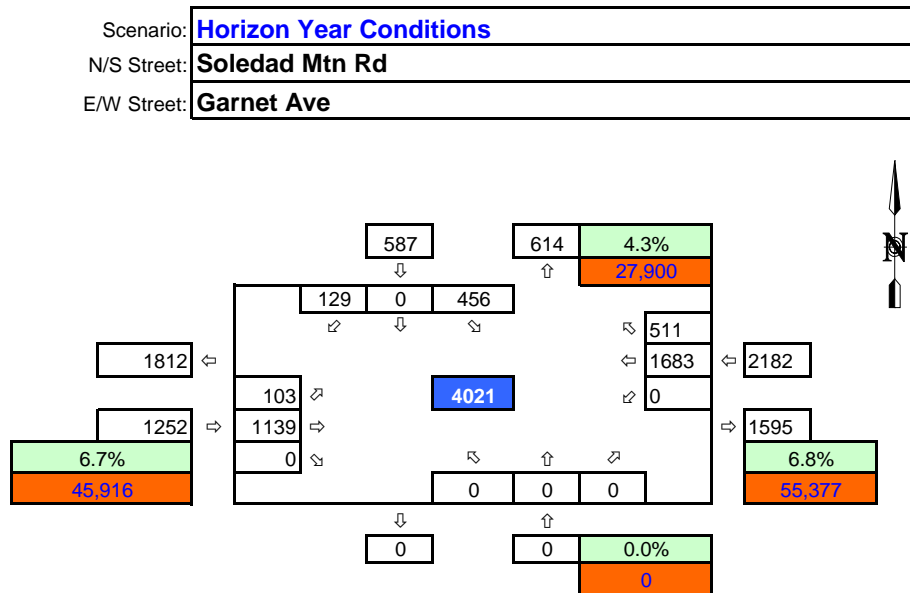
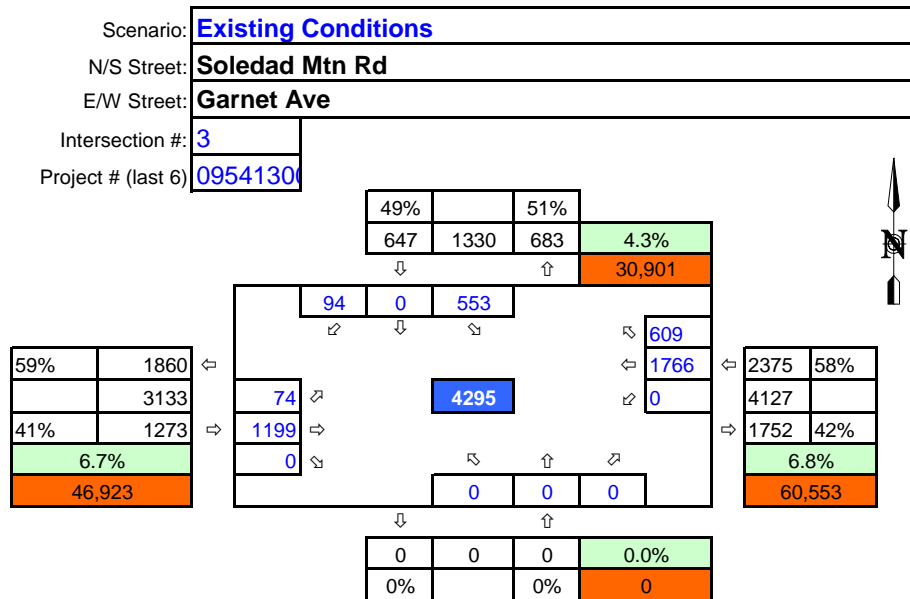
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 2 PM Peak Volumes



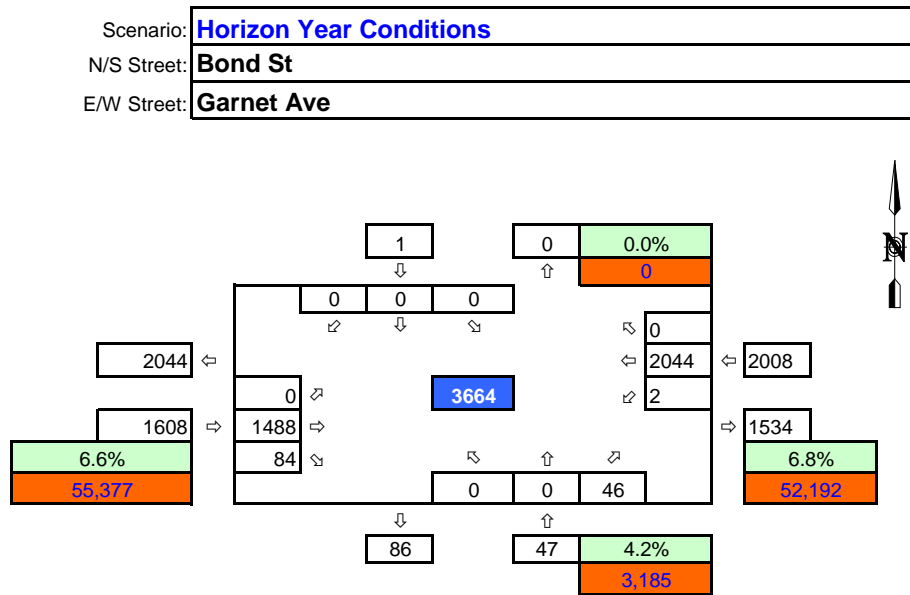
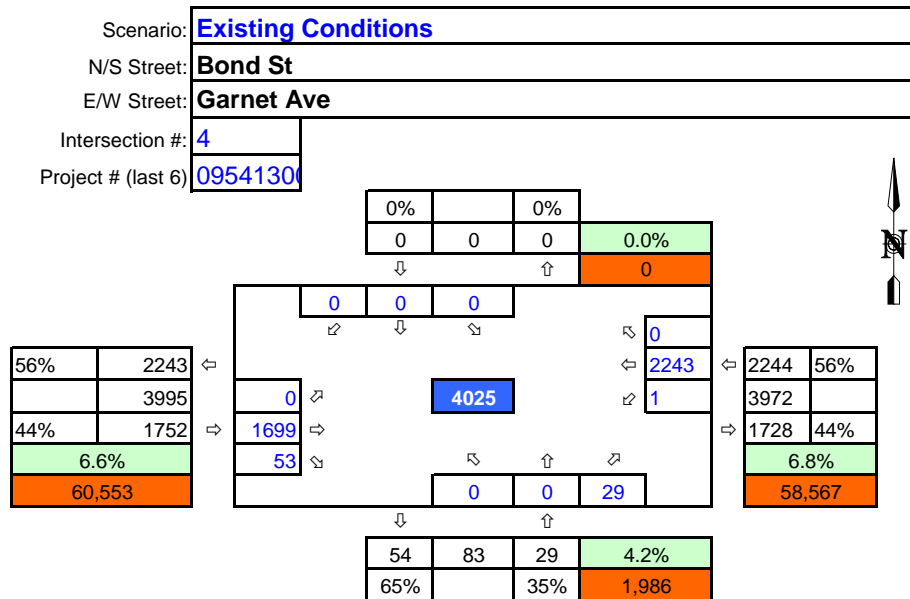
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 3 PM Peak Volumes



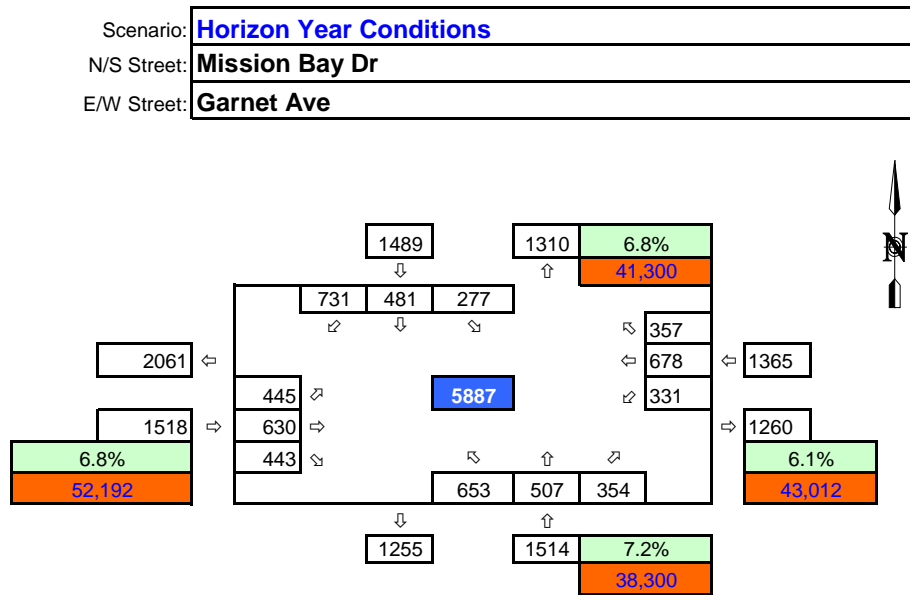
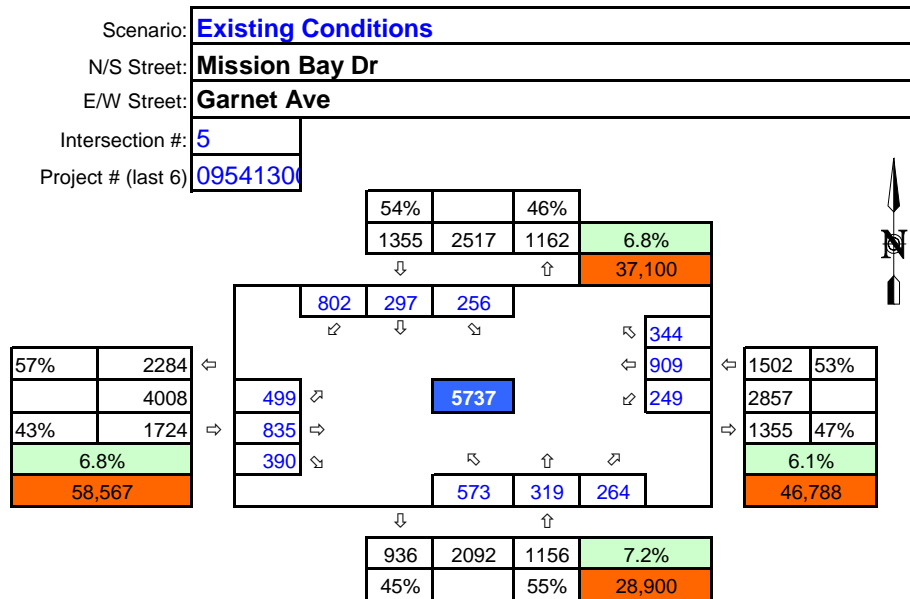
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 4 PM Peak Volumes



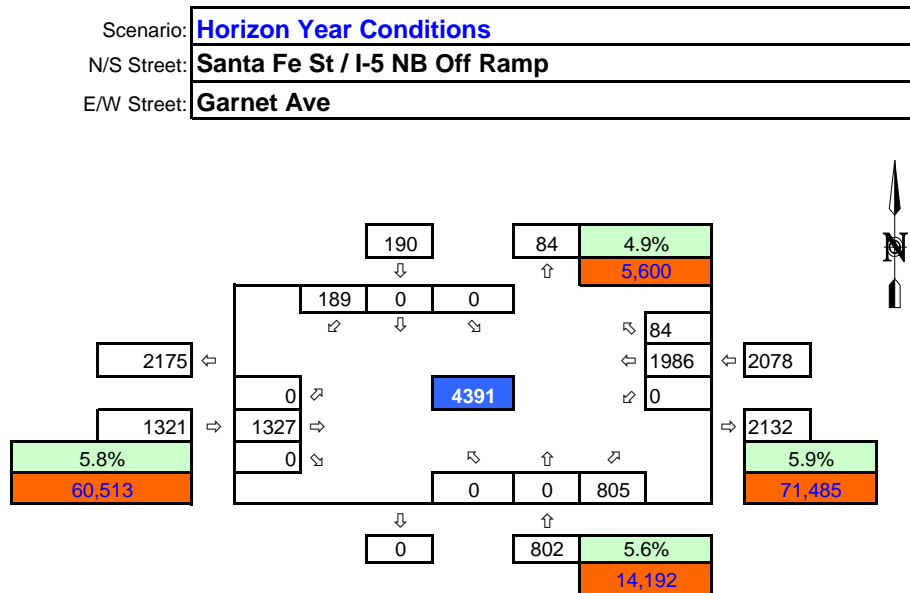
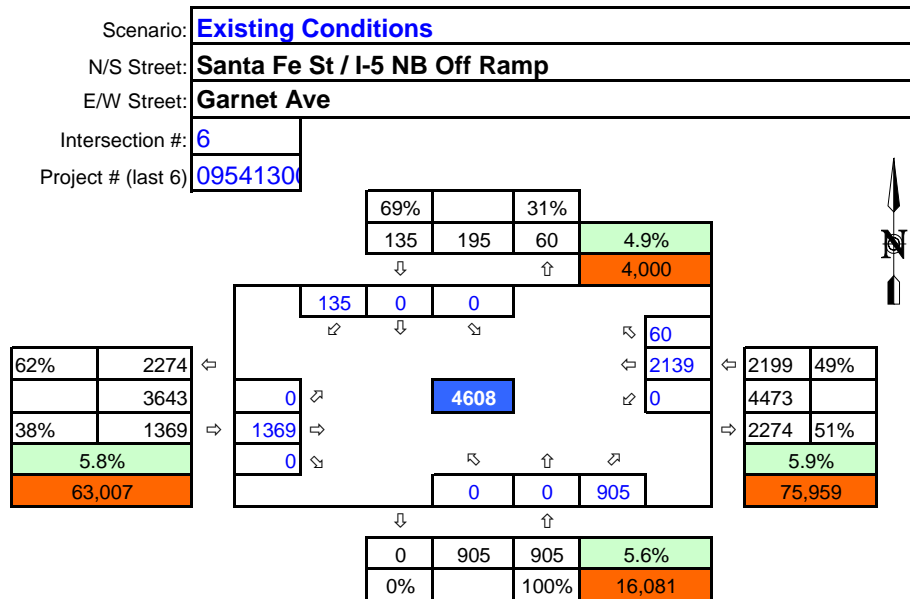
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 5 PM Peak Volumes



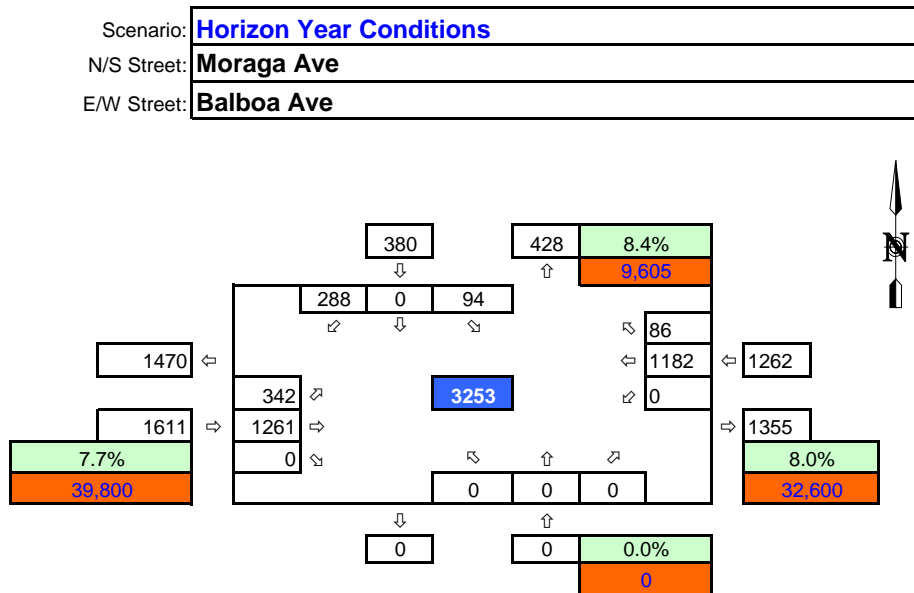
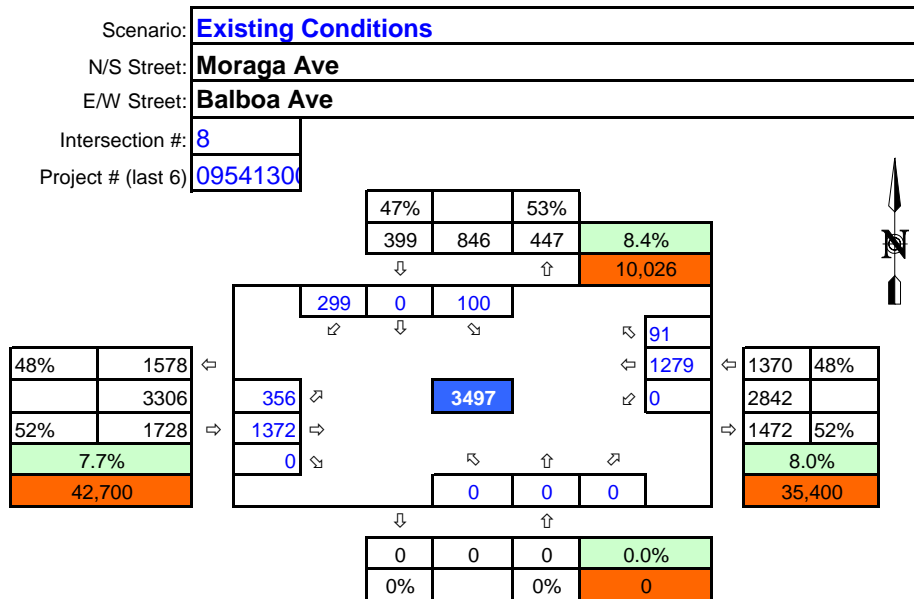
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 6 PM Peak Volumes



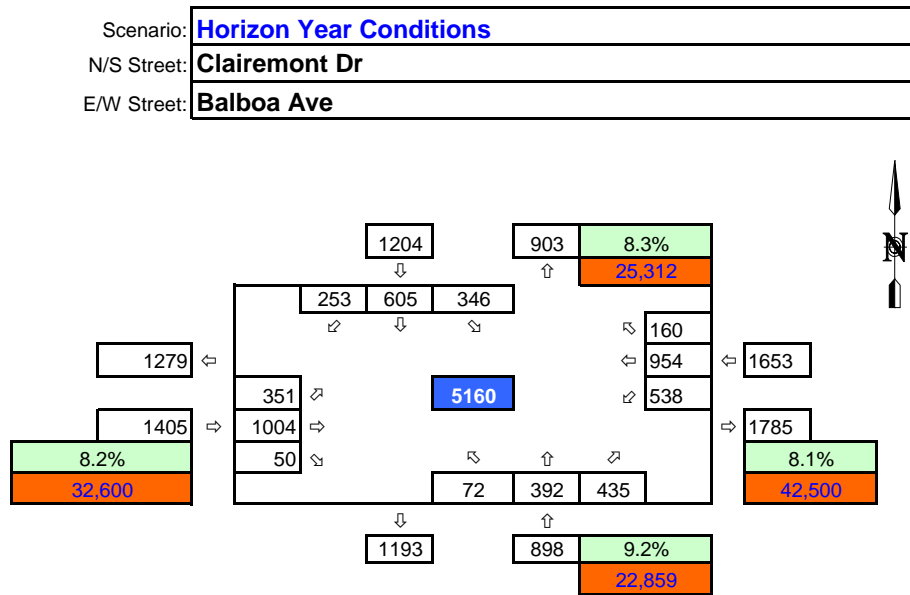
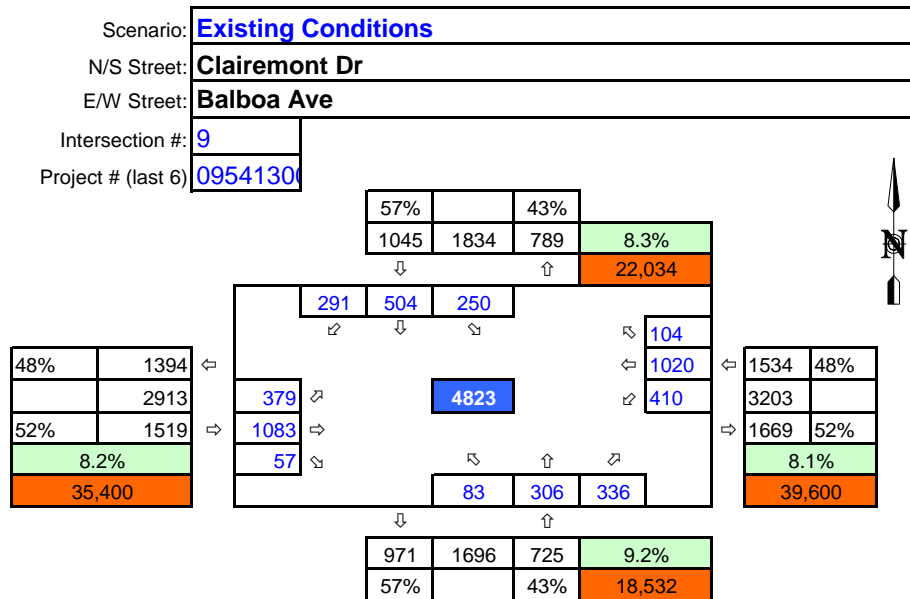
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 8 PM Peak Volumes



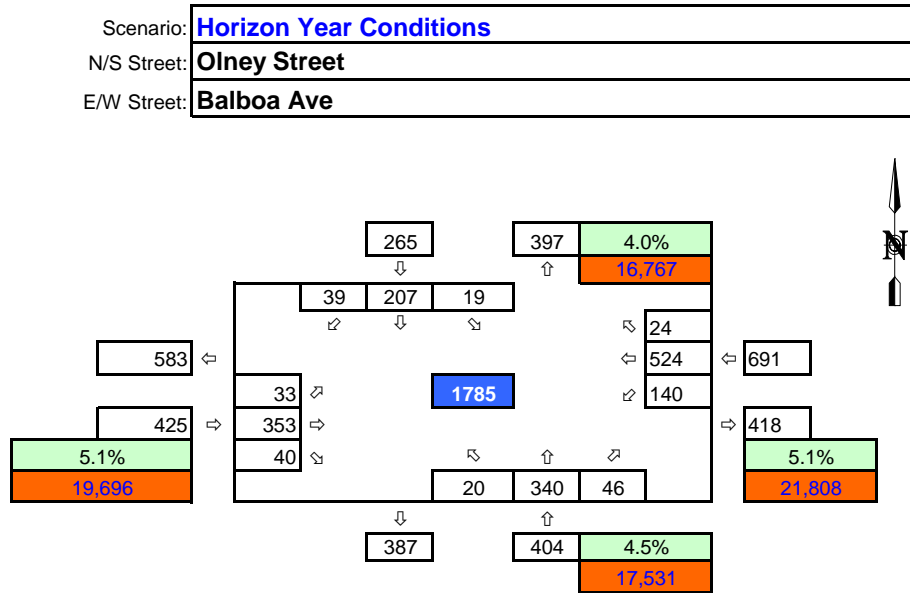
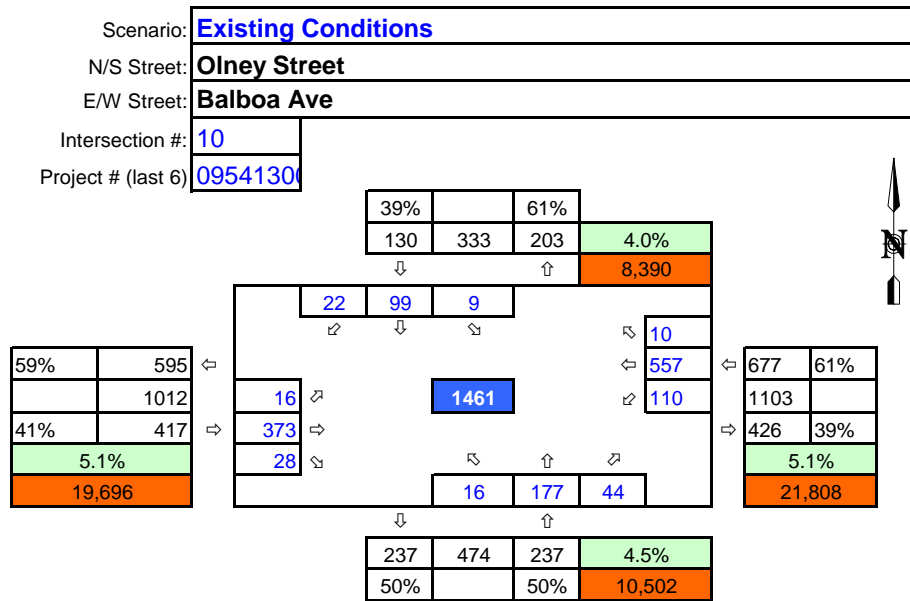
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 9 PM Peak Volumes



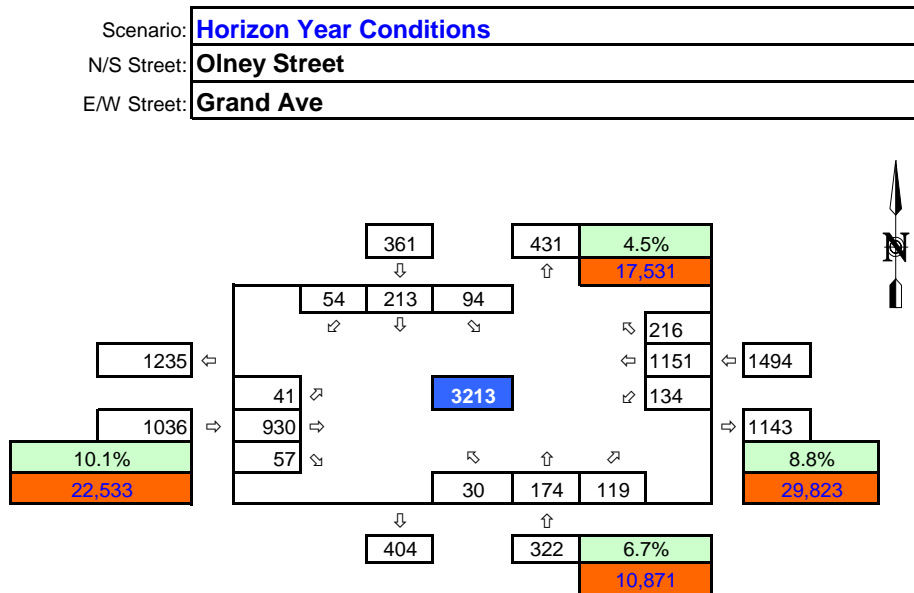
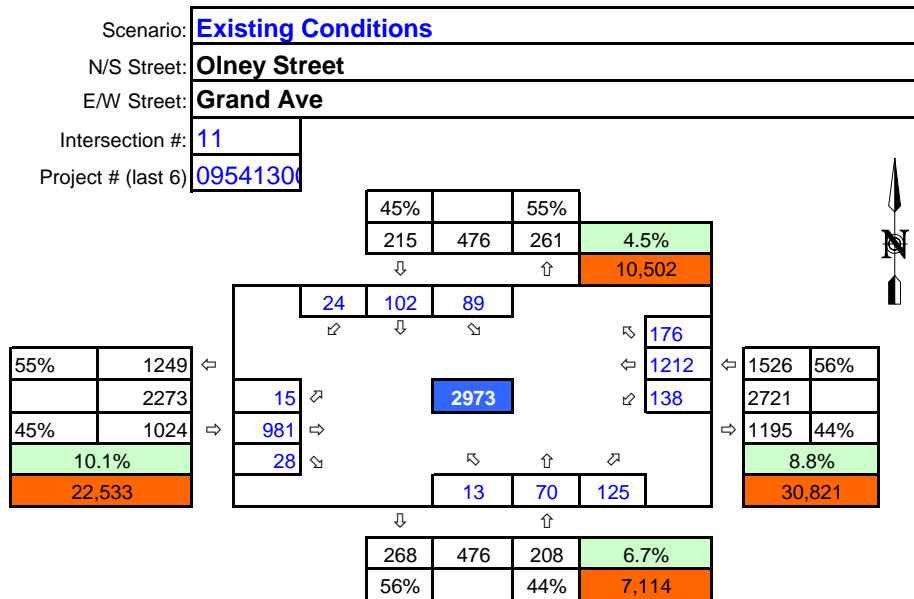
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 10 PM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 11 PM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Scenario: **Horizon Year Conditions**

N/S Street: **Culver St**

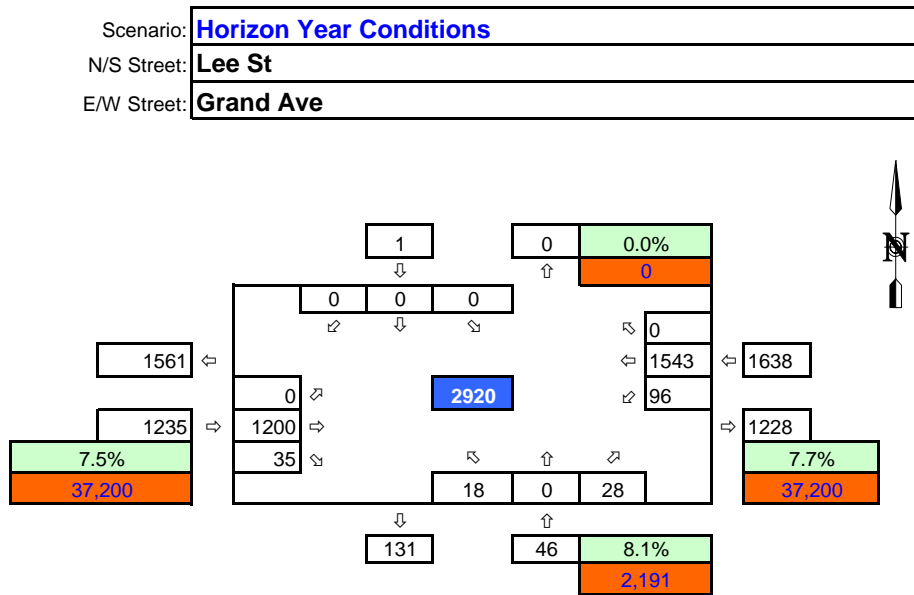
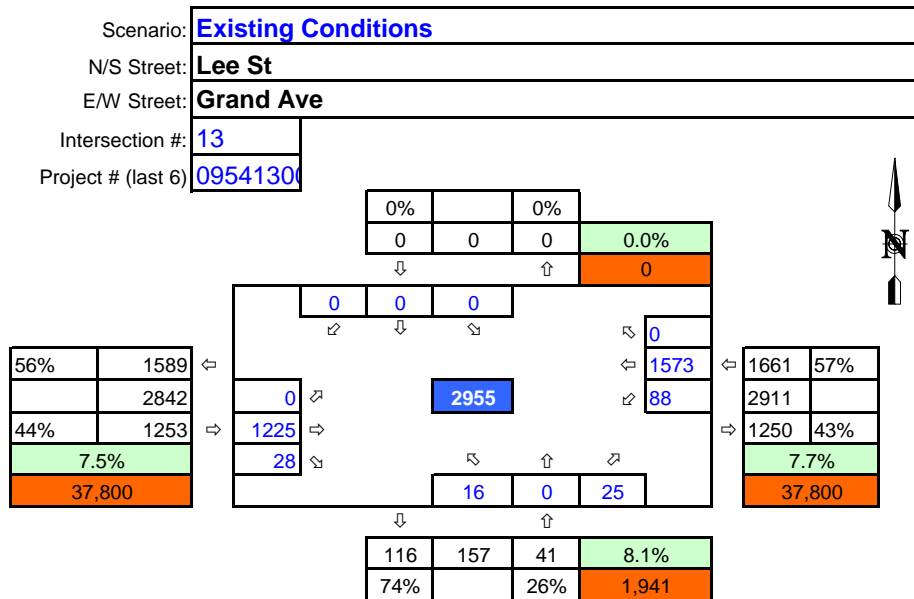
E/W Street: **Grand Ave**

The diagram shows the following traffic data for the intersection:

- Northbound (Culver St):** 107 vehicles, 22.0% (901 vehicles).
- Southbound (Culver St):** 28 vehicles, 0 vehicles, 79 vehicles.
- Eastbound (Grand Ave):** 1499 vehicles, 9.0% (29,823 vehicles).
- Westbound (Grand Ave):** 1184 vehicles, 9.2% (30,149 vehicles).
- Intersection Volume:** 2833 vehicles.
- Other Flows:** 1542 vehicles, 1243 vehicles, 0 vehicles, 0 vehicles, 0 vehicles, 0.0% (0 vehicles).

K:\SND_TPTO\095413006 - Balboa Station\Excel\Turn32_Preferred_Adjusted.xlsx
Int 12 PM

Int 13 PM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Scenario: **Horizon Year Conditions**

N/S Street: **Figueroa Blvd**

E/W Street: **Grand Ave**

The diagram illustrates the traffic flow and delay percentages for the intersection of Figueroa Blvd and Grand Ave under Horizon Year Conditions. The intersection is shown with a central intersection area and surrounding approach streets.

Approach Streets and Traffic Flow:

- Northbound (Figueroa Blvd):** 0 vehicles, 0.0% delay.
- Southbound (Figueroa Blvd):** 185 vehicles, 1.2% delay.
- Westbound (Grand Ave):** 1515 vehicles, 7.3% delay.
- Eastbound (Grand Ave):** 1598 vehicles, 7.2% delay.

Intersection Area:

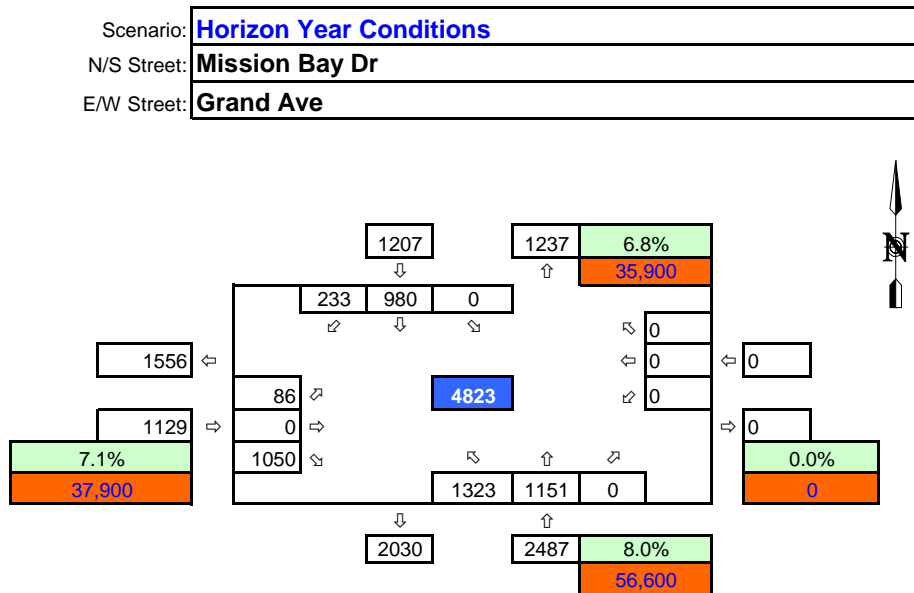
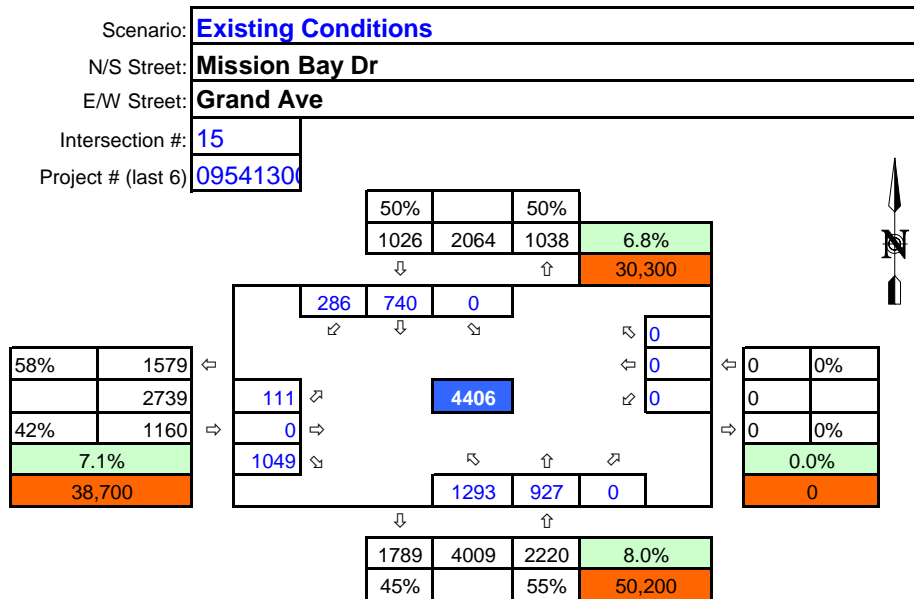
- Central Intersection:** 2838 vehicles.
- Southbound (Figueroa Blvd):** 0 vehicles, 0.0% delay.
- Eastbound (Grand Ave):** 0 vehicles, 0.0% delay.

Delay Percentages:

- Northbound (Figueroa Blvd): 0.0%
- Southbound (Figueroa Blvd): 1.2%
- Westbound (Grand Ave): 7.3%
- Eastbound (Grand Ave): 7.2%

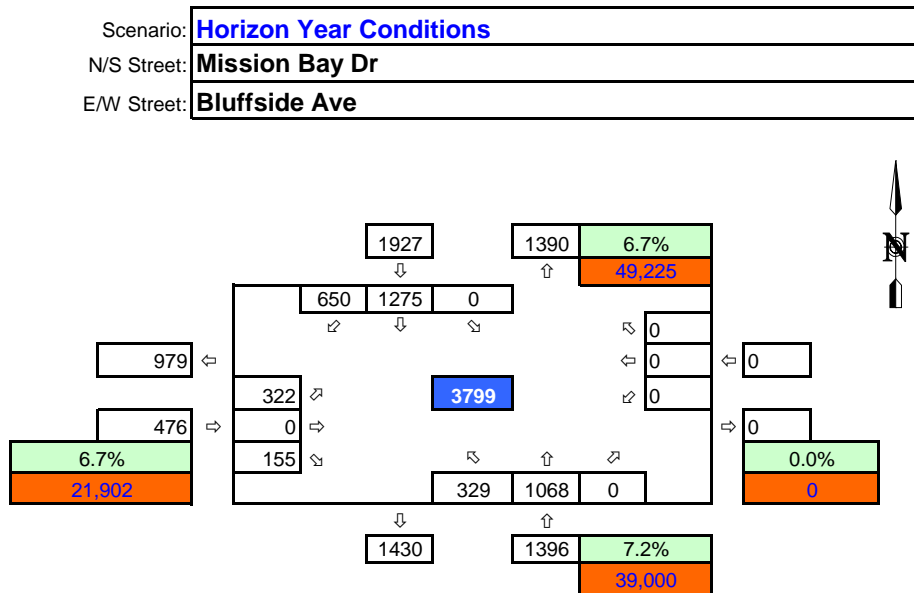
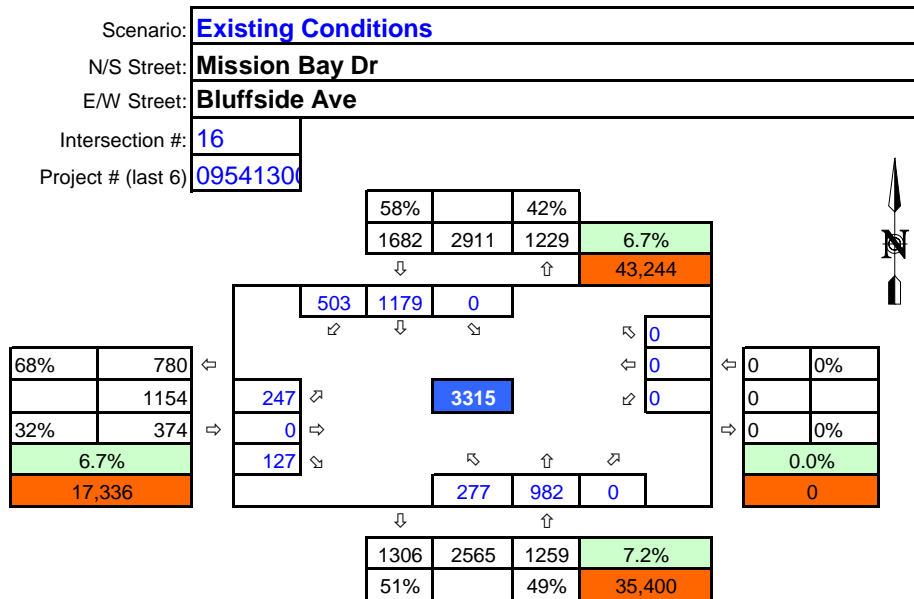
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 Int 14 PM

Int 15 PM Peak Volumes



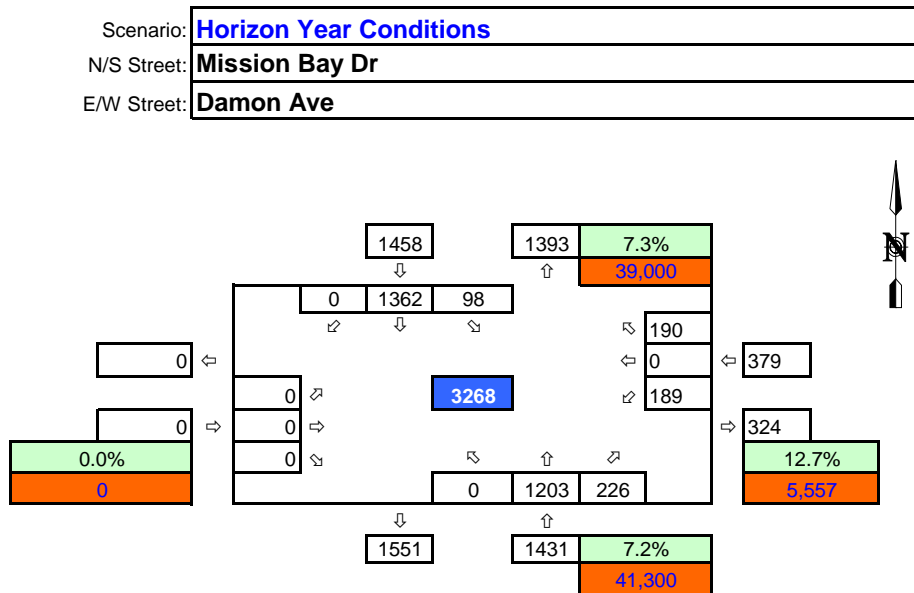
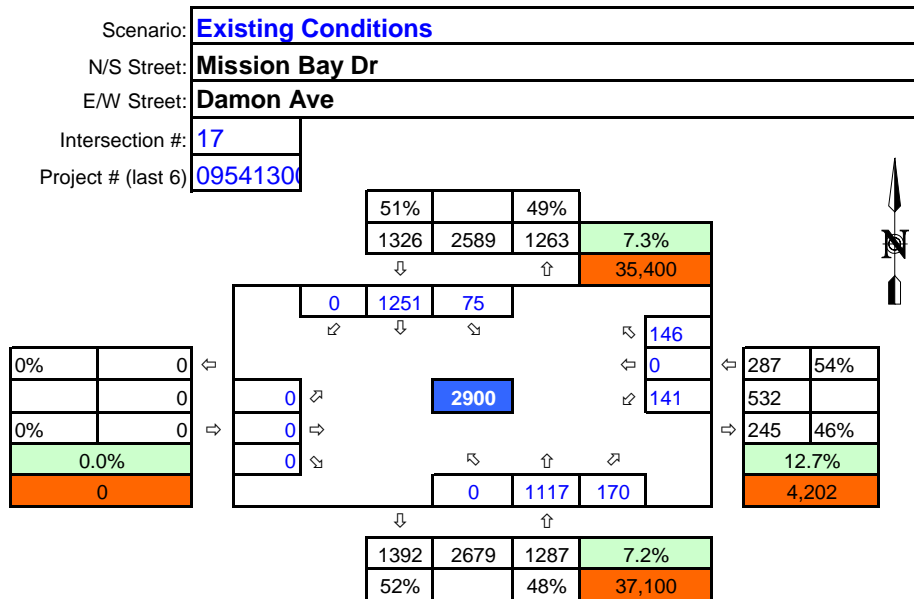
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 16 PM Peak Volumes



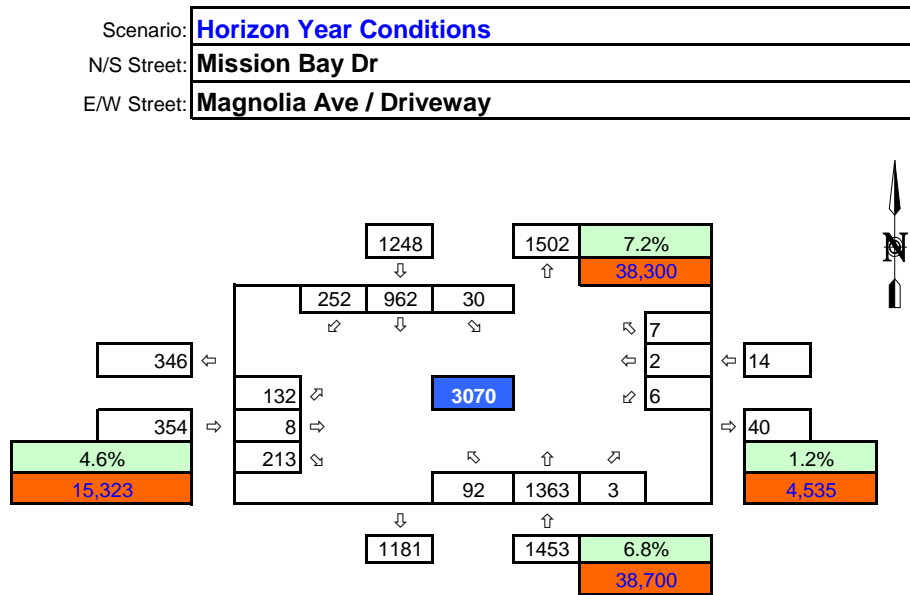
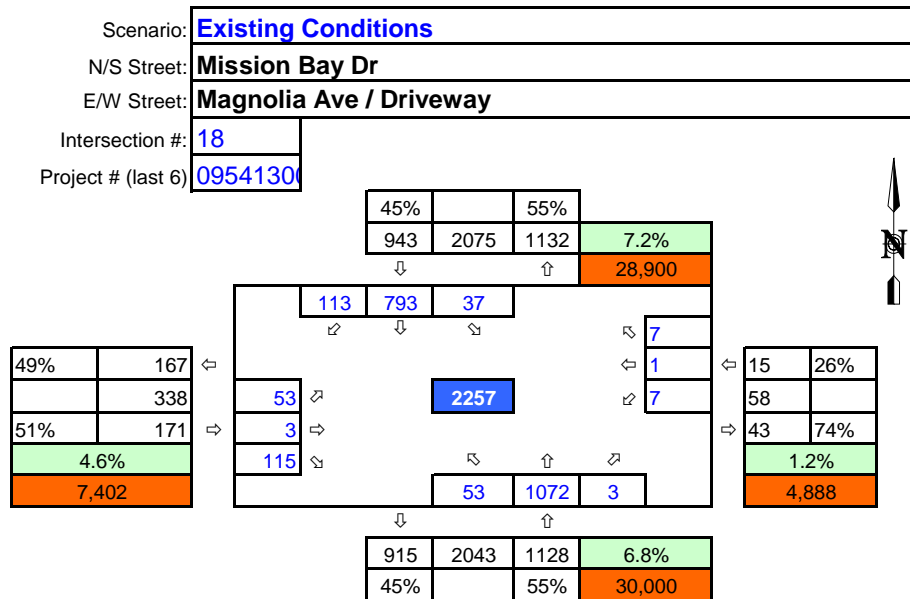
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 17 PM Peak Volumes



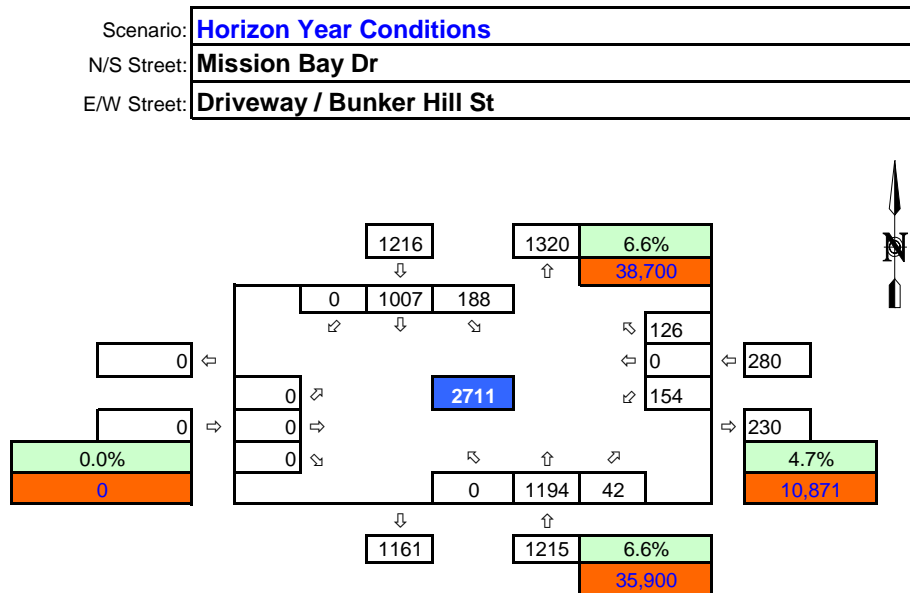
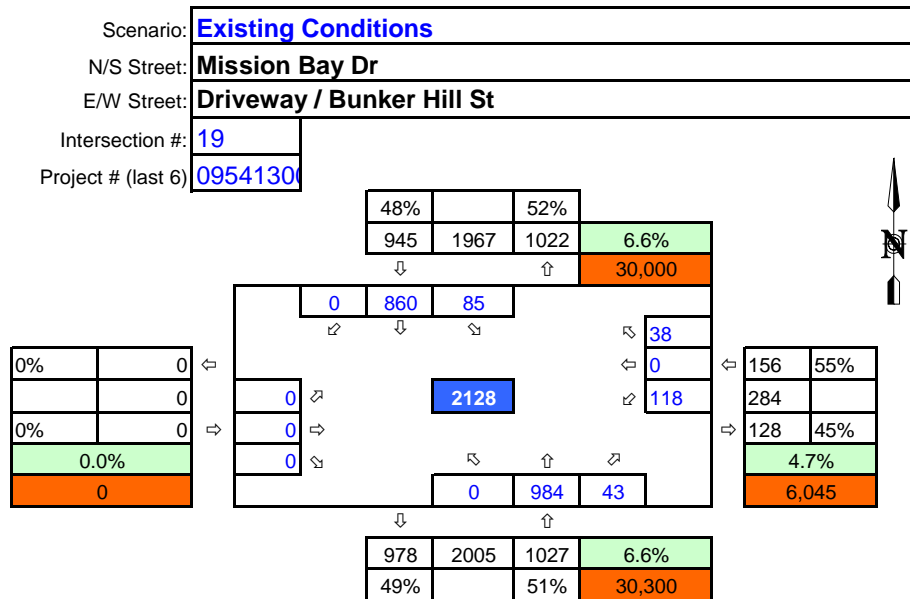
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 18 PM Peak Volumes



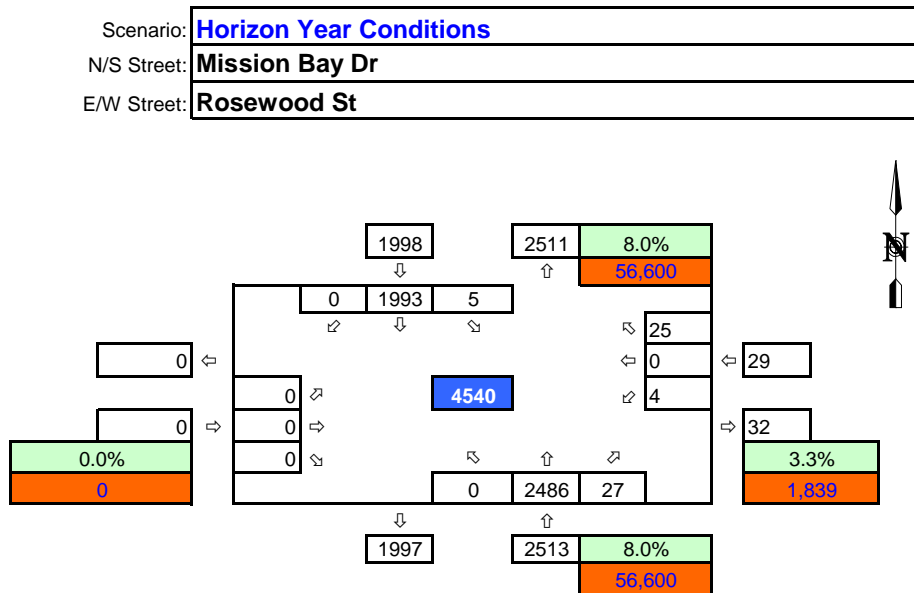
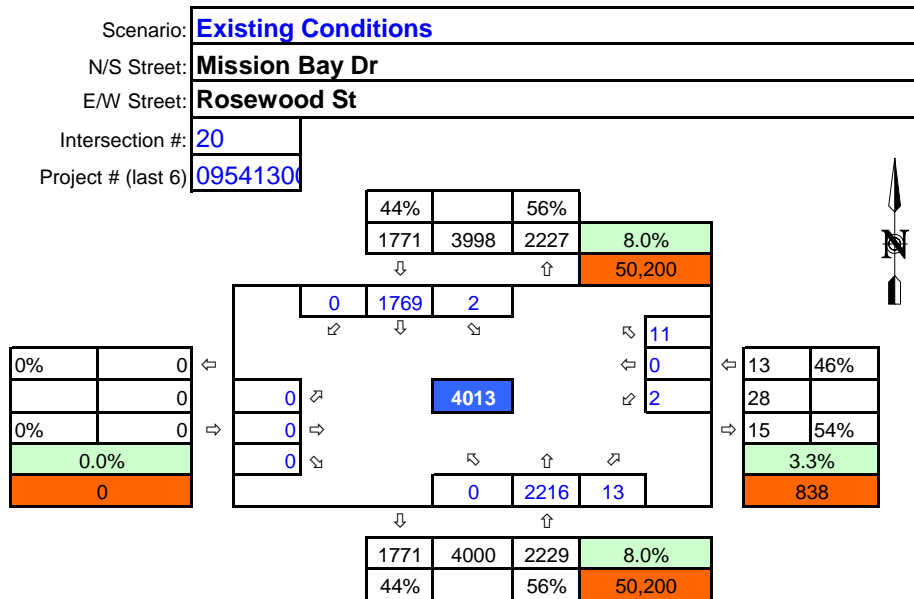
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 19 PM Peak Volumes



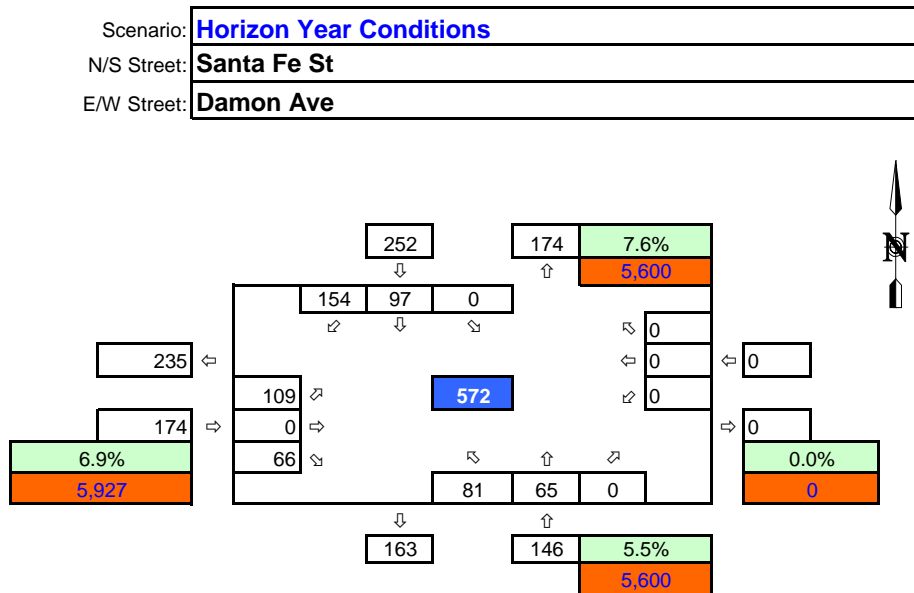
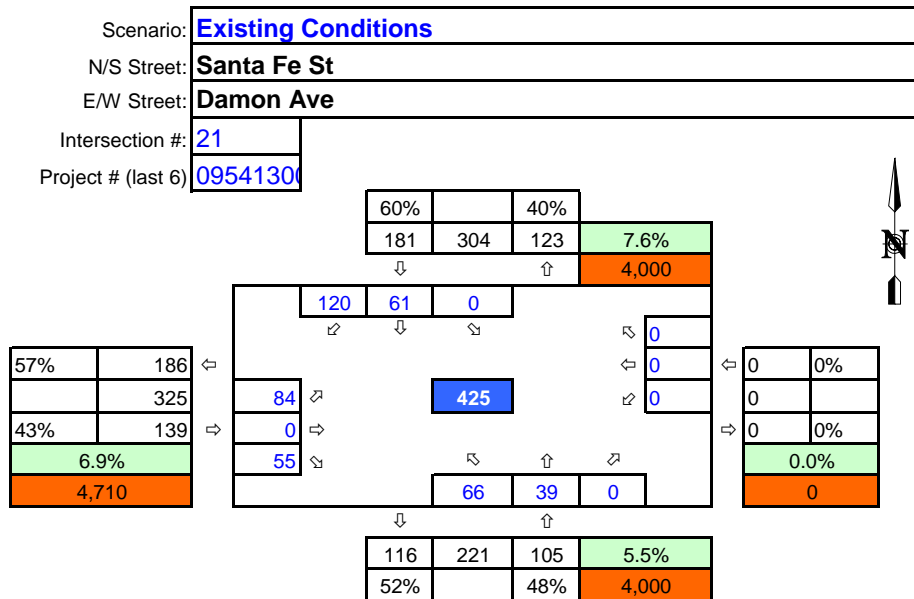
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 20 PM Peak Volumes



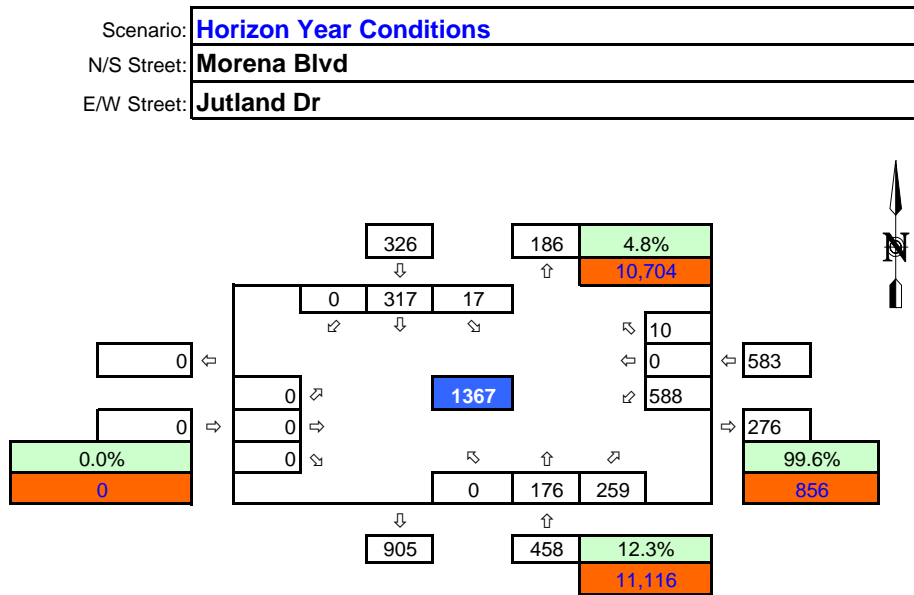
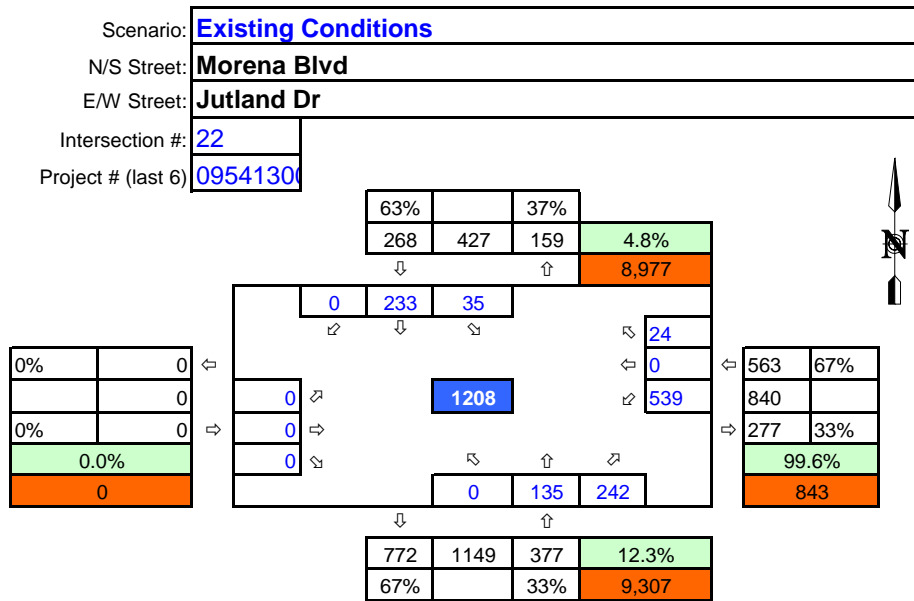
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 21 PM Peak Volumes



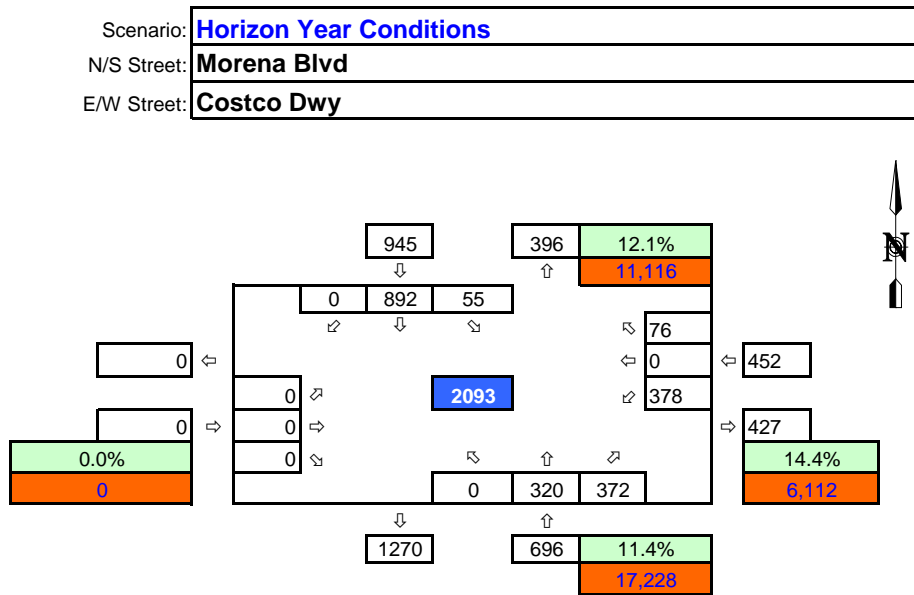
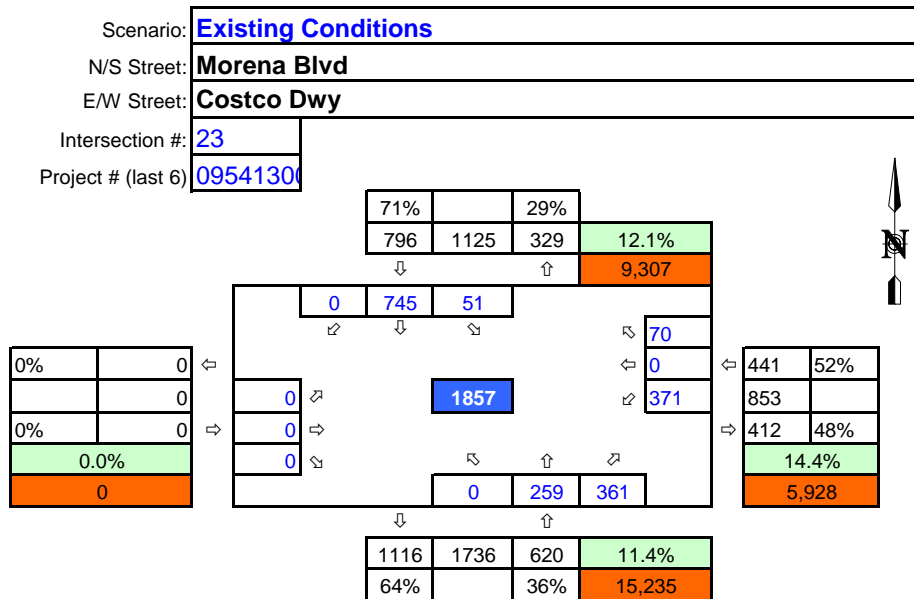
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 22 PM Peak Volumes



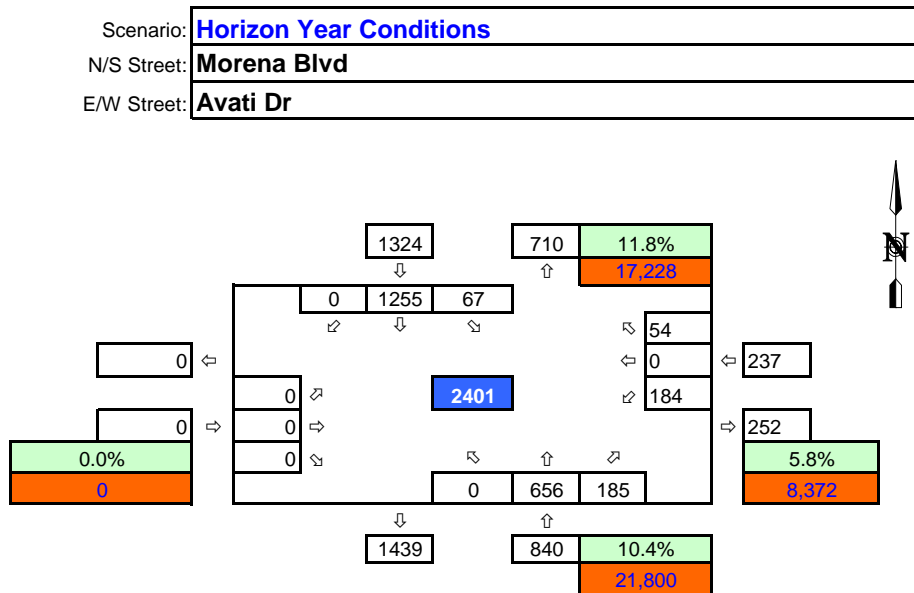
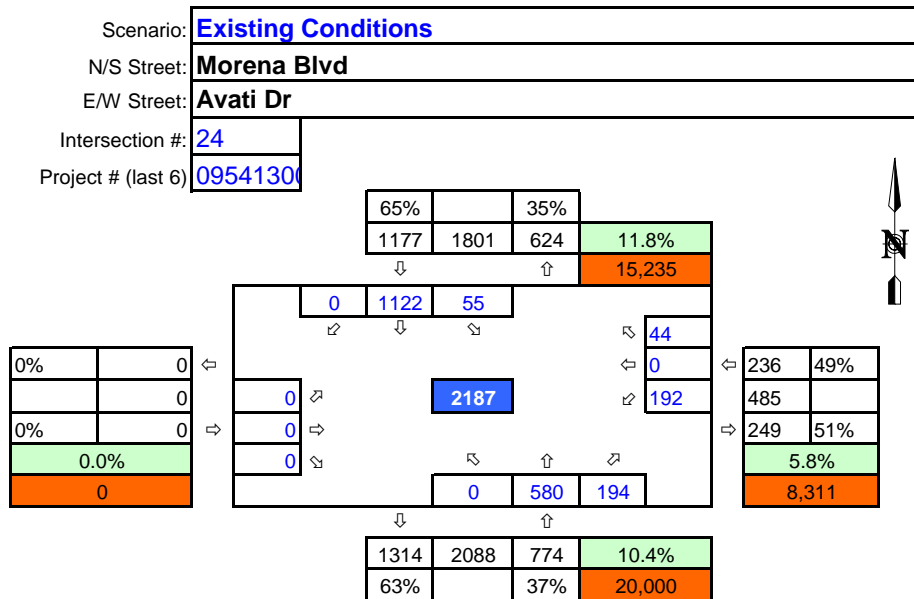
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 23 PM Peak Volumes



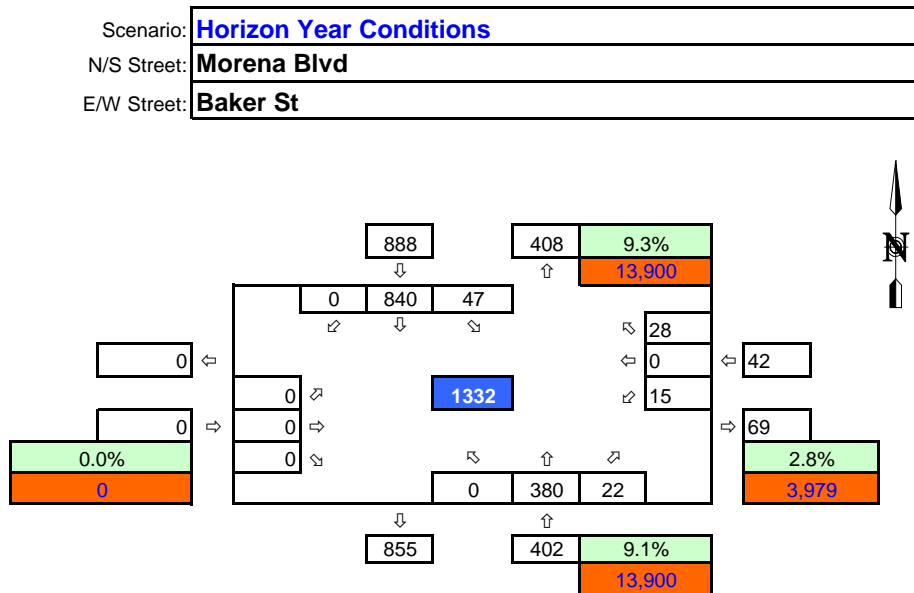
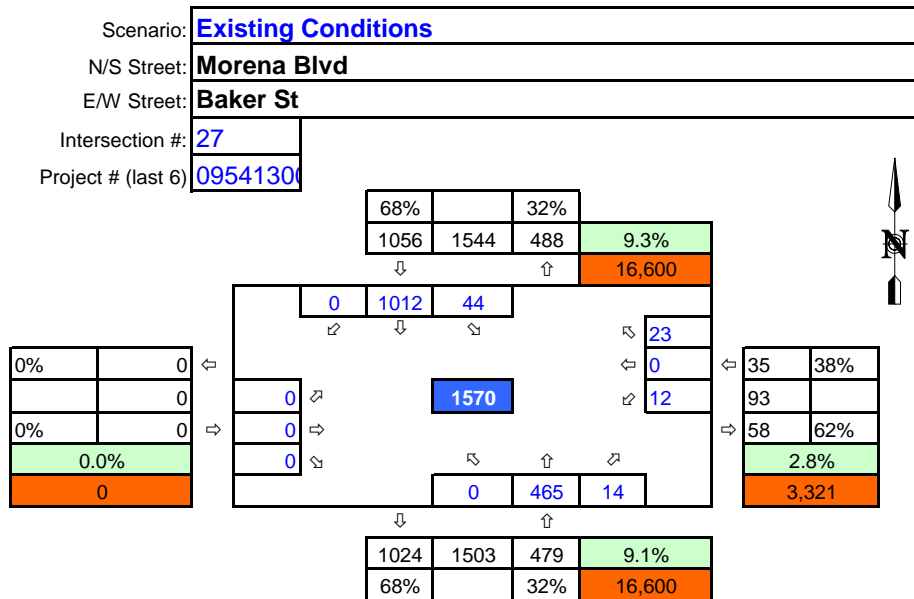
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 24 PM Peak Volumes



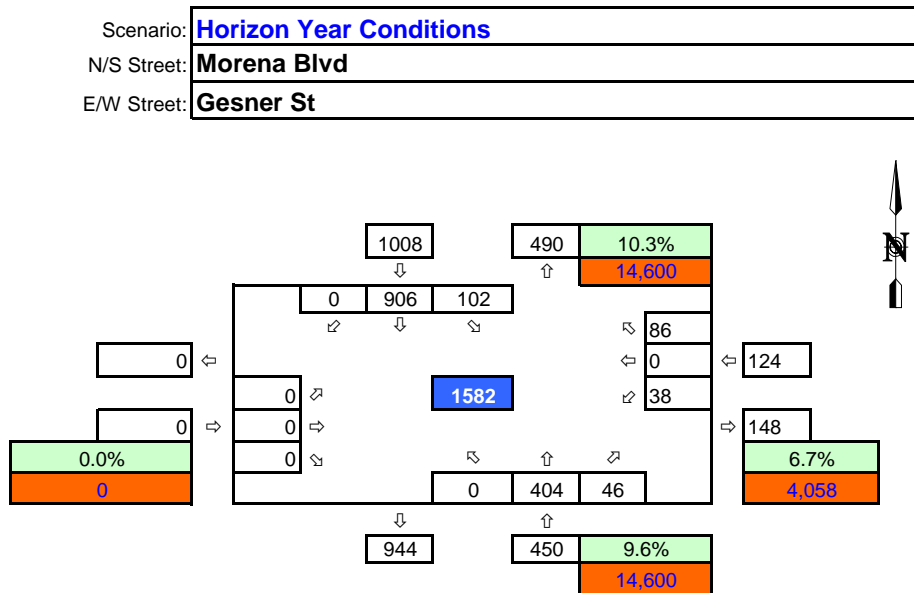
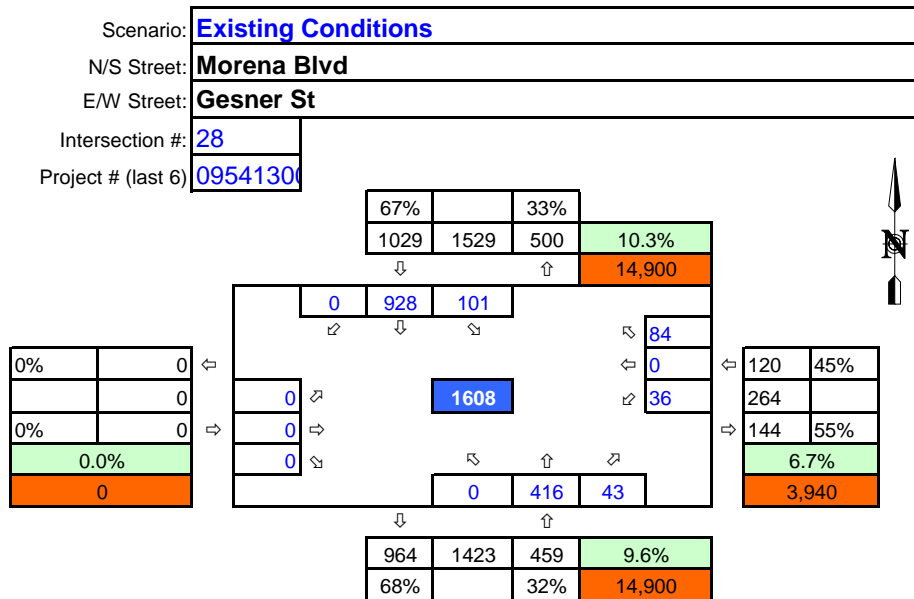
LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 27 PM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

Int 28 PM Peak Volumes



LEGEND	
Existing K-Factor	xx%
ADT Volume	xx

APPENDIX E

ADOPTED FUTURE CONDITIONS ANALYSIS SUPPORTING INFORMATION













Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	15	1301	8	777	210	257
v/c Ratio	0.03	1.01	0.11	0.31	0.91	0.86
Control Delay	6.1	44.7	12.9	8.6	79.4	65.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.1	44.7	12.9	8.6	79.4	65.3
Queue Length 50th (ft)	3	~957	2	114	133	161
Queue Length 95th (ft)	10	#1228	m7	151	#255	#279
Internal Link Dist (ft)	374		899	244	450	
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	438	1292	70	2475	265	343
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	1.01	0.11	0.31	0.79	0.75
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1100	97	7	703	12	100	73	20	83	129	25
Future Volume (vph)	14	1100	97	7	703	12	100	73	20	83	129	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99	1.00	0.99	0.99	0.99
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.97	0.97	0.98	0.98	0.98	0.98
Satd. Flow (prot)	1770	1840	1770	3530	1770	3530	1790	1790	1790	1805	1805	1805
Flt Permitted	0.34	1.00	0.05	1.00	0.05	1.00	0.60	0.60	0.78	0.78	0.78	0.78
Satd. Flow (perm)	626	1840	100	3530	100	3530	1106	1106	1436	1436	1436	1436
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)	15	1196	105	8	764	13	109	79	22	90	140	27
RTOR Reduction (vph)	0	3	0	0	1	0	0	4	0	0	4	0
Lane Group Flow (vph)	15	1298	0	8	776	0	0	206	0	0	253	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	NA	NA
Protected Phases	2	2		6	6		8	8		4	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	74.3	74.3	74.3	74.3	74.3	74.3	21.9	21.9	21.9	21.9	21.9	21.9
Effective Green, g (s)	74.3	74.3	74.3	74.3	74.3	74.3	21.9	21.9	21.9	21.9	21.9	21.9
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.70	0.70	0.21	0.21	0.21	0.21	0.21	0.21
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Vehicle Extension (s)	3.4	3.4	3.4	5.9	5.9	5.9	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	438	1289	70	2474	70	2474	228	228	228	296	296	296
v/s Ratio Prot	c0.71			0.08		0.22						
v/s Ratio Perm	0.02			0.11		0.31						
v/c Ratio	0.03	1.01		0.11		0.31						
Uniform Delay, d1	4.9	15.9		5.2		6.1						
Progression Factor	1.00	1.00		1.32		1.27						
Incremental Delay, d2	0.1	26.8		3.2		0.3						
Delay (s)	5.0	42.7		10.0		8.0						
Level of Service	A	D		A		A						
Approach Delay (s)	42.3			8.0								
Approach LOS	D			A								
Intersection Summary												
HCM 2000 Control Delay	36.3			HCM 2000 Level of Service			D					
HCM 2000 Volume to Capacity ratio	0.98											
Actuated Cycle Length (s)	106.0			Sum of lost time (s)			9.8					
Intersection Capacity Utilization	88.5%			ICU Level of Service			E					
Analysis Period (min)	15											
Critical Lane Group												

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1	733	314	602	1113	0
Traffic Volume (vph)	1	733	314	602	1113	0
Future Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	5.0	5.0	4.0	4.9		
Total Lost time (s)	0.95	0.91	0.91	0.97		
Lane Util. Factor	1.00	0.93	0.85	1.00		
Flt Protected	1.00	1.00	1.00	0.95		
Satd. Flow (prot)	3539	3141	1441	3433		
Flt Permitted	0.95	1.00	1.00	0.95		
Satd. Flow (perm)	3377	3141	1441	3433		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	797	341	654	1210	0
RTOR Reduction (vph)	0	0	210	0	0	0
Lane Group Flow (vph)	0	798	458	327	1210	0
Turn Type	Perm	NA	NA	Free	Prot	4
Protected Phases	2	2	2	Free		
Permitted Phases	2	2	2	Free		
Actuated Green, G (s)	18.9	18.9	53.0	24.2		
Effective Green, g (s)	18.9	18.9	53.0	24.2		
Actuated g/C Ratio	0.36	0.36	1.00	0.46		
Clearance Time (s)	5.0	5.0	4.9			
Vehicle Extension (s)	6.1	6.1				
Lane Grp Cap (vph)	1204	1120	1441	1567		
v/s Ratio Prot	c0.24	0.15		c0.35		
v/c Ratio	0.66	0.41	0.23	0.77		
Uniform Delay, d1	14.4	12.8	0.0	12.1		
Progression Factor	1.00	1.00	1.00	1.05		
Incremental Delay, d2	2.2	0.7	0.4	1.0		
Delay (s)	16.6	13.5	0.4	13.7		
Level of Service	B	B	A	B		
Approach Delay (s)	16.6	9.2		13.7		
Approach LOS	B	A		B		
Intersection Summary						
HCM 2000 Control Delay		13.0		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.72				
Actuated Cycle Length (s)		53.0		Sum of lost time (s)		9.9
Intersection Capacity Utilization		61.0%		ICU Level of Service		B
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1	733	314	602	1113	0
Traffic Volume (vph)	1	733	314	602	1113	0
Future Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	5.0	5.0	4.0	4.9		
Total Lost time (s)	0.95	0.91	0.91	0.97		
Lane Util. Factor	1.00	0.93	0.85	1.00		
Flt Protected	1.00	1.00	1.00	0.95		
Satd. Flow (prot)	3539	3141	1441	3433		
Flt Permitted	0.95	1.00	1.00	0.95		
Satd. Flow (perm)	3377	3141	1441	3433		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	797	341	654	1210	0
RTOR Reduction (vph)	0	0	210	0	0	0
Lane Group Flow (vph)	0	798	458	327	1210	0
Turn Type	Perm	NA	NA	Free	Prot	4
Protected Phases	2	2	2	Free		
Permitted Phases	2	2	2	Free		
Actuated Green, G (s)	18.9	18.9	53.0	24.2		
Effective Green, g (s)	18.9	18.9	53.0	24.2		
Actuated g/C Ratio	0.36	0.36	1.00	0.46		
Clearance Time (s)	5.0	5.0	4.9			
Vehicle Extension (s)	6.1	6.1				
Lane Grp Cap (vph)	1204	1120	1441	1567		
v/s Ratio Prot	c0.24	0.15		c0.35		
v/c Ratio	0.66	0.41	0.23	0.77		
Uniform Delay, d1	14.4	12.8	0.0	12.1		
Progression Factor	1.00	1.00	1.00	1.05		
Incremental Delay, d2	2.2	0.7	0.4	1.0		
Delay (s)	16.6	13.5	0.4	13.7		
Level of Service	B	B	A	B		
Approach Delay (s)	16.6	9.2		13.7		
Approach LOS	B	A		B		
Intersection Summary						
HCM 2000 Control Delay		13.0		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.72				
Actuated Cycle Length (s)		53.0		Sum of lost time (s)		9.9
Intersection Capacity Utilization		61.0%		ICU Level of Service		B
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station
3: Garnet Ave & Soledad Mtn Rd

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	58	1829	982	667	613	27
v/c Ratio	0.21	0.73	0.45	0.48	0.82	0.07
Control Delay	64.9	16.2	6.3	1.4	65.0	14.0
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	64.9	16.2	6.3	1.5	65.0	14.0
Queue Length 50th (ft)	27	522	166	13	296	0
Queue Length 95th (ft)	51	725	270	28	345	26
Internal Link Dist (ft)	770	806			594	
Turn Bay Length (ft)	200			200	225	225
Base Capacity (vph)	322	2509	2174	1381	1249	366
Starvation Cap Reductn	0	0	0	75	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.73	0.45	0.51	0.49	0.07
Intersection Summary						

Balboa Transit Station
3: Garnet Ave & Soledad Mtn Rd

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	53	1683	903	614	564	25
Future Volume (vph)	53	1683	903	614	564	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	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)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	1829	982	667	613	27
RTOR Reduction (vph)	0	0	0	0	0	21
Lane Group Flow (vph)	58	1829	982	667	613	6
Turn Type	Prot	NA	NA	pm-ov	Prot	custom
Protected Phases	5	2	6	7	7	4
Permitted Phases		2		6		7
Actuated Green, G (s)	11.3	106.4	91.3	124.0	32.7	32.7
Effective Green, g (s)	11.3	106.4	91.3	124.0	32.7	32.7
Actuated g/c Ratio	0.08	0.71	0.61	0.83	0.22	0.22
Clearance Time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Vehicle Extension (s)	2.0	5.6	8.0	2.0	2.0	3.0
Lane Grp Cap (vph)	258	2510	2154	1365	748	345
v/s Ratio Prot	0.02	c0.52	0.28	0.11	c0.18	0.00
v/c Ratio Perm				0.31		
v/c Ratio	0.22	0.73	0.46	0.49	0.82	0.02
Uniform Delay, d1	65.2	13.1	15.9	3.8	55.8	46.0
Progression Factor	1.00	1.00	0.33	0.11	1.00	1.00
Incremental Delay, d2	0.2	1.9	0.6	0.1	6.6	0.0
Delay (s)	65.4	15.0	5.8	0.5	62.5	46.1
Level of Service	E	B	A	A	E	D
Approach Delay (s)		16.6	3.7		61.8	
Approach LOS		B	A		E	
Intersection Summary						
HCM 2000 Control Delay			18.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.79			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	18.7
Intersection Capacity Utilization			71.7%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
4: Bond St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	2407	1770	37									
v/c Ratio	0.68	0.50	0.02									
Control Delay	0.9	0.8	0.0									
Queue Delay	0.0	0.0	0.0									
Total Delay	0.9	0.8	0.0									
Queue Length 50th (ft)	0	6	0									
Queue Length 95th (ft)	0	m10	0									
Internal Link Dist (ft)	806	574										
Turn Bay Length (ft)												
Base Capacity (vph)	3532	3539	1611									
Starvation Cap Reductn	0	0	0									
Spillback Cap Reductn	94	0	42									
Storage Cap Reductn	0	0	0									
Reduced v/c Ratio	0.70	0.50	0.02									
Intersection Summary												
m Volume for 95th percentile queue is metered by upstream signal.												

Balboa Transit Station
4: Bond St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	2181	33	0	1628	0	0	0	34	0	0	0
Future Volume (vph)	0	2181	33	0	1628	0	0	0	34	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9			4.9					4.9			
Lane Util. Factor	0.95			0.95					1.00			
Frt	1.00			1.00					0.86			
Flt Protected	1.00			1.00					1.00			
Satd. Flow (prot)	3531			3539					1611			
Flt Permitted	1.00			1.00					1.00			
Satd. Flow (perm)	3531			3539					1611			
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)	0	2371	36	0	1770	0	0	0	37	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2407	0	0	1770	0	0	0	37	0	0	0
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases	2			6								
Permitted Phases									2			6
Actuated Green, G (s)	150.0			150.0					150.0			
Effective Green, g (s)	150.0			150.0					150.0			
Actuated g/c Ratio	1.00			1.00					1.00			
Clearance Time (s)	4.9			4.9					4.9			
Vehicle Extension (s)	7.3			7.3					7.3			
Lane Grp Cap (vph)	3531			3539					1611			
v/s Ratio Prot	c0.68			0.50					0.02			
v/c Ratio	0.68			0.50					0.02			
Uniform Delay, d1	0.0			0.0					0.0			
Progression Factor	1.00			1.00					1.00			
Incremental Delay, d2	0.8			0.3					0.0			
Delay (s)	0.8			0.3					0.0			
Level of Service	A			A					A			
Approach Delay (s)	0.8			0.3					0.0			
Approach LOS	A			A					A			
Intersection Summary												
HCM 2000 Control Delay				0.6					A			
HCM 2000 Volume to Capacity ratio				0.72								
Actuated Cycle Length (s)				150.0					7.9			
Intersection Capacity Utilization				82.0%					E			
Analysis Period (min)				15								
c Critical Lane Group												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	905	935	588	198	753	264	501	484	249	273	282	498
v/c Ratio	1.08	0.78	0.62	0.87	0.95	0.50	0.85	0.46	0.32	0.73	0.65	0.34
Control Delay	100.2	56.2	23.0	97.4	79.2	12.8	85.0	30.7	19.5	89.3	51.5	15.6
Queue Delay	0.0	0.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
Total Delay	100.2	56.7	23.7	97.4	79.2	12.8	85.0	30.7	19.5	89.3	52.4	15.6
Queue Length 50th (ft)	-510	472	321	190	385	29	219	173	106	145	211	73
Queue Length 95th (ft)	#639	560	457	#316	#513	116	307	146	80	194	311	135
Internal Link Dist (ft)	574			1151				461			376	
Turn Bay Length (ft)	565	120	410	325	265			100	200		265	
Base Capacity (vph)	839	1201	974	248	792	530	666	1057	788	597	433	1451
Starvation Cap Reductn	0	62	145	0	0	0	0	0	0	0	33	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.82	0.71	0.80	0.95	0.50	0.75	0.46	0.32	0.46	0.70	0.34
Intersection Summary												
- Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	833	860	541	182	693	243	461	445	229	251	259	458
Future Volume (vph)	833	860	541	182	693	243	461	445	229	251	259	458
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.3
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
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)	905	935	588	198	753	264	501	484	249	273	282	498
RTOR Reduction (vph)	0	0	88	0	0	176	0	0	45	0	0	24
Lane Group Flow (vph)	905	935	500	198	753	88	501	484	204	273	282	474
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4			6	7	5	2	3
Permitted Phases			8			4				6		2
Actuated Green, G (s)	36.7	51.0	76.8	19.3	33.6	33.6	25.8	44.8	64.1	16.3	34.9	71.6
Effective Green, g (s)	36.7	51.0	76.8	19.3	33.6	33.6	25.8	44.8	64.1	16.3	34.9	71.6
Actuated g/c Ratio	0.24	0.34	0.51	0.13	0.22	0.22	0.17	0.30	0.43	0.11	0.23	0.48
Clearance Time (s)	4.4	4.9	4.4	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	4.3	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	839	1203	810	227	792	354	590	1056	676	373	433	1330
v/s Ratio Prot	c0.26	0.26	0.11	0.11	c0.21		c0.15	0.14	0.04	0.08	c0.15	0.09
v/s Ratio Perm			0.21			0.06			0.09		0.08	
v/c Ratio	1.08	0.78	0.62	0.87	0.95	0.25	0.85	0.46	0.30	0.73	0.65	0.36
Uniform Delay, d1	56.6	44.4	26.1	64.1	57.4	47.8	60.2	42.7	28.2	64.7	52.0	24.7
Progression Factor	0.94	1.16	1.33	1.00	1.00	1.00	1.20	0.67	1.06	1.20	0.83	0.75
Incremental Delay, d2	50.6	2.6	0.7	27.9	21.1	0.6	9.5	1.3	0.1	6.1	7.3	0.1
Delay (s)	103.9	54.0	35.4	92.1	78.4	48.4	82.0	30.1	30.0	84.1	50.2	18.5
Level of Service	F	D	D	F	E	D	F	C	C	F	D	B
Approach Delay (s)		68.1			74.1			51.2			44.0	
Approach LOS		E			E			D			D	
Intersection Summary												
HCM 2000 Control Delay												
HCM 2000 Volume to Capacity ratio												
Actuated Cycle Length (s)												
Intersection Capacity Utilization												
Analysis Period (min)												
c Critical Lane Group												

Balboa Transit Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

	→	←	↔	↖	↗
Lane Group	EBT	WBT	NBR	SBR	
Lane Group Flow (vph)	1403	2295	250	72	
v/c Ratio	0.99	0.46	0.22	0.11	
Control Delay	37.7	0.3	7.7	3.7	
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	37.7	0.3	7.7	3.7	
Queue Length 50th (ft)	153	0	17	1	
Queue Length 95th (ft)	#284	0	35	16	
Internal Link Dist (ft)	1151	265			
Turn Bay Length (ft)					
Base Capacity (vph)	1415	5029	1131	682	
Starvation Cap Reductn	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	
Storage Cap Reductn	0	0	0	0	
Reduced v/c Ratio	0.99	0.46	0.22	0.11	
Intersection Summary					
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.				

Balboa Transit Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕↕				↕↕			↕
Traffic Volume (vph)	0	1291	0	0	1959	153	0	0	230	0	0	66
Future Volume (vph)	0	1291	0	0	1959	153	0	0	230	0	0	66
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			4.0
Lane Util. Factor	0.95				0.91				0.88			1.00
Frt	1.00				0.99				0.85			1.00
Flt Protected	1.00				1.00				1.00			1.00
Satd. Flow (prot)	3539				5030				2787			1611
Flt Permitted	1.00				1.00				1.00			1.00
Satd. Flow (perm)	3539				5030				2787			1611
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)	0	1403	0	0	2129	166	0	0	250	0	0	72
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	16	0	0	38
Lane Group Flow (vph)	0	1403	0	0	2295	0	0	0	234	0	0	34
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	Prot	Perm	Perm	Perm
Protected Phases		8			2.4				2			6
Permitted Phases												
Actuated Green, G (s)		16.0			40.0				16.0			16.0
Effective Green, g (s)		16.0			40.0				16.0			16.0
Actuated g/C Ratio		0.40			1.00				0.40			0.40
Clearance Time (s)		4.0							4.0			4.0
Vehicle Extension (s)		3.0							3.0			3.0
Lane Grp Cap (vph)		1415			5030				1114			644
v/s Ratio Prot		c0.40			c0.46				0.08			0.02
v/s Ratio Perm												
v/c Ratio		0.99			0.46				0.21			0.05
Uniform Delay, d1		11.9			0.0				7.9			7.4
Progression Factor		1.00			1.00				1.00			1.00
Incremental Delay, d2		21.8			0.1				0.1			0.0
Delay (s)		33.7			0.1				8.0			7.4
Level of Service		C			A				A			A
Approach Delay (s)		33.7			0.1				8.0			7.4
Approach LOS		C			A				A			A
Intersection Summary												
HCM 2000 Control Delay					12.4							B
HCM 2000 Volume to Capacity ratio					0.78							
Actuated Cycle Length (s)					40.0							8.0
Intersection Capacity Utilization					52.0%							A
Analysis Period (min)					15							
c Critical Lane Group												

Balboa Transit Station
7: Balboa EB Ramps & Garnet Avenue

Balboa Transit Station
8: Garnet Ave & Moraga Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↕		↕↕					↕	↕	↕
Traffic Volume (veh/h)	0	863	657	0	1501	0	0	0	210	0	0	280
Future Volume (Veh/h)	0	863	657	0	1501	0	0	0	210	0	0	280
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	938	714	0	1632	0	0	0	228	0	0	304
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
VC, conflicting volume	1632			938			1754	2570	469	2101	2570	816
VC1, stage 1 conf vol												
VC2, stage 2 conf vol	1632			938			1754	2570	469	2101	2570	816
VCu, unblocked vol	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
IC, single (s)												
IC, 2 stage (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
IF (s)	100			100			100	100	58	100	100	5
p0 queue free %												
CM capacity (veh/h)	394			726			3	26	541	17	26	320
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	469	469	714	816	816	228	304					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	714	0	0	228	304					
cSH	1700	1700	1700	1700	1700	541	320					
Volume to Capacity	0.28	0.28	0.42	0.48	0.48	0.42	0.95					
Queue Length 95th (ft)	0	0	0	0	0	52	243					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	16.4	75.2					
Lane LOS						C	F					
Approach Delay (s)	0.0			0.0		16.4	75.2					
Approach LOS				C		F						
Intersection Summary												
Average Delay				7.0								
Intersection Capacity Utilization				65.5%						C		
Analysis Period (min)				15								

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	350	1170	1343	89	109	288
v/c Ratio	0.57	0.46	0.79	0.11	0.47	0.63
Control Delay	36.9	5.3	22.1	6.1	43.4	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	5.3	22.1	6.1	43.4	11.7
Queue Length 50th (ft)	83	103	284	8	52	0
Queue Length 95th (ft)	159	167	447	35	123	77
Internal Link Dist (ft)	554	3203			501	
Turn Bay Length (ft)	215		250	155		
Base Capacity (vph)	1307	3466	2695	1219	898	945
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.34	0.50	0.07	0.12	0.30
Intersection Summary						

Balboa Transit Station
8: Garnet Ave & Moraga Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	322	1076	1236	82	100	265
Future Volume (vph)	322	1076	1236	82	100	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	6.5	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Flt	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)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	350	1170	1343	89	109	288
RTOR Reduction (vph)	0	0	0	30	0	250
Lane Group Flow (vph)	350	1170	1343	59	109	38
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	14.6	59.3	39.5	39.5	10.8	10.8
Effective Green, g (s)	14.6	59.3	39.5	39.5	10.8	10.8
Actuated g/C Ratio	0.18	0.73	0.49	0.49	0.13	0.13
Clearance Time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Vehicle Extension (s)	2.0	4.8	3.9	3.9	2.0	2.0
Lane Grp Cap (vph)	615	2578	1717	768	234	210
v/s Ratio Prot	c0.10	0.33	c0.38		c0.06	
v/s Ratio Perm				0.04		0.02
v/c Ratio	0.57	0.45	0.78	0.08	0.47	0.18
Uniform Delay, d1	30.5	4.5	17.4	11.2	32.6	31.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	2.5	0.1	0.5	0.2
Delay (s)	31.2	4.7	19.9	11.3	33.2	31.5
Level of Service	C	A	B	B	C	C
Approach Delay (s)		10.8	19.4		32.0	
Approach LOS		B	B		C	
Intersection Summary						
HCM 2000 Control Delay			17.0		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			81.4		Sum of lost time (s)	16.5
Intersection Capacity Utilization			62.9%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
9: Claremont Dr & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	260	1018	400	1010	159	407	395	201	728
v/c Ratio	0.66	0.86	0.74	0.77	0.70	0.55	0.57	0.76	0.84
Control Delay	72.4	53.5	69.0	44.5	80.0	55.6	29.7	79.4	52.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.4	53.5	69.0	44.5	80.0	55.6	29.7	79.4	52.9
Queue Length 50th (ft)	123	465	188	431	146	181	220	183	282
Queue Length 95th (ft)	202	674	290	625	261	285	387	319	440
Internal Link Dist (ft)		3203		630		1350			860
Turn Bay Length (ft)	240		220		200		100		120
Base Capacity (vph)	761	1572	761	1589	392	1046	791	392	1065
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.65	0.53	0.64	0.41	0.39	0.50	0.51	0.68
Intersection Summary									

Balboa Transit Station
9: Clairemont Dr & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	239	864	73	368	815	114	146	374	363	185	315	355
Future Volume (vph)	239	864	73	368	815	114	146	374	363	185	315	355
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	6.4	6.4	4.4	5.3	4.4	4.4	4.4	5.3	5.3
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.95
Flt	1.00	0.99	1.00	0.98	1.00	0.98	1.00	1.00	0.85	1.00	0.92	0.92
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3498	3433	3474	3433	3474	1770	3539	1583	1770	3258	3258
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3498	3433	3474	3433	3474	1770	3539	1583	1770	3258	3258
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)	260	939	79	400	886	124	159	407	395	201	342	386
RTOR Reduction (vph)	0	3	0	0	6	0	0	0	58	0	111	0
Lane Group Flow (vph)	260	1015	0	400	1004	0	159	407	337	201	617	0
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	NA
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	16.2	47.9	22.1	53.1	18.2	29.5	51.6	21.4	32.7			
Effective Green, g (s)	16.2	47.9	22.1	53.1	18.2	29.5	51.6	21.4	32.7			
Actuated g/C Ratio	0.12	0.34	0.16	0.38	0.13	0.21	0.37	0.15	0.23			
Clearance Time (s)	4.4	5.7	4.4	6.4	4.4	5.3	4.4	4.4	5.3			
Vehicle Extension (s)	2.0	3.5	2.0	3.0	2.0	2.4	2.0	2.0	2.6			
Lane Grp Cap (vph)	395	1190	539	1311	228	742	580	269	757			
v/s Ratio Prot	0.08	c0.29		c0.12	0.29		0.09	0.11	0.09	c0.11	c0.19	
v/s Ratio Perm									0.12			
v/c Ratio	0.66	0.85	0.74	0.77	0.70	0.65	0.58	0.75	0.81			
Uniform Delay, d1	59.6	43.1	56.6	38.4	58.6	49.7	35.9	57.1	51.1			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	3.0	6.2	4.8	2.7	7.3	0.6	1.0	9.5	6.6			
Delay (s)	62.6	49.4	61.4	41.1	65.9	50.3	36.8	66.6	57.7			
Level of Service	E	D	E	D	E	D	D	D	E	E	E	E
Approach Delay (s)	52.1		46.9				47.3			59.6		
Approach LOS	D		D				D			E		
Intersection Summary												
HCM 2000 Control Delay			51.0			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			140.7			Sum of lost time (s)			20.5			
Intersection Capacity Utilization			81.4%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
10: Olney St & Balboa Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	62	588	50	197	311	269
v/c Ratio	0.23	0.45	0.23	0.18	0.59	0.52
Control Delay	21.2	12.5	23.3	12.7	16.6	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	12.5	23.3	12.7	16.6	16.5
Queue Length 50th (ft)	13	39	11	18	54	52
Queue Length 95th (ft)	48	122	43	45	129	120
Internal Link Dist (ft)		1172		936	328	244
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	326	1944	224	1738	1379	1434
Starvation Cap Reductn	0	0	0	0	0	5
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.30	0.22	0.11	0.23	0.19
Intersection Summary						

Balboa Transit Station
10: Olney St & Balboa Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (vph)	57	521	20	46	166	16	17	179	90	12	221	15
Future Volume (vph)	57	521	20	46	166	16	17	179	90	12	221	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	5.0		4.9	4.9			4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Fit	1.00	0.99		1.00	0.99		0.96	0.96			0.99	
Flt Protected	0.95	1.00		0.95	1.00		1.00	1.00			1.00	
Satd. Flow (prot)	1770	3519		1770	3493		1778	1778			1843	
Flt Permitted	0.95	1.00		0.95	1.00		0.97	0.97			0.98	
Satd. Flow (perm)	1770	3519		1770	3493		1729	1729			1805	
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)	62	566	22	50	180	17	18	195	98	13	240	16
RTOR Reduction (vph)	0	4	0	0	10	0	0	31	0	0	4	0
Lane Group Flow (vph)	62	584	0	50	187	0	0	280	0	0	265	0
Turn Type	Prot	NA	NA	Prot	NA	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8	8		4		4
Permitted Phases							8			4		
Actuated Green, G (s)	3.2	14.5		1.4	12.8			11.3			11.3	
Effective Green, g (s)	3.2	14.5		1.4	12.8			11.3			11.3	
Actuated g/C Ratio	0.08	0.35		0.03	0.31			0.27			0.27	
Clearance Time (s)	4.4	5.1		4.4	5.0		4.9	4.9			4.9	
Vehicle Extension (s)	2.0	2.8		2.0	2.5		2.0	2.0			2.0	
Lane Grp Cap (vph)	136	1226		59	1074		469				490	
v/s Ratio Prot	c0.04	c0.17		0.03	0.05		c0.16				0.15	
v/s Ratio Perm				0.85	0.17		0.60				0.54	
Uniform Delay, d1	18.4	10.6		20.0	10.5		13.2				12.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00				1.00	
Incremental Delay, d2	0.9	0.3		62.9	0.1		1.4				0.7	
Delay (s)	19.3	10.8		82.9	10.6		14.5				13.6	
Level of Service	B	B		F	B		B				B	
Approach Delay (s)		11.6			25.2		14.5				13.6	
Approach LOS		B			C		B				B	
Intersection Summary												
HCM 2000 Control Delay			14.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			41.6			Sum of lost time (s)				14.4		
Intersection Capacity Utilization			51.4%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
11: Olney St & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	29	1365	40	552	637	303
v/c Ratio	0.31	0.89	0.56	0.36	0.89	1.01
Control Delay	57.1	37.7	78.0	21.6	42.2	85.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	37.7	78.0	21.6	42.2	85.7
Queue Length 50th (ft)	19	461	28	103	348	197
Queue Length 95th (ft)	50	#618	m#78	193	#572	#382
Internal Link Dist (ft)		276		1076	315	328
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	101	1529	72	1549	726	308
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.89	0.56	0.36	0.88	0.98
Intersection Summary						
#	95th percentile volume exceeds capacity, queue may be longer.					
m	Queue shown is maximum after two cycles.					
m	Volume for 95th percentile queue is metered by upstream signal.					

Balboa Transit Station
11: Olney St & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Traffic Volume (vph)	27	1229	27	37	471	37	47	194	345	136	123	19
Future Volume (vph)	27	1229	27	37	471	37	47	194	345	136	123	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.4	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	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	1.00	1.00	0.99	1.00	0.92	0.92	0.92	0.92	0.99	0.99
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	0.98	0.98
Satd. Flow (prot)	1770	3528	1770	3501	1770	3501	1708	1708	1708	1801	1801	1801
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	0.40	0.40	0.40
Satd. Flow (perm)	1770	3528	1770	3501	1770	3501	1629	1629	1629	736	736	736
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)	29	1336	29	40	512	40	51	211	375	148	134	21
RTOR Reduction (vph)	0	1	0	0	5	0	0	49	0	0	2	0
Lane Group Flow (vph)	29	1364	0	40	547	0	0	588	0	0	301	0
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		8		4	
Permitted Phases												
Actuated Green, G (s)	3.7	45.1		3.4	45.0			43.1			43.1	
Effective Green, g (s)	3.7	45.1		3.4	45.0			43.1			43.1	
Actuated g/C Ratio	0.03	0.43		0.03	0.42			0.41			0.41	
Clearance Time (s)	4.4	5.1		4.4	4.9			4.9			4.9	
Vehicle Extension (s)	2.0	5.4		2.0	5.5			2.0			2.0	
Lane Grp Cap (vph)	61	1501		56	1486			662			299	
v/s Ratio Prot	0.02	c0.39		c0.02	0.16			0.36			c0.41	
v/s Ratio Perm								0.89			1.01	
Uniform Delay, d1	50.2	28.5		50.8	20.8			29.2			31.4	
Progression Factor	1.00	1.00		1.01	1.01			1.00			1.00	
Incremental Delay, d2	2.1	9.7		29.2	0.7			13.3			53.4	
Delay (s)	52.3	38.2		80.7	21.8			42.6			84.9	
Level of Service	D	D		F	C			D			F	
Approach Delay (s)		38.5			25.8			42.6			84.9	
Approach LOS		D			C			D			F	
Intersection Summary												
HCM 2000 Control Delay			41.6			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			106.0			Sum of lost time (s)			14.4			
Intersection Capacity Utilization			96.4%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
12: Grand Ave & Culver St

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	70	1666	638	232
v/c Ratio	0.49	0.64	0.29	0.77
Control Delay	53.5	4.1	9.2	55.9
Queue Delay	0.0	0.2	0.3	0.0
Total Delay	53.5	4.3	9.4	55.9
Queue Length 50th (ft)	48	126	99	144
Queue Length 95th (ft)	m53	m170	169	212
Internal Link Dist (ft)		1076	211	186
Turn Bay Length (ft)	55			
Base Capacity (vph)	189	2612	2195	434
Starvation Cap Reductn	0	0	837	0
Spillback Cap Reductn	0	295	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.72	0.47	0.53
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
12: Grand Ave & Culver St

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	64	1533	0	471	116	166	48
Future Volume (vph)	64	1533	0	471	116	166	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.97	1.00
Flt	1.00	1.00	0.97	0.97	1.00	0.96	1.00
Flt Protected	0.95	1.00	1.00	0.96	0.96	0.96	0.96
Satd. Flow (prot)	1770	3539	3434	1739	1739	1739	1739
Flt Permitted	0.95	1.00	1.00	0.96	0.96	0.96	0.96
Satd. Flow (perm)	1770	3539	3434	1739	1739	1739	1739
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	1666	0	512	126	180	52
RTOR Reduction (vph)	0	0	0	16	0	11	0
Lane Group Flow (vph)	70	1666	0	622	0	221	0
Turn Type	Prot	NA	Prot	NA	Prot	Prot	Prot
Protected Phases	5	2	1	6		4	
Permitted Phases							
Actuated Green, G (s)	7.6	78.2		66.4		17.8	
Effective Green, g (s)	7.6	78.2		66.4		17.8	
Actuated g/C Ratio	0.07	0.74		0.63		0.17	
Clearance Time (s)	4.4	5.1		4.9		4.9	
Vehicle Extension (s)	2.0	4.2		4.1		2.0	
Lane Grp Cap (vph)	126	2610		2151		292	
v/s Ratio Prot	0.04	cd.47		0.18		cd.13	
v/s Ratio Perm							
v/c Ratio	0.56	0.64		0.29		0.76	
Uniform Delay, d1	47.6	6.9		9.0		42.0	
Progression Factor	1.06	0.45		0.92		1.00	
Incremental Delay, d2	1.3	0.5		0.3		9.6	
Delay (s)	51.6	3.6		8.6		51.6	
Level of Service	D	A		A		D	
Approach Delay (s)		5.6		8.6		51.6	
Approach LOS		A		A		D	
Intersection Summary							
HCM 2000 Control Delay			10.4		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.69				
Actuated Cycle Length (s)			106.0		Sum of lost time (s)		14.4
Intersection Capacity Utilization			69.8%		ICU Level of Service		C
Analysis Period (min)			15				
c Critical Lane Group							

Balboa Transit Station
13: Lee St & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1820	135	645	103
v/c Ratio	0.77	0.65	0.22	0.59
Control Delay	9.5	58.9	2.4	40.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.6	58.9	2.4	40.4
Queue Length 50th (ft)	285	89	35	38
Queue Length 95th (ft)	354	145	65	89
Internal Link Dist (ft)	211		1401	337
Turn Bay Length (ft)		400		
Base Capacity (vph)	2363	273	2915	545
Starvation Cap Reductn	15	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.49	0.22	0.19
Intersection Summary				

Balboa Transit Station
13: Lee St & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←↑↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	1631	43	124	593	49	46
Future Volume (vph)	1631	43	124	593	49	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.4	4.9		
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	
Flt	1.00	1.00	1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3526		1770	3539	1697	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3526		1770	3539	1697	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1773	47	135	645	53	50
RTOR Reduction (vph)	1	0	0	0	42	0
Lane Group Flow (vph)	1819	0	135	645	61	0
Turn Type	NA	Prot	Prot	NA	Prot	
Protected Phases	2	1	6	8		
Permitted Phases						
Actuated Green, G (s)	71.0	12.4	87.3	8.4		
Effective Green, g (s)	71.0	12.4	87.3	8.4		
Actuated g/C Ratio	0.67	0.12	0.82	0.08		
Clearance Time (s)	4.9	4.4	5.4	4.9		
Vehicle Extension (s)	4.0	2.0	4.4	2.0		
Lane Grp Cap (vph)	2361	207	2914	134		
v/s Ratio Prot	0.52	0.08	0.18	0.04		
v/s Ratio Perm						
v/c Ratio	0.77	0.65	0.22	0.45		
Uniform Delay, d1	11.9	44.7	2.0	46.6		
Progression Factor	0.52	1.00	1.00	1.00		
Incremental Delay, d2	2.0	5.5	0.2	0.9		
Delay (s)	8.2	50.3	2.2	47.5		
Level of Service	A	D	A	D		
Approach Delay (s)	8.2		10.5	47.5		
Approach LOS	A		B	D		
Intersection Summary						
HCM 2000 Control Delay		10.4		HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio		0.73				
Actuated Cycle Length (s)		106.0		Sum of lost time (s)	14.2	
Intersection Capacity Utilization		70.7%		ICU Level of Service	C	
Analysis Period (min)		15				
c Critical Lane Group						





Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	EBL	EBT	WBT	WBL
Lane Group Flow (vph)	88	1798	734	
v/c Ratio	0.63	0.97	0.24	
Control Delay	85.9	15.7	2.1	
Queue Delay	0.0	0.0	0.0	
Total Delay	85.9	15.7	2.1	
Queue Length 50th (ft)	85	0	24	
Queue Length 95th (ft)	143	#128	77	
Internal Link Dist (ft)		605	773	
Turn Bay Length (ft)	90			
Base Capacity (vph)	259	1863	3010	
Starvation Cap Reductn	0	0	0	
Spillback Cap Reductn	0	0	0	
Storage Cap Reductn	0	0	0	
Reduced v/c Ratio	0.34	0.97	0.24	
Intersection Summary				
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.			

Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	81	1654	646	29	0	0
Future Volume (vph)	81	1654	646	29	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.3	5.3			
Lane Util. Factor	1.00	1.00	0.99			
Fit	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	1863	3516			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1770	1863	3516			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	1798	702	32	0	0
RTOR Reduction (vph)	0	0	1	0	0	0
Lane Group Flow (vph)	88	1798	733	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	11.8	150.0	128.5			
Effective Green, g (s)	11.8	150.0	128.5			
Actuated g/C Ratio	0.08	1.00	0.86			
Clearance Time (s)	4.4	5.3	5.3			
Vehicle Extension (s)	2.0	4.4	4.4			
Lane Grp Cap (vph)	139	1863	3012			
v/s Ratio Prot	0.05	0.97	0.21			
v/s Ratio Perm						
v/c Ratio	0.63	0.97	0.24			
Uniform Delay, d1	67.0	0.0	1.9			
Progression Factor	1.00	1.00	0.91			
Incremental Delay, d2	6.7	14.1	0.2			
Delay (s)	73.7	14.1	1.9			
Level of Service	E	B	A			
Approach Delay (s)		16.9	1.9	0.0		
Approach LOS		B	A	A		
Intersection Summary						
HCM 2000 Control Delay			12.7	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			1.05			
Actuated Cycle Length (s)			150.0	Sum of lost time (s)		12.7
Intersection Capacity Utilization			91.5%	ICU Level of Service		F
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
15: Mission Bay Dr & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	325	1522	500	890	960
v/c Ratio	0.93	0.96	0.72	0.38	0.69
Control Delay	46.1	8.7	32.9	4.3	26.2
Queue Delay	0.0	2.4	0.0	0.0	0.0
Total Delay	46.1	11.1	32.9	4.3	26.2
Queue Length 50th (ft)	149	0	112	84	217
Queue Length 95th (ft)	m157	m0	110	31	442
Internal Link Dist (ft)	773		285	526	478
Turn Bay Length (ft)	225		1034	2359	1394
Base Capacity (vph)	356	1583	1034	2359	1394
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	30	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.91	0.98	0.48	0.38	0.69
Intersection Summary					
m Volume for 95th percentile queue is metered by upstream signal.					

Balboa Transit Station
15: Mission Bay Dr & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↰	↱	↰
Traffic Volume (vph)	299	1400	460	819	0	783	100
Future Volume (vph)	299	1400	460	819	0	783	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.0	5.7	5.7		4.9	
Lane Util. Factor	1.00	1.00	0.97	0.95		0.95	
Flt	1.00	0.85	1.00	1.00		0.98	
Flt Protected	0.95	1.00	0.95	1.00		1.00	
Satd. Flow (prot)	1770	1583	3433	3539		3479	
Flt Permitted	0.95	1.00	0.95	1.00		1.00	
Satd. Flow (perm)	1770	1583	3433	3539		3479	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92		0.92	
Adj. Flow (vph)	325	1522	500	890		851	109
RTOR Reduction (vph)	0	0	0	0		0	11
Lane Group Flow (vph)	325	1522	500	890		949	0
Turn Type	Prot	Free	Prot	NA	Prot	NA	
Protected Phases	4		1	6	5	2	
Permitted Phases		Free					
Actuated Green, G (s)	14.9	75.0	15.3	50.0		29.8	
Effective Green, g (s)	14.9	75.0	15.3	50.0		29.8	
Actuated g/C Ratio	0.20	1.00	0.20	0.67		0.40	
Clearance Time (s)	4.4	5.7	5.7	4.9		4.9	
Vehicle Extension (s)	2.0	2.0	4.6	3.6		3.6	
Lane Grp Cap (vph)	351	1583	700	2359		1382	
v/s Ratio Prot	0.18		0.15	0.25		0.27	
v/s Ratio Perm		c0.96					
v/c Ratio	0.93	0.96	0.71	0.38		0.69	
Uniform Delay, d1	29.5	0.0	27.8	5.6		18.7	
Progression Factor	1.00	1.00	0.98	0.68		1.23	
Incremental Delay, d2	13.4	6.9	2.8	0.4		2.7	
Delay (s)	42.9	6.9	30.1	4.2		25.8	
Level of Service	D	A	C	A		C	
Approach Delay (s)	13.3			13.5		25.8	
Approach LOS	B			B		C	
Intersection Summary							
HCM 2000 Control Delay			16.2		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			1.20				
Actuated Cycle Length (s)			75.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization			67.0%		ICU Level of Service		C
Analysis Period (min)			15				
c Critical Lane Group							

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	765	102	1510	853	213
v/c Ratio	0.97	0.50	0.66	0.49	0.25
Control Delay	54.8	26.5	16.4	15.2	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	26.5	16.4	15.2	6.3
Queue Length 50th (ft)	175	64	374	140	20
Queue Length 95th (ft)	#289	102	438	211	63
Internal Link Dist (ft)	261		749	743	
Turn Bay Length (ft)	270	205			70
Base Capacity (vph)	790	401	2293	1736	845
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.97	0.25	0.66	0.49	0.25
Intersection Summary					
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.					

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W	W	W	W	W	W
Traffic Volume (vph)	584	120	94	1389	785	196
Future Volume (vph)	584	120	94	1389	785	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.6	5.6	5.6
Lane Util. Factor	0.97	0.97	1.00	0.95	0.95	1.00
Flt	0.97	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.96	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3381	1770	3539	3539	3539	1583
Flt Permitted	0.96	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3381	1770	3539	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	635	130	102	1510	853	213
RTOR Reduction (vph)	24	0	0	0	0	70
Lane Group Flow (vph)	741	0	102	1510	853	143
Turn Type	Prot	Prot	Prot	NA	NA	Perm
Protected Phases	4	5	2	2	6	
Permitted Phases						6
Actuated Green, G (s)	17.0	7.7	48.6	35.9	35.9	
Effective Green, g (s)	17.0	7.7	48.6	35.9	35.9	
Actuated g/C Ratio	0.23	0.10	0.65	0.48	0.48	
Clearance Time (s)	4.4	4.4	5.0	5.6	5.6	
Vehicle Extension (s)	2.0	2.0	4.0	4.8	4.8	
Lane Grp Cap (vph)	766	181	2293	1694	757	
v/s Ratio Prot	0.22	0.06	0.43	0.24		
v/s Ratio Perm					0.09	
v/c Ratio	0.97	0.56	0.66	0.50	0.19	
Uniform Delay, d1	28.7	32.0	8.1	13.4	11.2	
Progression Factor	1.00	0.64	1.84	1.00	1.00	
Incremental Delay, d2	24.3	1.9	1.2	1.1	0.6	
Delay (s)	53.1	22.5	16.1	14.5	11.8	
Level of Service	D	C	B	B	B	
Approach Delay (s)	53.1		16.6	14.0		
Approach LOS	D		B	B		
Intersection Summary						
HCM 2000 Control Delay	23.9		HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.80					
Actuated Cycle Length (s)	75.0		Sum of lost time (s)		14.4	
Intersection Capacity Utilization	66.7%		ICU Level of Service		C	
Analysis Period (min)	15					
Critical Lane Group						

Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	79	46	1592	116	57	890
v/c Ratio	0.61	0.29	0.61	0.10	0.30	0.29
Control Delay	85.7	20.7	3.1	0.1	79.9	5.5
Queue Delay	0.0	0.0	0.4	0.0	0.0	0.0
Total Delay	85.7	20.7	3.4	0.1	79.9	5.5
Queue Length 50th (ft)	76	0	42	0	58	184
Queue Length 95th (ft)	131	41	m41	m0	m104	m235
Internal Link Dist (ft)	1169		376			749
Turn Bay Length (ft)		75		160	185	
Base Capacity (vph)	361	359	2613	1184	224	3050
Starvation Cap Reductn	0	0	453	0	0	0
Spillback Cap Reductn	0	0	0	0	0	15
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.13	0.74	0.10	0.25	0.29
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	73	42	1465	107	52	819
Future Volume (vph)	73	42	1465	107	52	819
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Flt	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)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	46	1592	116	57	890
RTOR Reduction (vph)	0	43	0	16	0	0
Lane Group Flow (vph)	79	3	1592	100	57	890
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4		2		
Actuated Green, G (s)	11.1	11.1	109.9	109.9	15.2	129.3
Effective Green, g (s)	11.1	11.1	109.9	109.9	15.2	129.3
Actuated g/C Ratio	0.07	0.07	0.73	0.73	0.10	0.86
Clearance Time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Vehicle Extension (s)	2.0	2.0	3.8	3.8	2.0	3.5
Lane Grp Cap (vph)	130	117	2592	1159	179	3050
v/s Ratio Prot	0.04		0.45		0.03	0.25
v/s Ratio Perm		0.00		0.06		
v/c Ratio	0.61	0.03	0.61	0.09	0.32	0.29
Uniform Delay, d1	67.3	64.4	9.7	5.7	62.6	1.9
Progression Factor	1.00	1.00	0.22	0.00	1.27	2.54
Incremental Delay, d2	5.4	0.0	0.7	0.1	0.3	0.2
Delay (s)	72.7	64.5	2.8	0.1	80.0	5.0
Level of Service	E	E	A	A	E	A
Approach Delay (s)	69.7		2.6		9.6	
Approach LOS	E		A		A	
Intersection Summary						
HCM 2000 Control Delay			8.0		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	13.8
Intersection Capacity Utilization			55.3%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	233	15	42	1157	37	991
v/c Ratio	0.87	0.06	0.47	0.47	0.44	0.40
Control Delay	82.4	37.6	96.9	10.0	77.1	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	82.4	37.6	96.9	10.0	77.1	12.9
Queue Length 50th (ft)	197	8	43	73	38	207
Queue Length 95th (ft)	287	29	m79	420	m58	277
Internal Link Dist (ft)	303	271		804		461
Turn Bay Length (ft)			65		50	
Base Capacity (vph)	336	310	119	2485	107	2449
Starvation Cap Reductn	0	0	0	0	0	820
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.05	0.35	0.47	0.35	0.61
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Balboa Transit Station
19: Mission Bay Dr & Bunker Hill St

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	8	8	1	5	39	1058	6	34	839	73
Traffic Volume (vph)	100	8	106	8	1	5	39	1058	6	34	839	73
Future Volume (vph)	100	8	106	8	1	5	39	1058	6	34	839	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.4	5.0	4.4	4.4	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.99	0.95
Flt	0.93	0.93	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.99	0.95
Flt Protected	0.98	0.98	0.97	0.97	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)	1699	1699	1727	1727	1770	1770	3536	1770	3497	1770	3497	1770
Flt Permitted	0.84	0.84	0.81	0.81	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)	1466	1466	1438	1438	1770	1770	3536	1770	3497	1770	3497	1770
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)	109	9	115	9	1	5	42	1150	7	37	912	79
RTOR Reduction (vph)	0	25	0	0	4	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	208	0	0	11	0	42	1157	0	37	988	0
Turn Type	Perm	NA	Perm	NA	NA	Prot	NA	Prot	NA	Prot	NA	NA
Protected Phases	8	8	4	4	1	6	5	2	5	2	5	2
Permitted Phases	8	8	4	4	6	6	6	6	6	6	6	6
Actuated Green, G (s)	24.8	24.8	24.8	24.8	6.8	104.6	6.3	104.1	6.3	104.1	6.3	104.1
Effective Green, g (s)	24.8	24.8	24.8	24.8	6.8	104.6	6.3	104.1	6.3	104.1	6.3	104.1
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.05	0.70	0.04	0.69	0.04	0.69	0.04	0.69
Clearance Time (s)	4.9	4.9	4.9	4.9	4.4	5.0	4.4	5.0	4.4	5.0	4.4	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	3.7	2.0	3.7	2.0	3.7	2.0	3.7
Lane Grp Cap (vph)	242	237	80	2465	74	2426	74	2426	74	2426	74	2426
v/s Ratio Prot	c0.14	0.01	c0.02	c0.33	0.02	0.28	0.02	0.28	0.02	0.28	0.02	0.28
v/s Ratio Perm	0.86	0.05	0.53	0.47	0.50	0.41	0.50	0.41	0.50	0.41	0.50	0.41
Uniform Delay, d1	60.9	52.6	70.0	10.2	70.3	9.8	70.3	9.8	70.3	9.8	70.3	9.8
Progression Factor	1.00	1.00	1.20	0.84	0.95	1.13	0.95	1.13	0.95	1.13	0.95	1.13
Incremental Delay, d2	24.0	0.0	0.0	2.5	0.6	1.5	0.4	1.5	0.4	1.5	0.4	1.5
Delay (s)	84.9	52.7	86.8	9.1	68.1	11.5	68.1	11.5	68.1	11.5	68.1	11.5
Level of Service	F	D	F	A	E	B	E	B	E	B	E	B
Approach Delay (s)	84.9	52.7	11.8	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Approach LOS	F	D	B	B	B	B	B	B	B	B	B	B
Intersection Summary												
HCM 2000 Control Delay	19.7											
HCM 2000 Volume to Capacity ratio	0.54											
Actuated Cycle Length (s)	150.0											
Intersection Capacity Utilization	54.9%											
Analysis Period (min)	15											
c Critical Lane Group												

Lane Group	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	87	1198	162	891
v/c Ratio	0.36	0.53	0.69	0.30
Control Delay	4.3	5.7	42.4	1.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.3	5.7	42.4	1.3
Queue Length 50th (ft)	0	89	82	11
Queue Length 95th (ft)	4	m105	m#133	70
Internal Link Dist (ft)	514	478	90	804
Turn Bay Length (ft)	508	2246	236	2993
Base Capacity (vph)	0	0	0	0
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.17	0.53	0.69	0.30
Intersection Summary				
#	95th percentile volume exceeds capacity, queue may be longer.			
m	Queue shown is maximum after two cycles.			
m	Volume for 95th percentile queue is metered by upstream signal.			

Balboa Transit Station
19: Mission Bay Dr & Bunker Hill St

Balboa Transit Station
20: Mission Bay Dr & Rosewood St

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	35	0	45	0	1020	82	149	820	0
Future Volume (vph)	0	0	0	35	0	45	0	1020	82	149	820	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9						5.0			4.4	5.0	
Lane Util. Factor	1.00						0.95			1.00	0.95	
Flt	0.92						0.99			1.00	1.00	
Flt Protected	0.98						1.00			0.95	1.00	
Satd. Flow (prot)	1684						3500			1770	3539	
Flt Permitted	0.86						1.00			0.95	1.00	
Satd. Flow (perm)	1478						3500			1770	3539	
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)	0	0	0	38	0	49	0	1109	89	162	891	0
RTOR Reduction (vph)	0	0	0	0	83	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	4	0	0	1193	0	162	891	0
Turn Type				Perm	NA	NA	Prot	NA	Prot	Prot	NA	
Protected Phases	4			4			1	6		5	2	
Permitted Phases				4								
Actuated Green, G (s)				3.6			47.1			10.0	61.5	
Effective Green, g (s)				3.6			47.1			10.0	61.5	
Actuated g/C Ratio				0.05			0.63			0.13	0.82	
Clearance Time (s)				4.9			5.0			4.4	5.0	
Vehicle Extension (s)				2.0			3.2			2.0	3.2	
Lane Grp Cap (vph)				70			2198			236	2901	
v/s Ratio Prot				c0.00			c0.34			c0.09	0.25	
v/c Ratio Perm				0.06			0.54			0.69	0.31	
Uniform Delay, d1				34.1			7.9			31.0	1.6	
Progression Factor				1.00			0.64			0.90	0.66	
Incremental Delay, d2				0.1			0.8			6.0	0.3	
Delay (s)				34.2			5.9			33.8	1.3	
Level of Service				C			A			C	A	
Approach Delay (s)	0.0			34.2			5.9			6.3		
Approach LOS	A			C			A			A		
Intersection Summary												
HCM 2000 Control Delay			7.1				HCM 2000 Level of Service					
HCM 2000 Volume to Capacity ratio			0.54				A					
Actuated Cycle Length (s)			75.0				Sum of lost time (s)					
Intersection Capacity Utilization			55.7%				ICU Level of Service					
Analysis Period (min)			15				B					
c Critical Lane Group												

Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	28	1386	21	2384
v/c Ratio	0.18	0.32	0.14	0.73
Control Delay	18.5	3.5	26.6	6.4
Queue Delay	0.0	0.0	0.0	0.1
Total Delay	18.5	3.5	26.6	6.5
Queue Length 50th (ft)	2	0	9	66
Queue Length 95th (ft)	25	132	m10	m444
Internal Link Dist (ft)	221	960		526
Turn Bay Length (ft)			60	
Base Capacity (vph)	368	4350	152	3253
Starvation Cap Reductn	0	0	0	75
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.08	0.32	0.14	0.75
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
20: Mission Bay Dr & Rosewood St

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBT	SBT
Lane Configurations	W		4+4	4	4	4
Traffic Volume (vph)	5	21	1249	26	19	2193
Future Volume (vph)	5	21	1249	26	19	2193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	
Flt	0.89	1.00	1.00	1.00	1.00	
Flt Protected	0.99	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1642	5070	1770	3539		
Flt Permitted	0.99	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1642	5070	1770	3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	5	23	1358	28	21	2384
RTOR Reduction (vph)	22	0	2	0	0	0
Lane Group Flow (vph)	6	0	1384	0	21	2384
Turn Type	Prot	NA	NA	Prot	NA	
Protected Phases	8	2	1	1	6	
Permitted Phases						
Actuated Green, G (s)	2.9	57.1	3.0	3.0	64.1	
Effective Green, g (s)	2.9	57.1	3.0	3.0	64.1	
Actuated g/C Ratio	0.04	0.76	0.04	0.04	0.85	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	63	3859		70	3024	
v/s Ratio Prot	c0.00	0.27	0.01	c0.67		
v/s Ratio Perm						
v/c Ratio	0.09	0.36	0.30	0.30	0.79	
Uniform Delay, d1	34.8	2.9	35.0	35.0	2.4	
Progression Factor	1.00	1.00	0.82	0.82	2.20	
Incremental Delay, d2	0.6	0.3	1.2	1.2	1.1	
Delay (s)	35.4	3.2	29.9	29.9	6.4	
Level of Service	D	A	A	C	A	
Approach Delay (s)	35.4	3.2		6.6		
Approach LOS	D	A	A		A	
Intersection Summary						
HCM 2000 Control Delay			5.6	HCM 2000	Level of Service	A
HCM 2000 Volume to Capacity ratio			0.81			
Actuated Cycle Length (s)			75.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization			70.6%	ICU Level of Service		C
Analysis Period (min)			15			
Critical Lane Group						

Balboa Transit Station
21: Santa Fe St & Damon Ave

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	EB	EB	NB	NB	SB	SB
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Volume (vph)	102	20	13	125	52	67
Future Volume (vph)	102	20	13	125	52	67
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	22	14	136	57	73
Direction, Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total (vph)	111	22	150	130		
Volume Left (vph)	111	0	14	0		
Volume Right (vph)	0	22	0	73		
Head (s)	0.23	-0.57	0.05	-0.30		
Departure Headway (s)	4.7	3.2	4.4	4.0		
Degree Utilization, x	0.15	0.02	0.18	0.15		
Capacity (veh/h)	710	1121	795	859		
Control Delay (s)	8.6	6.3	8.3	7.7		
Approach Delay (s)	8.2		8.3	7.7		
Approach LOS	A		A	A		
Intersection Summary						
Delay	8.1					
Level of Service	A					
Intersection Capacity Utilization	26.3%					
Analysis Period (min)	15					
	A					

Balboa Transit Station
22: Morena Blvd & Jutland Dr

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Stop	Stop	Stop	Stop	Stop
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Volume (vph)	194	20	249	416	5	159
Future Volume (vph)	194	20	249	416	5	159
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	211	22	271	452	5	173
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	211	22	271	452	63	115
Volume Left (vph)	211	0	0	0	5	0
Volume Right (vph)	0	22	0	452	0	0
Head (s)	0.53	-0.67	0.03	-0.67	0.07	0.03
Departure Headway (s)	7.0	5.8	5.6	4.9	6.3	6.2
Degree Utilization, x	0.41	0.04	0.42	0.62	0.11	0.20
Capacity (veh/h)	484	571	624	716	544	550
Control Delay (s)	13.6	7.8	11.5	14.4	8.8	9.6
Approach Delay (s)	13.1	13.3	9.3			
Approach LOS	B	B	B	A		
Intersection Summary						
Delay	12.6					
Level of Service	B					
Intersection Capacity Utilization	37.0%					
Analysis Period (min)	15					
	ICU Level of Service					
	A					

Balboa Transit Station
23: Morena Blvd & Costco Dwy

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	165	841	46	315
v/c Ratio	0.23	0.45	0.17	0.15
Control Delay	10.8	8.4	18.3	4.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.8	8.4	18.3	4.2
Queue Length 50th (ft)	7	38	7	12
Queue Length 95th (ft)	30	122	33	26
Internal Link Dist (ft)	195	3170		1658
Turn Bay Length (ft)			110	
Base Capacity (vph)	2564	2111	266	2862
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.06	0.40	0.17	0.11
Intersection Summary				

Balboa Transit Station
23: Morena Blvd & Costco Dwy

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WW		4P		5	4P
Traffic Volume (vph)	97	55	657	117	42	290
Future Volume (vph)	97	55	657	117	42	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		5.5		4.4	5.5
Lane Util. Factor	0.97	0.95	0.95		1.00	0.95
Ft	0.95	0.98	1.00		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	3311		3459		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	3311		3459		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	60	714	127	46	315
RTOR Reduction (vph)	52	0	20	0	0	0
Lane Group Flow (vph)	113	0	821	0	46	315
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	4.4		14.4		1.2	20.0
Effective Green, g (s)	4.4		14.4		1.2	20.0
Actuated g/C Ratio	0.13		0.41		0.03	0.57
Clearance Time (s)	4.9		5.5		4.4	5.5
Vehicle Extension (s)	2.0		2.8		2.0	2.8
Lane Grp Cap (vph)	418		1431		61	2033
v/s Ratio Prot	c0.03		c0.24		c0.03	0.09
v/s Ratio Perm						
v/c Ratio	0.27		0.57		0.75	0.15
Uniform Delay d1	13.7		7.8		16.7	3.5
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.1		0.5		36.7	0.0
Delay (s)	13.9		8.4		53.3	3.5
Level of Service	B		A		D	A
Approach Delay (s)	13.9		8.4			9.8
Approach LOS	B		A			A
Intersection Summary						
HCM 2000 Control Delay			9.4		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.52			
Actuated Cycle Length (s)			34.8		Sum of lost time (s)	14.8
Intersection Capacity Utilization			42.1%		ICU Level of Service	A
Analysis Period (min)			15			
Critical Lane Group						

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	251	37	874	132	18	388
v/c Ratio	0.34	0.10	0.53	0.09	0.09	0.22
Control Delay	15.4	7.6	9.2	0.4	20.6	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	7.6	9.2	0.4	20.6	5.5
Queue Length 50th (ft)	19	0	51	0	3	18
Queue Length 95th (ft)	62	19	147	7	22	39
Internal Link Dist (ft)	317		2205			3170
Turn Bay Length (ft)		135		115	120	
Base Capacity (vph)	2693	1251	3219	1572	195	3181
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.27	0.08	0.09	0.12
Intersection Summary						

Balboa Transit Station
24: Morena Blvd & Avati Dr

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↔	↔↔	↔	↔	↔↔
Traffic Volume (vph)	231	34	0	804	121	17	357
Future Volume (vph)	231	34	0	804	121	17	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)	-10%			-3%			0%
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	5.7	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95	
Flt	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3605	1662	3592	1607	1770	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3605	1662	3592	1607	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	251	37	0	874	132	18	388
RTOR Reduction (vph)	0	30	0	0	51	0	0
Lane Group Flow (vph)	251	7	0	874	81	18	388
Turn Type	Prot	Prot	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	7	1	6	7	5	2
Permitted Phases					6		5
Actuated Green, G (s)	7.8	7.8		17.5	25.3	0.6	22.8
Effective Green, g (s)	7.8	7.8		17.5	25.3	0.6	22.8
Actuated g/C Ratio	0.19	0.19		0.42	0.61	0.01	0.55
Clearance Time (s)	4.9	4.9		6.0	4.9	4.4	5.7
Vehicle Extension (s)	2.0	2.0		5.2	2.0	2.0	5.0
Lane Grp Cap (vph)	682	314		1525	986	25	1958
v/s Ratio Prot	c0.07	0.00		c0.24	0.02	0.01	c0.11
v/s Ratio Perm					0.03		
v/c Ratio	0.37	0.02		0.57	0.08	0.72	0.20
Uniform Delay, d1	14.6	13.6		9.0	3.2	20.2	4.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		0.9	0.0	58.2	0.1
Delay (s)	14.7	13.6		9.9	3.2	78.5	4.7
Level of Service	B	B		A	A	E	A
Approach Delay (s)	14.5			9.0		8.0	
Approach LOS	B			A		A	
Intersection Summary							
HCM 2000 Control Delay			9.7		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.52				
Actuated Cycle Length (s)			41.2		Sum of lost time (s)		15.3
Intersection Capacity Utilization			37.9%		ICU Level of Service		A
Analysis Period (min)			15				
c. Critical Lane Group							

Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	98	164	1246	304	222	446
v/c Ratio	0.27	0.36	0.53	0.19	0.09	0.28
Control Delay	14.5	5.5	5.9	0.3	3.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	5.5	5.9	0.3	3.8	0.4
Queue Length 50th (ft)	17	0	65	0	7	0
Queue Length 95th (ft)	42	29	127	0	20	0
Internal Link Dist (ft)			933		2205	
Turn Bay Length (ft)		50		150		100
Base Capacity (vph)	782	791	2357	1583	2357	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.21	0.53	0.19	0.09	0.28
Intersection Summary						

Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Balboa Transit Station
26: Morena Blvd & Balboa Station Driveway/Balboa EB Ramps

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	→	↱	↰	→	↱	↰	→	↱	↰	→	↱
Traffic Volume (vph)	90	0	151	0	0	0	0	1146	280	0	204	410
Future Volume (vph)	90	0	151	0	0	0	0	1146	280	0	204	410
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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Flt	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1583	1583	1583	1583	1583	3539	1583	3539	1583	1583
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1583	1583	1583	1583	1583	3539	1583	3539	1583	1583
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)	98	0	164	0	0	0	1246	304	0	222	446	446
RTOR Reduction (vph)	0	0	137	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	98	0	27	0	0	0	1246	304	0	222	446	446
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	NA	Free	NA	Free	NA	Free
Protected Phases							2				6	
Permitted Phases	4	4	4				Free		Free		Free	
Actuated Green, G (s)	6.1	6.1	6.1				23.4	37.5	23.4	37.5	23.4	37.5
Effective Green, g (s)	6.1	6.1	6.1				23.4	37.5	23.4	37.5	23.4	37.5
Actuated g/C Ratio	0.16	0.16	0.16				0.62	1.00	0.62	1.00	0.62	1.00
Clearance Time (s)	4.0	4.0	4.0				4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0				3.0		3.0		3.0	
Lane Grp Cap (vph)	287		257				2208	1583		2208	1583	
v/s Ratio Prot							60.35			0.06		
v/s Ratio Perm	0.06	0.02	0.02				0.19		0.19		0.28	
v/c Ratio	0.34	0.10	0.10				0.56	0.19	0.10	0.28		
Uniform Delay, d1	13.9	13.4	13.4				4.1	0.0	4.1	0.0	2.8	0.0
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	0.2	0.2				0.3	0.3	0.0	0.4	0.4	0.4
Delay (s)	14.6	13.6	13.6				4.4	0.3	4.4	0.3	2.8	0.4
Level of Service	B	B	B				A	A	A	A	A	A
Approach Delay (s)	14.0			0.0			3.6			1.2		
Approach LOS	B			A			A			A		
Intersection Summary												
HCM 2000 Control Delay			4.1				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			37.5				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			43.3%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	32	12	236	478	10	1203	54	331				
v/c Ratio	0.16	0.06	0.58	0.72	0.08	0.73	0.43	0.18				
Control Delay	30.8	28.4	30.0	12.7	33.9	19.9	45.1	9.8				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Total Delay	30.8	28.4	30.0	12.7	33.9	19.9	45.1	9.8				
Queue Length 50th (ft)	13	4	92	28	4	241	23	34				
Queue Length 95th (ft)	37	19	165	128	19	#383	#73	74				
Internal Link Dist (ft)			132	684		1978		933				
Turn Bay Length (ft)						100		135				
Base Capacity (vph)	503	524	513	735	126	1739	126	1891				
Starvation Cap Reductn	0	0	0	0	0	0	0	0				
Spillback Cap Reductn	0	0	0	0	0	0	0	0				
Storage Cap Reductn	0	0	0	0	0	0	0	0				
Reduced v/c Ratio	0.06	0.02	0.46	0.65	0.08	0.69	0.43	0.18				
Intersection Summary												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Balboa Transit Station
26: Morena Blvd & Balboa Station Driveway/Balboa EB Ramps

Balboa Transit Station
27: Morena Blvd & Baker St

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	29	10	1	140	77	440	9	957	150	50	258	47
Future Volume (vph)	29	10	1	140	77	440	9	957	150	50	258	47
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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	0.98	1.00	0.95
Flt	1.00	0.99	1.00	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.98
Flt Protected	0.95	1.00	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1839	1805	1583	1770	3467	1770	3467	1770	3457	1770	3457
Flt Permitted	0.95	1.00	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1839	1805	1583	1770	3467	1770	3467	1770	3457	1770	3457
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)	32	11	1	152	84	478	10	1040	163	54	280	51
RTOR Reduction (vph)	0	1	0	0	0	316	0	13	0	0	15	0
Lane Group Flow (vph)	32	11	0	0	236	162	10	1190	0	54	316	0
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA	Prot	NA	NA
Protected Phases	4	4	8	8	5	2	1	6	1	6	1	6
Permitted Phases	3.8	3.8	13.5	13.5	0.7	29.6	2.0	30.9	2.0	30.9	2.0	30.9
Actuated Green, G (s)	3.8	3.8	13.5	13.5	0.7	29.6	2.0	30.9	2.0	30.9	2.0	30.9
Effective Green, g (s)	0.06	0.06	0.21	0.21	0.01	0.46	0.03	0.48	0.03	0.48	0.03	0.48
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	103	107	375	329	19	1581	54	1645	54	1645	54	1645
Lane Grp Cap (vph)	60.02	0.01	0.13	0.01	60.34	60.03	0.09	0.09	60.03	0.09	0.09	0.09
v/s Ratio Prot	0.31	0.10	0.63	0.49	0.53	0.75	1.00	0.19	1.00	0.19	1.00	0.19
v/c Ratio	29.3	28.9	23.4	22.7	31.9	14.6	31.5	9.8	31.5	9.8	31.5	9.8
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.7	0.4	3.3	1.2	23.9	2.1	122.5	0.1	122.5	0.1	122.5	0.1
Incremental Delay, d2	31.0	29.4	26.7	23.8	55.8	16.7	153.9	9.9	153.9	9.9	153.9	9.9
Delay (s)	C	C	C	C	E	B	F	A	F	A	F	A
Level of Service	30.6	C	24.8	C	17.0	B	30.1	C	30.1	C	30.1	C
Approach Delay (s)	C	C	C	C	C	C	C	C	C	C	C	C
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM 2000 Control Delay	21.8											
HCM 2000 Volume to Capacity ratio	0.69											
Actuated Cycle Length (s)	64.9											
Sum of lost time (s)	16.0											
Intersection Capacity Utilization	71.8%											
ICU Level of Service	C											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	20	26	965	17	15	364
Future Volume (Veh/h)	20	26	965	17	15	364
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	28	1049	18	16	396
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pK, platoon unblocked	1279	1049			1067	
VC, conflicting volume						
VC1, stage 1 conf vol						
VC2, stage 2 conf vol	1279	1049			1067	
VCu, unblocked vol	6.8	6.9			4.1	
IC, single (s)						
IC, 2 stage (s)	3.5	3.3			2.2	
IF (s)						
p0 queue free %	86	87			98	
dM capacity (veh/h)	154	224			649	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	50	1049	18	16	198	198
Volume Left	22	0	0	16	0	0
Volume Right	28	0	18	0	0	0
cSH	187	1700	1700	649	1700	1700
Volume to Capacity	0.27	0.62	0.01	0.02	0.12	0.12
Queue Length 95th (ft)	26	0	0	2	0	0
Control Delay (s)	31.2	0.0	0.0	10.7	0.0	0.0
Lane LOS	D	D	B	B	B	B
Approach Delay (s)	31.2	0.0		0.4		
Approach LOS	D					
Intersection Summary						
Average Delay	1.1					
Intersection Capacity Utilization	60.8%					
ICU Level of Service	B					
Analysis Period (min)	15					

Balboa Transit Station
28: Morena Blvd & Gesner St

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	WBL	NBT	NBR	SBL	SBT
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	97	1070	49	57	420
v/c Ratio	0.30	0.52	0.05	0.19	0.17
Control Delay	15.8	11.0	6.9	23.9	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	11.0	6.9	23.9	3.5
Queue Length 50th (ft)	12	123	5	15	18
Queue Length 95th (ft)	54	224	22	51	39
Internal Link Dist (ft)	1333	298	95	95	3361
Turn Bay Length (ft)	1389	3472	1553	1218	3539
Base Capacity (vph)	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.31	0.03	0.05	0.12
Intersection Summary					

Balboa Transit Station
28: Morena Blvd & Gesner St

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↕↕	↗	↖	↕↕
Traffic Volume (vph)	36	53	984	45	52	386
Future Volume (vph)	36	53	984	45	52	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.9	5.9	4.4	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Flt	0.92	1.00	0.85	1.00	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1679		3539	1583	1770	3539
Flt Permitted	0.98		1.00	1.00	0.95	1.00
Satd. Flow (perm)	1679		3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	58	1070	49	57	420
RTOR Reduction (vph)	45	0	0	9	0	0
Lane Group Flow (vph)	52	0	1070	40	57	420
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	5.3		23.5	23.5	3.8	31.6
Effective Green, g (s)	5.3		23.5	23.5	3.8	31.6
Actuated g/C Ratio	0.11		0.50	0.50	0.08	0.67
Clearance Time (s)	4.4		5.9	5.9	4.4	6.0
Vehicle Extension (s)	2.0		4.4	4.4	2.0	4.2
Lane Grp Cap (vph)	188		1758	786	142	2364
v/s Ratio Prot	c0.03		c0.30		c0.03	0.12
v/s Ratio Perm				0.03		
v/c Ratio	0.28		0.61	0.05	0.40	0.18
Uniform Delay, d1	19.2		8.6	6.1	20.7	3.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3		0.8	0.0	0.7	0.1
Delay (s)	19.5		9.4	6.2	21.3	3.0
Level of Service	B		A	A	C	A
Approach Delay (s)	19.5		9.2		5.2	
Approach LOS	B		A		A	
Intersection Summary						
HCM 2000 Control Delay			8.7		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.53			
Actuated Cycle Length (s)			47.3		Sum of lost time (s)	14.7
Intersection Capacity Utilization			48.0%		ICU Level of Service	A
Analysis Period (min)			15			
Critical Lane Group						

Intersection Sign configuration not allowed in HCM analysis.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔		↔↔						↔	↔
Traffic Volume (veh/h)	0	863	657	0	1501	0	0	0	210	0	0	280
Future Volume (Veh/h)	0	863	657	0	1501	0	0	0	210	0	0	280
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	938	714	0	1632	0	0	0	228	0	0	304
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		787			634							
pK, platoon unblocked	0.67						0.67	0.67	0.67	0.67	0.67	0.67
VC, conflicting volume	1632			938			1754	2570	469	2101	2570	816
VC1, stage 1 conf vol												
VC2, stage 2 conf vol												
VCu, unblocked vol	963			938			1145	2360	469	1661	2360	0
IC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
IC, 2 stage (s)												
IF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
pQ queue free %	100			100			100	100	58	100	100	58
dM capacity (veh/h)	477			726			60	23	541	25	23	728
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	469	469	714	816	816	228	304					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	714	0	0	228	304					
cSH	1700	1700	1700	1700	1700	541	728					
Volume to Capacity	0.28	0.28	0.42	0.48	0.48	0.42	0.42					
Queue Length 95th (ft)	0	0	0	0	0	52	52					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	16.4	13.4					
Lane LOS						C	B					
Approach Delay (s)	0.0			0.0		16.4	13.4					
Approach LOS				C		C	B					
Intersection Summary												
Average Delay						2.1						
Intersection Capacity Utilization						65.5%						C
Analysis Period (min)						15						

Balboa Transit Station

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Arterial Level of Service: EB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Olney St	II	30	12.1	44.7	56.8	0.09	5.4	F
Balboa Ave	II	30	23.5	14.2	37.7	0.19	17.7	D
Soledad Mtn Rd	II	35	27.4	16.2	43.6	0.23	19.0	D
Bond St	II	35	21.0	0.9	21.9	0.17	27.6	C
Mission Bay Dr	II	35	15.5	56.2	71.7	0.12	6.2	F
I-5 Off-ramp	II	45	24.2	37.7	61.9	0.23	13.6	E
Miraga Ave	II	45	28.0	5.3	33.3	0.27	29.1	B
Clairmont Dr	II	45	49.7	53.5	103.2	0.62	21.7	D
Total	II		201.4	228.7	430.1	1.92	16.0	E

Arterial Level of Service: WB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Clairmont Dr	II	45	14.7	44.5	59.2	0.13	8.2	F
Miraga Ave	II	45	48.7	22.1	71.8	0.62	31.2	B
Santa Fe St	II	45	28.0	0.3	28.3	0.27	34.2	B
Mission Bay Dr	II	45	24.2	79.2	103.4	0.23	8.1	F
Bond St	II	35	15.5	0.8	16.3	0.12	27.4	C
Soledad Mtn Rd	II	35	21.0	6.3	27.3	0.17	22.1	C
Garnet Ave	II	35	27.4	0.4	27.8	0.23	29.8	B
Olney St	II	30	23.5	8.6	32.1	0.19	20.8	D
Total	II		204.0	162.2	366.2	1.97	19.3	D

Arterial Level of Service: NB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rosewood St	III	35	23.6	3.5	27.1	0.20	26.2	B
Grand Ave	III	35	15.5	4.3	19.8	0.11	20.9	C
Bunker Hill St	III	35	14.3	5.7	20.0	0.11	19.0	C
Magnolia Ave	III	35	21.4	10.0	31.4	0.17	19.2	C
Garnet Ave	III	35	13.8	30.7	44.5	0.10	8.3	F
Damon Ave	III	35	11.7	3.1	14.8	0.09	21.0	C
Bluffsides Av	III	35	20.1	16.4	36.5	0.16	15.5	D
Total	III		120.4	73.7	194.1	0.93	17.3	D

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Arterial Level of ServiceSynchro 9 Report
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Balboa Transit Station

Horizon Year Adopted Conditions
Timing Plan: AM Peak Period

Arterial Level of Service: SB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bluffsides Av	III	35	20.0	15.2	35.2	0.16	15.9	D
Damon Ave	III	35	20.1	5.5	25.6	0.16	22.1	C
Garnet Ave	III	35	11.7	51.5	63.2	0.09	4.9	F
Magnolia Ave	III	35	13.8	12.5	26.3	0.10	14.0	D
Bunker Hill St	III	35	21.4	1.3	22.7	0.17	26.6	B
Grand Ave	III	35	14.3	26.2	40.5	0.11	9.4	F
Rosewood St	III	35	15.5	6.4	21.9	0.11	18.9	C
Total	III		118.8	118.6	235.4	0.89	13.6	E

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Arterial Level of ServiceSynchro 9 Report
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Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	34	1164	20	1522	439	194
v/c Ratio	0.31	1.17	0.18	0.80	1.09	0.40
Control Delay	17.7	107.1	11.0	15.5	97.3	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	107.1	11.0	15.5	97.3	18.6
Queue Length 50th (ft)	7	~586	3	266	~207	53
Queue Length 95th (ft)	30	#815	m9	366	#374	106
Internal Link Dist (ft)	374		899	244	450	
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	111	994	111	1903	403	482
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	1.17	0.18	0.80	1.09	0.40
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBT
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBT
Lane Configurations	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	31	956	115	18	1373	28	271	110	22
Future Volume (vph)	31	956	115	18	1373	28	271	110	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98	1.00	1.00	1.00	0.99	1.00	0.96	0.96
Flt Protected	0.95	1.00	0.95	1.00	0.97	0.97	0.98	0.98	0.98
Satd. Flow (prot)	1770	1833	1770	3529	1789	1789	1755	1755	1755
Flt Permitted	0.11	1.00	0.11	1.00	0.69	0.69	0.83	0.83	0.83
Satd. Flow (perm)	206	1833	206	3529	1268	1268	1477	1477	1477
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	1039	125	20	1492	30	295	120	24
RTOR Reduction (vph)	0	6	0	0	2	0	3	0	17
Lane Group Flow (vph)	34	1158	0	20	1520	0	436	0	177
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	NA
Protected Phases	2	2	6	6	8	8	4	4	4
Permitted Phases	2	2	6	6	8	8	4	4	4
Actuated Green, G (s)	36.1	36.1	36.1	36.1	21.1	21.1	21.1	21.1	21.1
Effective Green, g (s)	36.1	36.1	36.1	36.1	21.1	21.1	21.1	21.1	21.1
Actuated g/c Ratio	0.54	0.54	0.54	0.54	0.31	0.31	0.31	0.31	0.31
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Vehicle Extension (s)	3.4	3.4	5.9	5.9	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	110	987	110	1901	399	399	465	465	465
v/s Ratio Prot	0.63		0.43						
v/c Ratio Perm	0.16		0.10		c0.34		0.12		
v/c Ratio	0.31	1.17	0.18	0.80	1.09	1.09	0.38		
Uniform Delay, d1	8.5	15.4	7.9	12.5	22.9	22.9	17.9		
Progression Factor	1.00	1.00	0.84	0.94	1.00	1.00	1.00		
Incremental Delay, d2	7.2	88.6	3.3	3.3	72.0	72.0	0.2		
Delay (s)	15.7	104.1	9.9	15.1	95.0	95.0	18.1		
Level of Service	B	F	A	B	F	F	B		
Approach Delay (s)	101.6		15.1		95.0		18.1		
Approach LOS	F		B		F		B		
Intersection Summary									
HCM 2000 Control Delay		56.4		HCM 2000 Level of Service		E			
HCM 2000 Volume to Capacity ratio		114							
Actuated Cycle Length (s)		67.0		Sum of lost time (s)		9.8			
Intersection Capacity Utilization		101.7%		ICU Level of Service		G			
Analysis Period (min)		15							
c Critical Lane Group									

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group						
Lane Group Flow (vph)	626	1325	614	1209		
v/c Ratio	0.34	0.71	0.43	1.07		
Control Delay	9.9	10.1	0.9	61.8		
Queue Delay	0.0	0.0	0.0	0.0		
Total Delay	9.9	10.1	0.9	61.8		
Queue Length 50th (ft)	72	132	0	~279		
Queue Length 95th (ft)	103	206	0	m202		
Internal Link Dist (ft)	936	329		899		
Turn Bay Length (ft)						
Base Capacity (vph)	1848	1867	1441	1134		
Starvation Cap Reductn	0	0	0	0		
Spillback Cap Reductn	0	0	0	0		
Storage Cap Reductn	0	0	0	0		
Reduced v/c Ratio	0.34	0.71	0.43	1.07		
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	0	576	677	1107	1110	2
Future Volume (vph)	0	576	677	1107	1110	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	4.0	4.9	
Lane Util. Factor		0.95	0.91	0.91	0.97	
Frt		1.00	0.93	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3539	3164	1441	3441	
Flt Permitted		1.00	1.00	1.00	0.95	
Satd. Flow (perm)		3539	3164	1441	3441	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	626	736	1203	1207	2
RTOR Reduction (vph)	0	0	215	0	0	0
Lane Group Flow (vph)	0	626	1110	614	1209	0
Turn Type	NA	NA	Free	Free	Prot	Prot
Protected Phases		2	2		4	
Permitted Phases				Free		
Actuated Green, G (s)		35.0	35.0	67.0	22.1	
Effective Green, g (s)		35.0	35.0	67.0	22.1	
Actuated g/c Ratio		0.52	0.52	1.00	0.33	
Clearance Time (s)		5.0	5.0		4.9	
Vehicle Extension (s)		6.1	6.1		5.2	
Lane Grp Cap (vph)	1848	1652	1441	1135		
v/s Ratio Prot	0.18	c0.35		c0.35		
v/c Ratio		0.34	0.67	0.43	1.07	
Uniform Delay, d1		9.3	11.8	0.0	22.4	
Progression Factor		1.00	1.00	1.00	1.29	
Incremental Delay, d2		0.5	2.2	0.9	31.5	
Delay (s)		9.8	14.0	0.9	60.4	
Level of Service	A	B	A	E		
Approach Delay (s)		9.8	9.8	60.4		
Approach LOS	A	A	A	E		
Intersection Summary						
HCM 2000 Control Delay			26.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.82			
Actuated Cycle Length (s)			67.0		Sum of lost time (s)	9.9
Intersection Capacity Utilization			70.5%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group						
Lane Group Flow (vph)	40	1439	2057	651	620	51
v/c Ratio	0.16	0.56	0.90	0.46	0.86	0.14
Control Delay	74.2	12.3	38.1	4.5	77.1	12.9
Queue Delay	0.0	0.0	4.8	0.4	0.0	0.0
Total Delay	74.2	12.3	42.9	4.9	77.1	12.9
Queue Length 50th (ft)	21	362	1087	180	346	1
Queue Length 95th (ft)	43	481	#1371	259	401	39
Internal Link Dist (ft)		724	806		594	
Turn Bay Length (ft)	200			200	225	225
Base Capacity (vph)	284	2569	2273	1402	860	371
Starvation Cap Reductn	0	0	173	293	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.56	0.98	0.59	0.72	0.14
Intersection Summary						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						

	EBL	EBT	WBT	WBR	SBL	SBR
Movement						
Lane Configurations	37	1324	1892	599	570	47
Traffic Volume (vph)	37	1324	1892	599	570	47
Future Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.4	5.5	4.9	5.4	5.4	5.4
Total Lost time (s)	0.97	0.95	0.95	1.00	0.97	1.00
Lane Util. Factor	1.00	1.00	1.00	0.85	1.00	0.85
Frt	0.95	1.00	1.00	1.00	0.95	1.00
Flt Protected	3433	3539	3539	1583	3433	1583
Satd. Flow (prot)	0.95	1.00	1.00	1.00	0.95	1.00
Flt Permitted	3433	3539	3539	1583	3433	1583
Satd. Flow (perm)	0.92	0.92	0.92	0.92	0.92	0.92
Peak-hour factor, PHF	40	1439	2057	651	620	51
Adj. Flow (vph)	0	0	0	0	0	40
RTOR Reduction (vph)	40	1439	2057	651	620	51
Lane Group Flow (vph)	40	1439	2057	651	620	12
Turn Type	Prot	NA	NA	pm-ov	Prot	custom
Protected Phases	5	2	6	7	7	4
Permitted Phases		2		6		7
Actuated Green, G (s)	11.3	123.4	108.3	144.0	35.7	35.7
Effective Green, g (s)	11.3	123.4	108.3	144.0	35.7	35.7
Actuated g/c Ratio	0.07	0.73	0.64	0.85	0.21	0.21
Clearance Time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Vehicle Extension (s)	2.0	5.6	8.0	2.0	2.0	3.0
Lane Grp Cap (vph)	228	2568	2254	1391	720	332
v/s Ratio Prot	0.01	c0.41	c0.58	0.10	c0.18	0.01
v/s Ratio Perm				0.31		
v/c Ratio	0.18	0.56	0.91	0.47	0.86	0.03
Uniform Delay, d1	74.9	10.8	26.7	3.3	64.8	53.4
Progression Factor	1.00	1.00	1.20	1.47	1.00	1.00
Incremental Delay, d2	0.1	0.9	5.0	0.1	10.0	0.0
Delay (s)	75.1	11.7	37.2	4.9	74.8	53.5
Level of Service	E	B	D	A	E	D
Approach Delay (s)		13.4	29.5		73.1	
Approach LOS		B	C		E	
Intersection Summary						
HCM 2000 Control Delay			30.6		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.90			
Actuated Cycle Length (s)			170.0		Sum of lost time (s)	18.7
Intersection Capacity Utilization			77.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
4: Bond St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	2054	2625	45									
v/c Ratio	0.58	0.74	0.03									
Control Delay	0.7	1.1	0.0									
Queue Delay	0.0	2.3	0.0									
Total Delay	0.7	3.4	0.0									
Queue Length 50th (ft)	1	0	0									
Queue Length 95th (ft)	0	m0	0									
Internal Link Dist (ft)	806	574										
Turn Bay Length (ft)												
Base Capacity (vph)	3522	3539	1611									
Starvation Cap Reductn	0	0	0									
Spillback Cap Reductn	134	748	61									
Storage Cap Reductn	0	0	0									
Reduced v/c Ratio	0.61	0.94	0.03									
Intersection Summary												
m Volume for 95th percentile queue is metered by upstream signal.												

Balboa Transit Station
4: Bond St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1822	68	0	2415	0	0	0	41	0	0	0
Future Volume (vph)	0	1822	68	0	2415	0	0	0	41	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3520	3520	3520	3520	3520	3520	3520	3520	3520	3520	3520	3520
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3520	3520	3520	3520	3520	3520	3520	3520	3520	3520	3520	3520
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)	0	1980	74	0	2625	0	0	0	45	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2054	0	0	2625	0	0	0	45	0	0	0
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases	2	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0
Effective Green, g (s)	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0
Actuated g/c Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Vehicle Extension (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Lane Grp Cap (vph)	3520	3520	3520	3520	3520	3520	3520	3520	3520	3520	3520	3520
v/s Ratio Prot	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
v/c Ratio	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Uniform Delay, d1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Delay (s)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
Approach Delay (s)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Approach LOS	A	A	A	A	A	A	A	A	A	A	A	A
Intersection Summary												
HCM 2000 Control Delay												
HCM 2000 Volume to Capacity ratio												
Actuated Cycle Length (s)												
Intersection Capacity Utilization												
Analysis Period (min)												
c Critical Lane Group												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	618	904	496	297	979	398	721	430	315	298	401	984
v/c Ratio	0.92	0.82	0.55	0.96	0.96	0.55	1.02	0.41	0.38	0.77	1.09	0.82
Control Delay	76.2	57.4	27.5	111.3	79.3	32.4	89.7	60.5	27.3	93.6	122.4	52.4
Queue Delay	58.1	1.9	0.8	26.4	3.7	0.2	0.0	0.0	1.1	0.0	4.7	49.6
Total Delay	134.4	59.4	28.3	137.7	83.0	32.6	89.7	60.5	28.4	93.6	127.1	102.0
Queue Length 50th (ft)	322	519	380	332	575	276	-445	254	181	180	-491	557
Queue Length 95th (ft)	#441	603	295	#524	#726	369	#557	314	342	232	#717	659
Internal Link Dist (ft)	574			1151				461			376	
Turn Bay Length (ft)	565	120	410	325	265			100	200		265	
Base Capacity (vph)	700	1096	905	313	1018	826	708	1039	825	628	368	1229
Starvation Cap Reductn	0	86	172	0	0	0	0	0	298	0	27	406
Spillback Cap Reductn	471	0	7	31	24	85	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.70	0.90	0.68	1.05	0.98	0.54	1.02	0.41	0.60	0.47	1.18	1.20
Intersection Summary												
- Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	569	832	456	273	901	366	663	396	290	274	369	905
Future Volume (vph)	569	832	456	273	901	366	663	396	290	274	369	905
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
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)	618	904	496	297	979	398	721	430	315	298	401	984
RTOR Reduction (vph)	0	0	45	0	0	43	0	0	37	0	0	24
Lane Group Flow (vph)	618	904	451	297	979	355	721	430	278	298	401	960
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	33.4	52.7	87.8	29.6	48.9	68.0	35.1	50.0	79.6	191	33.6	67.0
Effective Green, g (s)	33.4	52.7	87.8	29.6	48.9	68.0	35.1	50.0	79.6	191	33.6	67.0
Actuated g/c Ratio	0.20	0.31	0.52	0.17	0.29	0.40	0.21	0.29	0.47	0.11	0.20	0.39
Clearance Time (s)	4.4	4.9	4.4	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	674	1097	817	308	1017	633	708	1040	741	385	368	1098
v/s Ratio Prot	c0.18	c0.26	0.11	0.17	c0.28	0.06	c0.21	0.12	0.07	0.09	c0.22	0.17
v/s Ratio Perm			0.17			0.16			0.11			0.17
v/c Ratio	0.92	0.82	0.55	0.96	0.96	0.56	1.02	0.41	0.38	0.77	1.09	0.87
Uniform Delay, d1	66.9	54.4	27.8	69.7	59.7	39.5	67.5	48.2	29.2	73.4	68.2	47.6
Progression Factor	0.89	0.94	1.27	1.00	1.00	1.00	0.81	1.21	1.25	1.12	0.84	1.14
Incremental Delay, d2	14.7	5.9	0.4	41.1	20.5	0.7	36.1	0.4	0.1	7.4	69.9	6.7
Delay (s)	74.1	56.9	35.6	110.8	80.2	40.1	90.9	58.7	36.5	89.5	127.3	60.9
Level of Service	E	E	D	F	F	D	F	E	D	F	F	E
Approach Delay (s)		56.9			76.1			69.8			81.8	
Approach LOS		E			E			E			F	
Intersection Summary												
HCM 2000 Control Delay												
HCM 2000 Volume to Capacity ratio												
Actuated Cycle Length (s)												
Intersection Capacity Utilization												
Analysis Period (min)												
c Critical Lane Group												

Balboa Transit Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1539	2503	976	0	0	0	0	0	0	0	0	185
v/c Ratio	0.91	0.49	0.96	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Control Delay	22.2	0.3	38.3	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	0.3	38.3	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Queue Length 50th (ft)	199	0	149	28	28	28	28	28	28	28	28	28
Queue Length 95th (ft)	#346	0	#277	66	66	66	66	66	66	66	66	66
Internal Link Dist (ft)	1151	265										
Turn Bay Length (ft)												
Base Capacity (vph)	1698	5060	1018	606	606	606	606	606	606	606	606	606
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.49	0.96	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Intersection Summary												
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.												

Balboa Transit Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1416	0	0	2229	74	0	0	898	0	0	170
Future Volume (vph)	0	1416	0	0	2229	74	0	0	898	0	0	170
Ideal Flow (vphph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539
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)	0	1539	0	0	2423	80	0	0	976	0	0	185
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	15	0	0	27
Lane Group Flow (vph)	0	1539	0	0	2503	0	0	0	961	0	0	158
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	Prot	Prot	Prot	Perm
Protected Phases	8	2.4							2			6
Permitted Phases												
Actuated Green, G (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	18.0	18.0	18.0	18.0
Effective Green, g (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	18.0	18.0	18.0	18.0
Actuated g/c Ratio	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.36	0.36	0.36	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1698	5061	5061	5061	5061	5061	5061	5061	1003	1003	1003	579
v/s Ratio Prot	c0.43	0.49							c0.34			0.10
v/c Ratio	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.96	0.96	0.96	0.27
Uniform Delay, d1	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	15.6	15.6	15.6	11.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	18.8	18.8	18.8	0.3
Delay (s)	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	34.4	34.4	34.4	11.6
Level of Service	B	B	B	B	B	B	B	B	C	C	C	B
Approach Delay (s)	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	34.4	34.4	34.4	11.6
Approach LOS	B	B	B	B	B	B	B	B	C	C	C	B
Intersection Summary												
HCM 2000 Control Delay												B
HCM 2000 Volume to Capacity ratio												0.93
Actuated Cycle Length (s)												8.0
Intersection Capacity Utilization												D
Analysis Period (min)												15
c Critical Lane Group												

Balboa Transit Station
7: Balboa EB Ramps & Garnet Avenue

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔		↔↔					↔	↔	↔
Traffic Volume (veh/h)	0	1449	860	0	1682	0	0	0	0	337	0	0
Future Volume (Veh/h)	0	1449	860	0	1682	0	0	0	0	337	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1575	935	0	1828	0	0	0	366	0	0	98
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
VC, conflicting volume	1828			1575			2489	3403	788	2616	3403	914
VC1, stage 1 conf vol												
VC2, stage 2 conf vol												
VCu, unblocked vol	1828			1575			2489	3403	788	2616	3403	914
IC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
IC, 2 stage (s)												
IF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	0	0	100	64
CM capacity (veh/h)	330			414			10	7	334	0	7	276
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	788	788	935	914	914	366	98					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	935	0	0	366	98					
cSH	1700	1700	1700	1700	1700	334	276					
Volume to Capacity	0.46	0.46	0.55	0.54	0.54	1.10	0.36					
Queue Length 95th (ft)	0	0	0	0	0	347	39					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	113.1	25.1					
Lane LOS						F	D					
Approach Delay (s)	0.0			0.0		113.1	25.1					
Approach LOS						F	D					
Intersection Summary												
Average Delay			9.1									
Intersection Capacity Utilization			67.6%							ICU Level of Service	C	
Analysis Period (min)			15									

Balboa Transit Station
8: Balboa Ave & Moraga Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	384	1616	1505	101	111	323			
v/c Ratio	0.71	0.59	0.75	0.11	0.58	0.70			
Control Delay	48.9	5.9	20.3	6.1	55.8	13.9			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	48.9	5.9	20.3	6.1	55.8	13.9			
Queue Length 50th (ft)	119	177	358	12	67	0			
Queue Length 95th (ft)	185	284	556	42	134	84			
Internal Link Dist (ft)	554	3203							
Turn Bay Length (ft)	215		250		155				
Base Capacity (vph)	1020	3327	2103	964	701	822			
Starvation Cap Reductn	0	0	0	0	0	0			
Spillback Cap Reductn	0	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0	0			
Reduced v/c Ratio	0.38	0.49	0.72	0.10	0.16	0.39			
Intersection Summary									

Balboa Transit Station
8: Balboa Ave & Moraga Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	353	1487	1385	93	102	297
Future Volume (vph)	353	1487	1385	93	102	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	6.5	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Flt	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)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	384	1616	1505	101	111	323
RTOR Reduction (vph)	0	0	0	25	0	288
Lane Group Flow (vph)	384	1616	1505	76	111	35
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	15.9	79.0	57.9	57.9	11.1	11.1
Effective Green, g (s)	15.9	79.0	57.9	57.9	11.1	11.1
Actuated g/C Ratio	0.16	0.78	0.57	0.57	0.11	0.11
Clearance Time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Vehicle Extension (s)	2.0	4.8	3.9	3.9	2.0	2.0
Lane Grp Cap (vph)	538	2757	2020	903	193	173
v/s Ratio Prot	c0.11	0.46	c0.43		c0.06	
v/s Ratio Perm				0.05		0.02
v/c Ratio	0.71	0.59	0.75	0.08	0.58	0.20
Uniform Delay, d1	40.6	4.6	16.2	9.8	42.9	41.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	0.5	1.6	0.1	2.6	0.2
Delay (s)	44.3	5.0	17.9	9.9	45.5	41.3
Level of Service	D	A	B	A	D	D
Approach Delay (s)		12.6	17.4		42.4	
Approach LOS		B	B		D	
Intersection Summary						
HCM 2000 Control Delay			17.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			101.4		Sum of lost time (s)	16.5
Intersection Capacity Utilization			67.9%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
9: Clairemont Dr & Balboa Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	472	1307	485	1325	93	389	395	334	992
v/c Ratio	0.85	0.98	0.86	1.00	0.65	0.78	0.70	1.00	1.13
Control Delay	80.2	68.0	80.3	73.2	92.9	78.0	46.6	111.7	122.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.2	68.0	80.3	73.2	92.9	78.0	46.6	111.7	122.2
Queue Length 50th (ft)	248	709	255	-733	96	209	315	-355	-607
Queue Length 95th (ft)	327	#955	337	#988	163	276	441	#616	#806
Internal Link Dist (ft)		3203		630		1350			860
Turn Bay Length (ft)	240		220		200		100		120
Base Capacity (vph)	650	1348	650	1324	335	893	604	335	889
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.97	0.75	1.00	0.28	0.44	0.65	1.00	1.12
Intersection Summary									
~ Volume exceeds capacity, queue is theoretically infinite.									
Queue shown is maximum after two cycles.									
# 95th percentile volume exceeds capacity, queue may be longer.									
Queue shown is maximum after two cycles.									

Balboa Transit Station
9: Clairemont Dr & Balboa Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	434	1144	59	446	1086	133	86	358	363	307	578	335
Traffic Volume (vph)	434	1144	59	446	1086	133	86	358	363	307	578	335
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.4	5.7	4.4	5.7	4.4	5.7	4.4	5.7	4.4	5.7	4.4	5.7
Total Lost time (s)	0.97	0.95	0.97	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Lane Util. Factor	1.00	0.99	1.00	0.98	1.00	0.98	1.00	0.95	1.00	0.95	1.00	0.94
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	3513	3433	3481	1770	3539	1583	1770	3539	1583	1770	3539
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3433	3513	3433	3481	1770	3539	1583	1770	3539	1583	1770	3539
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)	472	1243	64	485	1180	145	93	389	395	334	628	364
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	33	0	44	0
Lane Group Flow (vph)	472	1305	0	485	1320	0	93	389	362	334	948	0
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	NA
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	25.7	60.4	26.2	60.2	12.8	22.3	48.5	30.1	39.6			
Effective Green, g (s)	25.7	60.4	26.2	60.2	12.8	22.3	48.5	30.1	39.6			
Actuated g/C Ratio	0.16	0.38	0.16	0.38	0.08	0.14	0.31	0.19	0.25			
Clearance Time (s)	4.4	5.7	4.4	6.4	4.4	5.3	4.4	4.4	5.3			
Vehicle Extension (s)	2.0	3.5	2.0	3.0	2.0	2.4	2.0	2.0	2.6			
Lane Grp Cap (vph)	555	1336	566	1319	142	496	483	335	833			
v/s Ratio Prot	0.14	0.37	c0.14	c0.38	0.05	0.11	0.12	c0.19	c0.28			
v/s Ratio Perm							0.11					
v/c Ratio	0.85	0.98	0.86	1.00	0.65	0.78	0.75	1.00	1.14			
Uniform Delay, d1	64.7	48.5	64.5	49.3	70.9	65.9	49.7	64.3	59.6			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	11.5	19.2	11.8	25.0	8.0	7.6	5.8	48.0	76.4			
Delay (s)	76.2	67.7	76.2	74.3	78.9	73.5	55.4	112.3	136.0			
Level of Service	E	E	E	E	E	E	E	E	F	F	F	F
Approach Delay (s)	69.9		74.8				66.0		130.1			
Approach LOS	E		E				E		F			
Intersection Summary												
HCM 2000 Control Delay	84.6								F			
HCM 2000 Volume to Capacity ratio	1.03											
Actuated Cycle Length (s)	158.8								20.5			
Intersection Capacity Utilization	95.2%								F			
Analysis Period (min)	15											
c Critical Lane Group												













Balboa Transit Station
10: Olney St & Balboa Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	35	428	149	599	419	271						
v/c Ratio	0.18	0.45	0.86	0.43	0.72	0.47						
Control Delay	26.5	16.6	71.6	14.4	21.8	15.3						
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0						
Total Delay	26.5	16.6	71.6	14.4	21.8	15.3						
Queue Length 50th (ft)	8	46	38	47	86	48						
Queue Length 95th (ft)	38	103	#175	152	204	123						
Internal Link Dist (ft)		1172		936	328	244						
Turn Bay Length (ft)	150		150									
Base Capacity (vph)	208	1508	174	1457	1193	1173						
Starvation Cap Reductn	0	0	0	0	0	0						
Spillback Cap Reductn	0	0	0	0	0	0						
Storage Cap Reductn	0	0	0	0	0	0						
Reduced v/c Ratio	0.17	0.28	0.86	0.41	0.35	0.24						
Intersection Summary												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Balboa Transit Station
10: Olney St & Balboa Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	356	38	137	527	24	19	322	44	18	193	38
Future Volume (vph)	32	356	38	137	527	24	19	322	44	18	193	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	5.0		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	
Fit	1.00	0.99		1.00	0.99		0.98	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		1.00	1.00		1.00	1.00	
Satd. Flow (prot)	1770	3488		1770	3516		1829	1829		1818	1818	
Flt Permitted	0.95	1.00		0.95	1.00		0.97	0.97		0.96	0.96	
Satd. Flow (perm)	1770	3488		1770	3516		1787	1787		1753	1753	
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)	35	387	41	149	573	26	21	350	48	20	210	41
RTOR Reduction (vph)	0	11	0	0	4	0	0	8	0	0	11	0
Lane Group Flow (vph)	35	417	0	149	595	0	0	411	0	0	260	0
Turn Type	Prot	NA	NA	Prot	NA	NA	Perm	NA	Perm	Perm	NA	NA
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases							8			4		
Actuated Green, G (s)	1.8	16.2		4.8	19.3		15.6	15.6		15.6	15.6	
Effective Green, g (s)	1.8	16.2		4.8	19.3		15.6	15.6		15.6	15.6	
Actuated g/C Ratio	0.04	0.32		0.09	0.38		0.31	0.31		0.31	0.31	
Clearance Time (s)	4.4	5.1		4.4	5.0		4.9	4.9		4.9	4.9	
Vehicle Extension (s)	2.0	2.8		2.0	2.5		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	62	1107		166	1330		546	546		536	536	
v/s Ratio Prot	0.02	0.12		c0.08	c0.17		c0.23	c0.23		0.15	0.15	
v/s Ratio Perm	0.56	0.38		0.90	0.45		0.75	0.75		0.48	0.48	
Uniform Delay, d1	24.2	13.5		22.9	11.9		16.0	16.0		14.4	14.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.8	0.2		40.5	0.2		5.2	5.2		0.3	0.3	
Delay (s)	31.1	13.7		63.4	12.0		21.1	21.1		14.7	14.7	
Level of Service	C	B		E	B		C	C		B	B	
Approach Delay (s)		15.0			22.3		21.1	21.1		14.7	14.7	
Approach LOS		B			C		C	C		B	B	
Intersection Summary												
HCM 2000 Control Delay			19.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			51.0			Sum of lost time (s)			14.4			
Intersection Capacity Utilization			55.4%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
11: Olney St & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	50	1066	133	1431	353	376
v/c Ratio	0.50	0.62	0.72	0.74	0.74	0.98
Control Delay	78.1	28.6	77.6	22.5	49.3	87.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	4.7
Total Delay	78.1	28.6	77.6	22.5	49.3	91.7
Queue Length 50th (ft)	43	354	120	303	259	314
Queue Length 95th (ft)	87	497	191	386	351	# 465
Internal Link Dist (ft)		276		1076	315	328
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	116	1725	244	1932	562	453
Starvation Cap Reductn	0	0	0	0	0	38
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.62	0.55	0.74	0.63	0.91
Intersection Summary						
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.					

Balboa Transit Station
11: Olney St & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	46	910	71	122	1135	181	37	182	106	73	213	60
Future Volume (vph)	46	910	71	122	1135	181	37	182	106	73	213	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.4	4.4	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt	1.00	0.99	1.00	0.98	1.00	0.98	1.00	0.96	1.00	0.98	1.00	0.98
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.99	0.99	0.99	0.99	0.99	0.99
Satd. Flow (prot)	1770	3501	1770	3466	1770	3466	1771	1771	1770	1800	1771	1800
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.88	0.88	0.88	0.70	0.70	0.70
Satd. Flow (perm)	1770	3501	1770	3466	1770	3466	1563	1563	1563	1274	1274	1274
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)	50	989	77	133	1234	197	40	198	115	79	232	65
RTOR Reduction (vph)	0	4	0	0	8	0	0	14	0	0	6	0
Lane Group Flow (vph)	50	1062	0	133	1423	0	0	339	0	0	370	0
Turn Type	Prot	NA	NA	Prot	NA	NA	Perm	NA	Perm	Perm	NA	NA
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases							8			4		
Actuated Green, G (s)	6.6	65.9		14.1	73.6			39.6			39.6	
Effective Green, g (s)	6.6	65.9		14.1	73.6			39.6			39.6	
Actuated g/C Ratio	0.05	0.49		0.11	0.55			0.30			0.30	
Clearance Time (s)	4.4	5.1		4.4	4.9			4.9			4.9	
Vehicle Extension (s)	2.0	5.4		2.0	5.5			2.0			2.0	
Lane Grp Cap (vph)	87	1721		186	1903			461			376	
v/s Ratio Prot	0.03	0.30		c0.08	c0.41			0.22			c0.29	
v/s Ratio Perm				0.72	0.75			0.74			0.98	
Uniform Delay, d1	62.3	24.8		58.0	23.1			42.5			46.9	
Progression Factor	1.00	1.00		1.04	0.82			1.00			1.00	
Incremental Delay, d2	5.6	1.7		8.6	2.3			5.2			41.5	
Delay (s)	67.9	26.5		68.9	21.1			47.7			88.4	
Level of Service	E	C		E	C			D			F	
Approach Delay (s)	28.4			25.2				47.7			88.4	
Approach LOS	C			C				D			F	
Intersection Summary												
HCM 2000 Control Delay			35.5			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			134.0			Sum of lost time (s)			14.4			
Intersection Capacity Utilization			84.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												







Balboa Transit Station
12: Grand Ave & Culver St

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	24	1204	1598	113
v/c Ratio	0.29	0.41	0.58	0.67
Control Delay	73.1	1.9	6.4	71.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	73.1	1.9	6.4	71.3
Queue Length 50th (ft)	22	58	288	87
Queue Length 95th (ft)	m35	71	72	148
Internal Link Dist (ft)		1076	211	186
Turn Bay Length (ft)	55			
Base Capacity (vph)	146	2949	2750	343
Starvation Cap Reductn	0	0	21	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.41	0.59	0.33
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
12: Grand Ave & Culver St

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBU	WBT	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	22	1108	0	1403	67	77
Future Volume (vph)	22	1108	0	1403	67	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	0.97
Fit	1.00	1.00	0.99	1.00	0.97	0.96
Flt Protected	0.95	1.00	1.00	0.96	0.96	0.96
Satd. Flow (prot)	1770	3539	3515	1734	1734	1734
Flt Permitted	0.95	1.00	1.00	0.96	0.96	0.96
Satd. Flow (perm)	1770	3539	3515	1734	1734	1734
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	1204	0	1525	73	84
RTOR Reduction (vph)	0	0	0	2	0	10
Lane Group Flow (vph)	24	1204	0	1596	0	103
Turn Type	Prot	NA	Prot	NA	Prot	Prot
Protected Phases	5	2	1	6	4	4
Permitted Phases						
Actuated Green, G (s)	4.4	111.7		103.1	12.3	
Effective Green, g (s)	4.4	111.7		103.1	12.3	
Actuated g/C Ratio	0.03	0.83		0.77	0.09	
Clearance Time (s)	4.4	5.1		4.9	4.9	
Vehicle Extension (s)	2.0	4.2		4.1	2.0	
Lane Grp Cap (vph)	58	2950		2704	159	
v/s Ratio Prot	0.01	cd.34		cd.45	cd.06	
v/s Ratio Perm						
v/c Ratio	0.41	0.41		0.59	0.65	
Uniform Delay, d1	63.5	2.8		6.5	58.8	
Progression Factor	1.09	0.50		0.77	1.00	
Incremental Delay, d2	1.4	0.3		0.8	6.6	
Delay (s)	70.4	1.7		5.9	65.4	
Level of Service	E	A		A	E	
Approach Delay (s)		3.1		5.9	65.4	
Approach LOS		A		A	E	
Intersection Summary						
HCM 2000 Control Delay			7.0		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			134.0		Sum of lost time (s)	14.4
Intersection Capacity Utilization			55.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
13: Lee St & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1288	97	1611	47
v/c Ratio	0.47	0.62	0.51	0.44
Control Delay	3.4	75.1	2.4	43.3
Queue Delay	0.1	0.0	0.0	0.1
Total Delay	3.5	75.1	2.5	43.4
Queue Length 50th (ft)	114	83	110	15
Queue Length 95th (ft)	136	139	177	57
Internal Link Dist (ft)	211		1401	337
Turn Bay Length (ft)		400		
Base Capacity (vph)	2720	170	3176	423
Starvation Cap Reductn	363	0	0	0
Spillback Cap Reductn	0	0	201	85
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.57	0.54	0.14
Intersection Summary				

Balboa Transit Station
13: Lee St & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (vph)	1151	34	89	1482	17	27
Future Volume (vph)	1151	34	89	1482	17	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.4	4.9		
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	
Flt	1.00	1.00	1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3524		1770	3539	1675	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3524		1770	3539	1675	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1251	37	97	1611	18	29
RTOR Reduction (vph)	1	0	0	0	28	0
Lane Group Flow (vph)	1287	0	97	1611	19	0
Turn Type	NA	Prot	Prot	NA	Prot	
Protected Phases	2	1	6	8		
Permitted Phases						
Actuated Green, G (s)	102.4		11.9	118.2	5.5	
Effective Green, g (s)	102.4		11.9	118.2	5.5	
Actuated g/C Ratio	0.76		0.09	0.88	0.04	
Clearance Time (s)	4.9		4.4	5.4	4.9	
Vehicle Extension (s)	4.0		2.0	4.4	2.0	
Lane Grp Cap (vph)	2692		157	3121	68	
v/s Ratio Prot	0.37		0.05	0.46	0.01	
v/s Ratio Perm						
v/c Ratio	0.48		0.62	0.52	0.28	
Uniform Delay, d1	5.9		58.9	1.7	62.3	
Progression Factor	0.44		1.00	1.00	1.00	
Incremental Delay, d2	0.6		5.0	0.6	0.8	
Delay (s)	3.1		63.9	2.3	63.2	
Level of Service	A		E	A	E	
Approach Delay (s)	3.1		5.8	63.2		
Approach LOS	A		A	E		
Intersection Summary						
HCM 2000 Control Delay			5.6	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.52			
Actuated Cycle Length (s)			134.0	Sum of lost time (s)		14.2
Intersection Capacity Utilization			53.0%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						







Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBT	WBL
Lane Group Flow (vph)	76	1207	1653	
v/c Ratio	0.63	0.65	0.54	
Control Delay	98.4	1.8	0.6	
Queue Delay	0.0	0.0	0.9	
Total Delay	98.4	1.8	1.6	
Queue Length 50th (ft)	84	0	4	
Queue Length 95th (ft)	141	0	25	
Internal Link Dist (ft)		605	773	
Turn Bay Length (ft)	90			
Base Capacity (vph)	249	1863	3081	
Starvation Cap Reductn	0	0	1047	
Spillback Cap Reductn	0	0	0	
Storage Cap Reductn	0	0	0	
Reduced v/c Ratio	0.31	0.65	0.81	
Intersection Summary				

Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	1110	1476	45	0	0
Future Volume (vph)	70	1110	1476	45	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.3	5.3			
Lane Util. Factor	1.00	1.00	0.95			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	1863	3523			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1770	1863	3523			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	1207	1604	49	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	76	1207	1653	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	11.7	17.00	148.6			
Effective Green, g (s)	11.7	17.00	148.6			
Actuated g/C Ratio	0.07	1.00	0.87			
Clearance Time (s)	4.4	5.3	5.3			
Vehicle Extension (s)	2.0	4.4	4.4			
Lane Grp Cap (vph)	121	1863	3079			
v/s Ratio Prot	0.04	0.65	0.47			
v/s Ratio Perm						
v/c Ratio	0.63	0.65	0.54			
Uniform Delay, d1	77.0	0.0	2.5			
Progression Factor	1.00	1.00	0.12			
Incremental Delay, d2	7.1	1.8	0.3			
Delay (s)	84.2	1.8	0.6			
Level of Service	F	A	A			
Approach Delay (s)		6.6	0.6	0.0		
Approach LOS		A	A	A		
Intersection Summary						
HCM 2000 Control Delay			3.2	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			170.0	Sum of lost time (s)	12.7	
Intersection Capacity Utilization			62.8%	ICU Level of Service	B	
Analysis Period (min)			15			
c Critical Lane Group						








Balboa Transit Station
15: Mission Bay Dr & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	111	1076	1338	1164	1251
v/c Ratio	0.71	0.68	0.94	0.39	0.89
Control Delay	93.5	1.8	56.2	4.4	70.6
Queue Delay	0.0	0.4	7.6	0.2	47.1
Total Delay	93.5	2.2	63.8	4.6	117.7
Queue Length 50th (ft)	123	0	721	121	754
Queue Length 95th (ft)	m188	0	611	314	#936
Internal Link Dist (ft)	773		285	526	478
Turn Bay Length (ft)	225		1583	3016	1405
Base Capacity (vph)	240	0	126	951	75
Starvation Cap Reductn	0	160	0	0	346
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.76	0.99	0.56	1.18
Intersection Summary					
# 95th percentile volume exceeds capacity, queue may be longer.					
Queue shown is maximum after two cycles.					
m Volume for 95th percentile queue is metered by upstream signal.					

Balboa Transit Station
15: Mission Bay Dr & Grand Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	102	990	1231	1071	0	886	265
Future Volume (vph)	102	990	1231	1071	0	886	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.0	5.7	5.7	4.9	4.9	4.9
Lane Util. Factor	1.00	1.00	0.97	0.95	0.95	0.95	0.95
Flt	1.00	0.85	1.00	1.00	1.00	0.97	1.00
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	3433	3539	3417	3417	3417
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	3433	3539	3417	3417	3417
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	111	1076	1338	1164	0	963	288
RTOR Reduction (vph)	0	0	0	0	0	15	0
Lane Group Flow (vph)	111	1076	1338	1164	0	1236	0
Turn Type	Prot	Free	Prot	Prot	Prot	NA	NA
Protected Phases	4		1	6	5	2	
Permitted Phases		Free					
Actuated Green, G (s)	15.0	170.0	70.8	144.9		69.2	
Effective Green, g (s)	15.0	170.0	70.8	144.9		69.2	
Actuated g/C Ratio	0.09	1.00	0.42	0.85		0.41	
Clearance Time (s)	4.4	4.0	5.7	5.7	4.9	4.9	4.9
Vehicle Extension (s)	2.0	2.0	2.0	4.6		3.6	
Lane Grp Cap (vph)	156	1583	1429	3016		1390	
v/s Ratio Prot	0.06		c0.39	0.33		c0.36	
v/s Ratio Perm		c0.68					
v/c Ratio	0.71	0.68	0.94	0.39		0.89	
Uniform Delay, d1	75.4	0.0	47.4	2.8		46.8	
Progression Factor	1.00	1.00	0.95	1.35		1.36	
Incremental Delay, d2	9.3	1.8	10.0	0.3		8.4	
Delay (s)	84.7	1.8	55.2	4.0		72.3	
Level of Service	F	A	E	A		E	
Approach Delay (s)	9.6		31.4			72.3	
Approach LOS	A		C			E	
Intersection Summary							
HCM 2000 Control Delay			36.5		HCM 2000 Level of Service		D
HCM 2000 Volume to Capacity ratio			0.91				
Actuated Cycle Length (s)			170.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization			86.2%		ICU Level of Service		E
Analysis Period (min)			15				
c Critical Lane Group							

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	419	338	1188	1437	539
v/c Ratio	0.80	0.67	0.44	0.97	0.70
Control Delay	37.7	29.3	4.9	43.3	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	29.3	4.9	43.3	18.5
Queue Length 50th (ft)	78	191	164	392	149
Queue Length 95th (ft)	#138	241	363	#556	273
Internal Link Dist (ft)	261		749	743	
Turn Bay Length (ft)	270	205			70
Base Capacity (vph)	559	508	2704	1480	775
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.75	0.67	0.44	0.97	0.70
Intersection Summary					
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.					

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W	W	W	W	W	W
Traffic Volume (vph)	243	143	311	1093	1322	496
Future Volume (vph)	243	143	311	1093	1322	496
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.6	5.6	5.6
Lane Util. Factor	0.97	0.94	1.00	0.95	0.95	1.00
Flt	0.94	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.97	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3309	1770	3539	3539	3539	1583
Flt Permitted	0.97	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3309	1770	3539	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	155	338	1188	1437	539
RTOR Reduction (vph)	109	0	0	0	0	113
Lane Group Flow (vph)	310	0	338	1188	1437	426
Turn Type	Prot	Prot	Prot	NA	NA	Perm
Protected Phases	4	5	2	2	6	
Permitted Phases					6	
Actuated Green, G (s)	10.6	24.4	65.0	35.6	35.6	
Effective Green, g (s)	10.6	24.4	65.0	35.6	35.6	
Actuated g/C Ratio	0.12	0.29	0.76	0.42	0.42	
Clearance Time (s)	4.4	4.4	5.0	5.6	5.6	
Vehicle Extension (s)	2.0	2.0	4.0	4.8	4.8	
Lane Grp Cap (vph)	412	508	2706	1482	662	
v/s Ratio Prot	c0.09	c0.19	0.34	c0.41		
v/s Ratio Perm					0.27	
v/c Ratio	0.75	0.67	0.44	0.97	0.64	
Uniform Delay, d1	35.9	26.7	3.5	24.2	19.7	
Progression Factor	1.00	0.88	1.23	1.00	1.00	
Incremental Delay, d2	6.7	2.0	0.4	17.2	4.8	
Delay (s)	42.7	25.6	4.8	41.4	24.4	
Level of Service	D	C	A	D	C	
Approach Delay (s)	42.7		9.4	36.7		
Approach LOS	D		A	D		
Intersection Summary						
HCM 2000 Control Delay		26.7		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio		0.83				
Actuated Cycle Length (s)		85.0		Sum of lost time (s)		14.4
Intersection Capacity Utilization		77.2%		ICU Level of Service		D
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	177	147	1388	205	70	1551
v/c Ratio	0.79	0.53	0.64	0.20	0.22	0.54
Control Delay	96.1	33.9	34.3	13.5	45.8	1.1
Queue Delay	0.0	0.0	40.6	0.0	0.0	0.5
Total Delay	96.1	33.9	74.9	13.5	45.8	1.7
Queue Length 50th (ft)	195	59	749	73	55	6
Queue Length 95th (ft)	273	131	871	m161	m59	m28
Internal Link Dist (ft)	1169		376			749
Turn Bay Length (ft)		75		160	185	
Base Capacity (vph)	391	420	2160	1001	322	2892
Starvation Cap Reductn	0	0	875	0	0	817
Spillback Cap Reductn	0	0	0	0	0	533
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.35	1.08	0.20	0.22	0.75
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↩	↩	↩	↩	↩	↩
Traffic Volume (vph)	163	135	1277	189	64	1427
Future Volume (vph)	163	135	1277	189	64	1427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Flt	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)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	177	147	1388	205	70	1551
RTOR Reduction (vph)	0	79	0	35	0	0
Lane Group Flow (vph)	177	68	1388	170	70	1551
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4		2		
Actuated Green, G (s)	21.4	21.4	103.8	103.8	31.0	139.0
Effective Green, g (s)	21.4	21.4	103.8	103.8	31.0	139.0
Actuated g/C Ratio	0.13	0.13	0.61	0.61	0.18	0.82
Clearance Time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Vehicle Extension (s)	2.0	2.0	3.8	3.8	2.0	3.5
Lane Grp Cap (vph)	222	199	2160	966	322	2893
v/s Ratio Prot	c0.10		c0.39		0.04	c0.44
v/s Ratio Perm		0.04		0.11		
v/c Ratio	0.80	0.34	0.64	0.18	0.22	0.54
Uniform Delay, d1	72.2	67.9	21.2	14.4	59.2	5.0
Progression Factor	1.00	1.00	1.49	1.52	0.76	0.16
Incremental Delay, d2	16.7	0.4	1.2	0.3	0.0	0.3
Delay (s)	88.9	68.3	32.8	22.3	44.9	1.1
Level of Service	F	E	C	C	D	A
Approach Delay (s)	79.5		31.4		2.9	
Approach LOS	E		C		A	
Intersection Summary						
HCM 2000 Control Delay			22.8		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.65			
Actuated Cycle Length (s)			170.0		Sum of lost time (s)	13.8
Intersection Capacity Utilization			59.4%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	235	17	68	1357	36	1158
v/c Ratio	0.88	0.08	0.63	0.53	0.44	0.47
Control Delay	86.3	38.7	107.4	9.3	93.3	11.9
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.9
Total Delay	86.3	38.7	107.4	9.4	93.3	12.8
Queue Length 50th (ft)	210	9	73	368	38	338
Queue Length 95th (ft)	304	32	124	479	m48	m471
Internal Link Dist (ft)	303	271		804		461
Turn Bay Length (ft)			65		50	
Base Capacity (vph)	339	280	136	2580	167	2444
Starvation Cap Reductn	0	0	0	249	0	920
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.06	0.50	0.58	0.22	0.76
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Balboa Transit Station
19: Mission Bay Dr & Bunker Hill St

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (vph)	71	6	139	7	1	7	63	1247	2	33	916	149	
Future Volume (vph)	71	6	139	7	1	7	63	1247	2	33	916	149	
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	5.0		4.4	5.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95		
Flt	0.91			0.94			1.00	1.00	1.00	0.98			
Flt Protected	0.98			0.98			0.95	1.00	0.95	1.00			
Satd. Flow (prot)	1674			1704			1770	3538	1770	3465			
Flt Permitted	0.88			0.79			0.95	1.00	0.95	1.00			
Satd. Flow (perm)	1504			1372			1770	3538	1770	3465			
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)	77	7	151	8	1	8	68	1355	2	36	996	162	
RTOR Reduction (vph)	0	41	0	0	0	7	0	0	0	0	6	0	
Lane Group Flow (vph)	0	194	0	0	10	0	68	1357	0	36	1152	0	
Turn Type	Perm	NA	NA	Perm	NA	NA	Prot	NA	Prot	NA	Prot	NA	
Protected Phases	8			4			1	6		5		2	
Permitted Phases	8			4			6			6			
Actuated Green, G (s)	25.7			25.7			10.4	123.0	7.0	119.6			
Effective Green, g (s)	25.7			25.7			10.4	123.0	7.0	119.6			
Actuated g/C Ratio	0.15			0.15			0.06	0.72	0.04	0.70			
Clearance Time (s)	4.9			4.9			4.4	5.0	4.4	5.0			
Vehicle Extension (s)	2.0			2.0			2.0	3.7	2.0	3.7			
Lane Grp Cap (vph)	227			207			108	2559	72	2437			
v/s Ratio Prot	c0.13			0.01			c0.04	c0.38	0.02	0.33			
v/s Ratio Perm	0.86			0.05			0.63	0.53	0.50	0.47			
Uniform Delay, d1	70.3			61.7			77.9	10.5	79.8	11.2			
Progression Factor	1.00			1.00			1.10	0.74	1.08	0.95			
Incremental Delay, d2	24.8			0.0			7.1	0.7	1.1	0.4			
Delay (s)	95.2			61.7			92.9	8.4	87.1	11.0			
Level of Service	F			E			F	A	F	B			
Approach Delay (s)	95.2			61.7			12.5	12.5	13.3	13.3			
Approach LOS	F			E			B		B				
Intersection Summary													
HCM 2000 Control Delay	19.9						HCM 2000 Level of Service						B
HCM 2000 Volume to Capacity ratio	0.60												
Actuated Cycle Length (s)	170.0						Sum of lost time (s)						14.3
Intersection Capacity Utilization	64.4%						ICU Level of Service						C
Analysis Period (min)	15												
Critical Lane Group													

Lane Group	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	187	1267	114	1070
v/c Ratio	0.70	0.55	0.60	0.38
Control Delay	24.4	11.7	50.4	5.6
Queue Delay	13.3	0.1	0.0	0.6
Total Delay	37.8	11.8	50.4	6.1
Queue Length 50th (ft)	21	171	64	133
Queue Length 95th (ft)	80	411	m136	377
Internal Link Dist (ft)	514	478	90	804
Turn Bay Length (ft)	410	2297	208	2786
Base Capacity (vph)	0	114	0	0
Starvation Cap Reductn	197	0	0	1193
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0.88	0.58	0.55	0.67
Reduced v/c Ratio				
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
19: Mission Bay Dr & Bunker Hill St

Balboa Transit Station
20: Mission Bay Dr & Rosewood St

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	116	0	56	0	1130	36	105	984	0
Future Volume (vph)	0	0	0	116	0	56	0	1130	36	105	984	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9			4.9			5.0		4.4	5.0		
Lane Util. Factor	1.00			1.00			0.95		1.00	0.95		
Flt	0.96			0.96			1.00		1.00	1.00		
Flt Protected	0.97			0.97			1.00		0.95	1.00		
Satd. Flow (prot)	1723			1723			3523		1770	3539		
Flt Permitted	0.80			0.80			1.00		0.95	1.00		
Satd. Flow (perm)	1420			1420			3523		1770	3539		
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)	0	0	0	126	0	61	0	1228	39	114	1070	0
RTOR Reduction (vph)	0	0	0	132	0	0	2	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	55	0	0	1265	0	114	1070	0
Turn Type				Perm	NA	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	4	4		4			1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	8.2			8.2			54.5		8.0	66.9		
Effective Green, g (s)	8.2			8.2			54.5		8.0	66.9		
Actuated g/C Ratio	0.10			0.10			0.64		0.09	0.79		
Clearance Time (s)	4.9			4.9			5.0		4.4	5.0		
Vehicle Extension (s)	2.0			2.0			3.2		2.0	3.2		
Lane Grp Cap (vph)	136			136			2258		166	2785		
v/s Ratio Prot				c0.04			c0.36		c0.06	0.30		
v/c Ratio	0.41			0.41			0.56		0.69	0.38		
Uniform Delay, d1	36.1			36.1			8.5		37.3	2.8		
Progression Factor	1.00			1.00			1.15		1.07	1.67		
Incremental Delay, d2	0.7			0.7			0.9		8.1	0.4		
Delay (s)	36.8			36.8			10.8		47.8	5.0		
Level of Service	D			D			B		D	A		
Approach Delay (s)	0.0			36.8			10.8			9.1		
Approach LOS	A			D			B			A		
Intersection Summary												
HCM 2000 Control Delay			11.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			85.0			Sum of lost time (s)				14.3		
Intersection Capacity Utilization			60.0%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	2530	8	2003
v/c Ratio	0.25	0.57	0.06	0.63
Control Delay	19.6	4.0	40.0	9.4
Queue Delay	0.3	0.1	0.0	0.4
Total Delay	19.9	4.0	40.0	9.8
Queue Length 50th (ft)	3	98	5	790
Queue Length 95th (ft)	31	326	m6	954
Internal Link Dist (ft)	221	960		526
Turn Bay Length (ft)			60	
Base Capacity (vph)	333	4410	124	3166
Starvation Cap Reductn	0	0	0	548
Spillback Cap Reductn	104	331	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.62	0.06	0.77
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
20: Mission Bay Dr & Rosewood St

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		4+4		4	4+4
Traffic Volume (vph)	5	29	2295	32	7	1843
Future Volume (vph)	5	29	2295	32	7	1843
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.95	1.00	0.95
Flt	0.88	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.99	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1634	5075	1770	3539	1770	3539
Flt Permitted	0.99	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1634	5075	1770	3539	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	32	2495	35	8	2003
RTOR Reduction (vph)	30	0	1	0	0	0
Lane Group Flow (vph)	7	0	2529	0	8	2003
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	4.2		67.4		1.4	72.8
Effective Green, g (s)	4.2		67.4		1.4	72.8
Actuated g/C Ratio	0.05		0.79		0.02	0.86
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	80		4024		29	3031
v/s Ratio Prot	c0.00		0.50		0.00	c0.57
v/s Ratio Perm						
v/c Ratio	0.08		0.63		0.28	0.66
Uniform Delay, d1	38.6		3.6		41.3	2.0
Progression Factor	1.00		1.00		1.08	4.09
Incremental Delay, d2	0.4		0.8		3.1	0.7
Delay (s)	39.0		4.4		47.5	9.0
Level of Service	D		A		D	A
Approach Delay (s)	39.0		4.4		9.1	
Approach LOS	D		A		A	
Intersection Summary						
HCM 2000 Control Delay			6.7		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			85.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			60.9%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
21: Santa Fe St & Damon Ave

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	4	4	4	4	4	4
Sign Control	Sloped	Sloped	Sloped	Sloped	Sloped	Sloped
Traffic Volume (vph)	83	45	57	70	99	118
Future Volume (vph)	83	45	57	70	99	118
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	90	49	62	76	108	128
Direction, Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total (vph)	90	49	138	236		
Volume Left (vph)	90	0	62	0		
Volume Right (vph)	0	49	0	128		
Head (s)	0.23	-0.57	0.12	-0.29		
Departure Headway (s)	4.9	3.2	4.5	4.0		
Degree Utilization, x	0.12	0.04	0.17	0.26		
Capacity (veh/h)	673	1121	772	877		
Control Delay (s)	8.6	6.3	8.4	8.4		
Approach Delay (s)	7.8		8.4			
Approach LOS	A		A			
Intersection Summary						
Delay			8.3			
Level of Service			A			
Intersection Capacity Utilization			33.9%		ICU Level of Service	A
Analysis Period (min)			15			

Balboa Transit Station
22: Morena Blvd & Jutland Dr

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Stop	Stop	Stop	Stop	Stop
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Volume (vph)	613	17	171	275	24	303
Future Volume (vph)	613	17	171	275	24	303
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	666	18	186	299	26	329
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	666	18	186	299	136	219
Volume Left (vph)	666	0	0	0	26	0
Volume Right (vph)	0	18	0	299	0	0
Head (s)	0.53	-0.67	0.03	-0.67	0.13	0.03
Departure Headway (s)	7.3	6.1	7.1	6.4	7.4	7.3
Degree Utilization, x	1.36	0.03	0.37	0.53	0.28	0.44
Capacity (veh/h)	493	567	499	554	480	489
Control Delay (s)	194.2	8.1	13.0	15.3	11.9	14.7
Approach Delay (s)	189.3		14.4		13.6	
Approach LOS	F		B		B	
Intersection Summary						
Delay	92.7					
Level of Service	F					
Intersection Capacity Utilization	62.0%					
Analysis Period (min)	15					
	ICU Level of Service					
	B					

Balboa Transit Station
23: Morena Blvd & Costco Drw

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	478	751	55	978
v/c Ratio	0.52	0.53	0.24	0.63
Control Delay	13.5	6.7	20.8	10.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.5	6.7	20.8	10.0
Queue Length 50th (ft)	32	20	9	68
Queue Length 95th (ft)	87	77	42	132
Internal Link Dist (ft)	195	3170		1658
Turn Bay Length (ft)			110	
Base Capacity (vph)	2349	1761	233	2603
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.43	0.24	0.38
Intersection Summary				

Balboa Transit Station
23: Morena Blvd & Costco Dwy

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W<T>W		W<T>W		W<T>W	
Traffic Volume (vph)	369	71	327	364	51	900
Future Volume (vph)	369	71	327	364	51	900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.5	4.4	5.5	5.5
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00
Flt	0.98	0.92	1.00	1.00	1.00	1.00
Flt Protected	0.96	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3384	3259	1770	3539	1770	3539
Flt Permitted	0.96	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3384	3259	1770	3539	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	401	77	355	396	55	978
RTOR Reduction (vph)	35	0	263	0	0	0
Lane Group Flow (vph)	443	0	488	0	55	978
Turn Type	Prot	NA	NA	Prot	NA	NA
Protected Phases	8		2	1	6	
Permitted Phases						
Actuated Green, G (s)	9.6		13.1	1.5	19.0	
Effective Green, g (s)	9.6		13.1	1.5	19.0	
Actuated g/C Ratio	0.25		0.34	0.04	0.49	
Clearance Time (s)	4.9		5.5	4.4	5.5	
Vehicle Extension (s)	2.0		2.8	2.0	2.8	
Lane Grp Cap (vph)	832		1094	68	1724	
v/s Ratio Prot	0.13		0.15	0.03	0.28	
v/s Ratio Perm						
v/c Ratio	0.53		0.45	0.81	0.57	
Uniform Delay, d1	12.8		10.1	18.6	7.1	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.3		0.3	46.5	0.4	
Delay (s)	13.1		10.4	65.1	7.5	
Level of Service	B		B	E	A	
Approach Delay (s)	13.1		10.4		10.6	
Approach LOS	B		B		B	
Intersection Summary						
HCM 2000 Control Delay			11.0		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			39.0		Sum of lost time (s)	14.8
Intersection Capacity Utilization			49.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
24: Morena Blvd & Avati Dr

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	210	52	716	210	67	1374
v/c Ratio	0.35	0.16	0.47	0.16	0.28	0.68
Control Delay	18.8	8.0	11.6	0.8	22.2	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	8.0	11.6	0.8	22.2	8.4
Queue Length 50th (ft)	25	0	76	0	16	99
Queue Length 95th (ft)	53	22	126	12	49	173
Internal Link Dist (ft)	317		2304			3170
Turn Bay Length (ft)		135		115	120	
Base Capacity (vph)	2198	1032	2593	1583	276	2835
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.05	0.28	0.13	0.24	0.48
Intersection Summary						

Balboa Transit Station
24: Morena Blvd & Avati Dr

Horizon Year Adopted Conditions
 Timing Plan: PM Peak Period

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↔	↔↔	↔	↔	↔↔
Traffic Volume (vph)	193	48	0	659	193	62	1264
Future Volume (vph)	193	48	0	659	193	62	1264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	0	6.0	4.9	4.4	5.7
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95	1.00
Flt	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	210	52	0	716	210	67	1374
RTOR Reduction (vph)	0	43	0	0	88	0	0
Lane Group Flow (vph)	210	9	0	716	122	67	1374
Turn Type	Prot	Prot	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	7	1	6	7	5	2
Permitted Phases					6		5
Actuated Green, G (s)	7.6	7.6		18.7	26.3	3.5	26.9
Effective Green, g (s)	7.6	7.6		18.7	26.3	3.5	26.9
Actuated g/C Ratio	0.17	0.17		0.41	0.58	0.08	0.60
Clearance Time (s)	4.9	4.9		6.0	4.9	4.4	5.7
Vehicle Extension (s)	2.0	2.0		5.2	2.0	2.0	5.0
Lane Grp Cap (vph)	578	266		1467	923	137	2110
v/s Ratio Prot	0.06	0.01		0.20	0.02	0.04	0.39
v/s Ratio Perm					0.05		
v/c Ratio	0.36	0.03		0.49	0.13	0.49	0.65
Uniform Delay, d1	16.6	15.7		9.7	4.2	19.9	6.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		0.6	0.0	1.0	1.0
Delay (s)	16.7	15.7		10.3	4.3	20.9	7.0
Level of Service	B	B		B	A	C	A
Approach Delay (s)	16.5			8.9			7.6
Approach LOS	B			A			A
Intersection Summary							
HCM 2000 Control Delay			9.0		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.68				
Actuated Cycle Length (s)			45.1		Sum of lost time (s)		15.3
Intersection Capacity Utilization			56.3%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Horizon Year Adopted Conditions
 Timing Plan: PM Peak Period

Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	163	282	1188	98	785	1054
v/c Ratio	0.41	0.57	0.58	0.10	0.38	0.67
Control Delay	18.3	11.7	7.4	1.7	5.9	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	11.7	7.4	1.7	5.9	2.2
Queue Length 50th (ft)	32	21	73	0	41	0
Queue Length 95th (ft)	83	80	168	15	97	0
Internal Link Dist (ft)			882		2304	
Turn Bay Length (ft)		50		150		100
Base Capacity (vph)	671	709	2602	1190	2602	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.40	0.46	0.08	0.30	0.67
Intersection Summary						

Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Balboa Transit Station
26: Morena Blvd & Balboa Station Driveway/Balboa EB Ramps

Horizon Year Adopted Conditions
 Timing Plan: PM Peak Period

Horizon Year Adopted Conditions
 Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	150	0	259	0	0	0	0	1093	90	0	722	970
Traffic Volume (vph)	150	0	259	0	0	0	0	1093	90	0	722	970
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	0.85	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1583	1583	1583	1583	1583	1583	1583	1583	1583	1583
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1583	1583	1583	1583	1583	1583	1583	1583	1583	1583
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)	163	0	282	0	0	0	0	1188	98	0	785	1054
RTOR Reduction (vph)	0	0	135	0	0	0	0	40	0	0	0	0
Lane Group Flow (vph)	163	0	147	0	0	0	0	1188	58	0	785	1054
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	NA	Perm	NA	Free	NA	Free
Protected Phases	4	4	4	4	4	4	2	2	2	6	6	6
Permitted Phases	4	4	4	4	4	4	2	2	2	6	6	6
Actuated Green, G (s)	9.8	9.8	9.8	9.8	9.8	9.8	25.4	25.4	25.4	25.4	43.2	43.2
Effective Green, g (s)	9.8	9.8	9.8	9.8	9.8	9.8	25.4	25.4	25.4	25.4	43.2	43.2
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.59	0.59	0.59	0.59	1.00	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	401	359	359	359	359	359	2080	930	2080	1583	2080	1583
v/s Ratio Prot	0.09	0.09	0.09	0.09	0.09	0.09	0.34	0.34	0.34	0.22	0.22	0.22
v/s Ratio Perm	0.41	0.41	0.41	0.41	0.41	0.41	0.57	0.57	0.57	0.38	0.38	0.38
Uniform Delay, d1	14.2	14.2	14.2	14.2	14.2	14.2	5.5	5.5	5.5	3.8	4.7	4.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.8	0.8	0.8	0.8	0.8	0.4	0.4	0.4	0.1	0.1	0.1
Delay (s)	14.9	15.0	15.0	15.0	15.0	15.0	5.9	5.9	5.9	3.8	4.8	4.8
Level of Service	B	B	B	B	B	B	A	A	A	A	A	A
Approach Delay (s)	15.0	15.0	15.0	15.0	15.0	15.0	5.7	5.7	5.7	3.3	3.3	3.3
Approach LOS	B	B	B	B	B	B	A	A	A	A	A	A
Intersection Summary												
HCM 2000 Control Delay	5.7 HCM 2000 Level of Service											
HCM 2000 Volume to Capacity ratio	0.82											
Actuated Cycle Length (s)	43.2											
Intersection Capacity Utilization	45.2%											
Analysis Period (min)	15											
c Critical Lane Group												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	87	34	359	576	5	819	141	925				
v/c Ratio	0.37	0.14	0.80	0.84	0.05	0.79	0.72	0.59				
Control Delay	31.5	24.3	41.7	21.7	32.2	27.3	54.2	17.5				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Total Delay	31.5	24.3	41.7	21.7	32.2	27.3	54.2	17.5				
Queue Length 50th (ft)	34	11	143	66	2	151	58	140				
Queue Length 95th (ft)	72	34	300	264	12	254	153	265				
Internal Link Dist (ft)	124	662					1978					
Turn Bay Length (ft)							100					
Base Capacity (vph)	448	465	451	693	111	1118	196	1567				
Starvation Cap Reductn	0	0	0	0	0	0	0	0				
Spillback Cap Reductn	0	0	0	0	0	0	0	0				
Storage Cap Reductn	0	0	0	0	0	0	0	0				
Reduced v/c Ratio	0.19	0.07	0.80	0.83	0.05	0.73	0.72	0.59				
Intersection Summary												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Balboa Transit Station
26: Morena Blvd & Balboa Station Driveway/Balboa EB Ramps

Balboa Transit Station
27: Morena Blvd & Baker St

Horizon Year Adopted Conditions
 Timing Plan: PM Peak Period

Horizon Year Adopted Conditions
 Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	80	27	5	300	30	530	5	573	180	130	840	11
Future Volume (vph)	80	27	5	300	30	530	5	573	180	130	840	11
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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Flt	1.00	0.98	1.00	0.96	1.00	0.85	1.00	0.96	1.00	0.96	1.00	1.00
Flt Protected	0.95	1.00	0.96	1.00	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1822	1782	1583	1770	3412	1770	3412	1770	3532	1770	3532
Flt Permitted	0.95	1.00	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1822	1782	1583	1770	3412	1770	3412	1770	3532	1770	3532
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)	87	29	5	326	33	576	5	623	196	141	913	12
RTOR Reduction (vph)	0	4	0	0	0	300	0	37	0	0	1	0
Lane Group Flow (vph)	87	30	0	0	359	276	5	782	0	141	924	0
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA	Prot	NA	NA
Protected Phases	4	4	8	8	5	2	5	2	1	1	6	
Permitted Phases												
Actuated Green, G (s)	7.1	7.1	16.1	16.1	16.1	0.7	22.2	0.7	22.2	7.1	28.6	
Effective Green, g (s)	7.1	7.1	16.1	16.1	16.1	0.7	22.2	0.7	22.2	7.1	28.6	
Actuated g/C Ratio	0.10	0.10	0.24	0.24	0.01	0.01	0.32	0.01	0.32	0.10	0.42	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	183	188	418	372	18	1105				183	1474	
v/s Ratio Prot	0.05	0.02	0.20	0.00	0.00	0.23				0.08	0.26	
v/c Ratio	0.48	0.16	0.86	0.74	0.28	0.71				0.77	0.63	
Uniform Delay, d1	28.9	28.0	25.1	24.3	33.6	20.3				29.9	15.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	
Incremental Delay, d2	1.9	0.4	15.9	7.8	8.3	2.1				17.9	0.8	
Delay (s)	30.9	28.4	41.0	32.1	41.9	22.4				47.9	16.6	
Level of Service	C	C	D	C	D	C				D	B	
Approach Delay (s)	30.2		35.5		22.5					20.7		
Approach LOS	C		D		C					C		
Intersection Summary												
HCM 2000 Control Delay	26.3 HCM 2000 Level of Service											
HCM 2000 Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	68.5 Sum of lost time (s)											
Intersection Capacity Utilization	68.8% ICU Level of Service											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↰	↰	↰	↰	↰
Traffic Volume (veh/h)	11	20	478	12	39	1032
Future Volume (Veh/h)	11	20	478	12	39	1032
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	22	520	13	42	1122
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pK, platoon unblocked						
vC, conflicting volume	1165	520			533	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1165	520			533	
IC, single (s)	6.8	6.9			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	93	96			96	
dM capacity (veh/h)	180	501			1031	
Direction, Lane #						
	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	34	520	13	42	561	561
Volume Left	12	0	0	42	0	0
Volume Right	22	0	13	0	0	0
cSH	307	1700	1700	1031	1700	1700
Volume to Capacity	0.11	0.31	0.01	0.04	0.33	0.33
Queue Length 95th (ft)	9	0	0	3	0	0
Control Delay (s)	18.2	0.0	0.0	8.6	0.0	0.0
Lane LOS	C	C	A	A	C	C
Approach Delay (s)	18.2	0.0		0.3		
Approach LOS	C					
Intersection Summary						
Average Delay	0.6					
Intersection Capacity Utilization	41.8%					
ICU Level of Service	A					
Analysis Period (min)	15					

Balboa Transit Station
28: Morena Blvd & Gesner St

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	WBL	NBT	NBR	SBL	SBT
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	147	496	53	124	1109
v/c Ratio	0.38	0.31	0.07	0.35	0.47
Control Delay	10.3	11.5	4.6	19.1	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	11.5	4.6	19.1	5.5
Queue Length 50th (ft)	9	45	0	24	59
Queue Length 95th (ft)	47	86	17	69	119
Internal Link Dist (ft)	1333	298	95	95	3362
Turn Bay Length (ft)	1206	1863	858	430	2686
Base Capacity (vph)	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.27	0.06	0.29	0.41
Intersection Summary					

Balboa Transit Station
28: Morena Blvd & Gesner St

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑	↑	↖	↑↑
Traffic Volume (vph)	41	94	456	49	114	1020
Future Volume (vph)	41	94	456	49	114	1020
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.9	5.9	4.4	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Flt	0.91	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1663		3539	1583	1770	3539
Flt Permitted	0.98		1.00	1.00	0.95	1.00
Satd. Flow (perm)	1663		3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	102	496	53	124	1109
RTOR Reduction (vph)	90	0	0	34	0	0
Lane Group Flow (vph)	57	0	496	19	124	1109
Turn Type	Prot	NA	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	4.6		13.5	13.5	5.1	22.9
Effective Green, g (s)	4.6		13.5	13.5	5.1	22.9
Actuated g/C Ratio	0.12		0.36	0.36	0.13	0.60
Clearance Time (s)	4.4		5.9	5.9	4.4	6.0
Vehicle Extension (s)	2.0		4.4	4.4	2.0	4.2
Lane Grp Cap (vph)	201		1260	563	238	2138
v/s Ratio Prot	0.03		0.14		0.07	0.31
v/s Ratio Perm				0.01		
v/c Ratio	0.29		0.39	0.03	0.52	0.52
Uniform Delay, d1	15.2		9.1	7.9	15.3	4.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3		0.3	0.0	1.0	0.3
Delay (s)	15.4		9.5	8.0	16.2	4.6
Level of Service	B		A	A	B	A
Approach Delay (s)	15.4		9.3		5.8	
Approach LOS	B		A		A	
Intersection Summary						
HCM 2000 Control Delay			7.5		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			37.9		Sum of lost time (s)	14.7
Intersection Capacity Utilization			44.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Intersection Sign configuration not allowed in HCM analysis.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔		↔↔						↔	↔
Traffic Volume (veh/h)	0	1449	860	0	1682	0	0	0	337	0	0	90
Future Volume (Veh/h)	0	1449	860	0	1682	0	0	0	337	0	0	90
Sign Control		Free	Free		Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1575	935	0	1828	0	0	0	366	0	0	98
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		787			634							
pk platoon unblocked	0.67			0.75			0.79	0.79	0.75	0.79	0.79	0.67
vc conflicting volume	1828			1575			2489	3403	788	2616	3403	914
vc1 stage 1 conf vol												
vc2 stage 2 conf vol												
vcu unblocked vol	1239			1107			942	2100	60	1103	2100	0
ic single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
ic 2 stage (s)												
if (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	51	100	100	86
dm capacity (veh/h)	371			472			148	40	747	67	40	722
Direction Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	788	788	935	914	914	366	98					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	935	0	0	366	98					
csh	1700	1700	1700	1700	1700	747	722					
Volume to Capacity	0.46	0.46	0.55	0.54	0.54	0.49	0.14					
Queue Length 95th (ft)	0	0	0	0	0	68	12					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.4	10.8					
Lane LOS						B	B					
Approach Delay (s)	0.0			0.0		14.4	10.8					
Approach LOS						B	B					
Intersection Summary												
Average Delay				1.3								
Intersection Capacity Utilization				67.6%								C
Analysis Period (min)				15								

Balboa Transit Station

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

Arterial Level of Service: EB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Ohney St	II	30	12.1	107.1	119.2	0.09	2.6	F
Balboa Ave	II	30	23.5	61.8	85.3	0.19	7.8	F
Soledad Mtn Rd	II	35	27.3	12.3	39.6	0.23	20.9	D
Bond St	II	35	21.0	0.7	21.7	0.17	27.8	C
Mission Bay Dr	II	35	15.5	57.4	72.9	0.12	6.1	F
I-5 Off-ramp	II	45	24.2	22.2	46.4	0.23	18.1	D
Miraga Ave	II	45	28.0	5.9	33.9	0.27	28.6	B
Clairmont Dr	II	45	49.7	68.0	117.7	0.62	19.0	D
Total	II		201.3	335.4	536.7	1.92	12.9	F

Arterial Level of Service: WB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Clairmont Dr	II	45	14.7	73.2	87.9	0.13	5.5	F
Miraga Ave	II	45	48.7	20.3	70.0	0.62	32.0	B
Santa Fe St	II	45	28.0	0.3	28.3	0.27	34.2	B
Mission Bay Dr	II	45	24.2	79.3	103.5	0.23	8.1	F
Bond St	II	35	15.5	1.1	16.6	0.12	26.9	C
Soledad Mtn Rd	II	35	21.0	38.1	59.1	0.17	10.2	F
Garnet Ave	II	35	27.3	0.9	28.2	0.23	29.3	B
Ohney St	II	30	23.5	15.5	39.0	0.19	17.1	D
Total	II		203.9	228.7	432.6	1.97	16.4	E

Arterial Level of Service: NB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rosewood St	III	35	23.6	4.0	27.6	0.20	25.7	B
Grand Ave	III	35	15.5	4.4	19.9	0.11	20.8	C
Bunker Hill St	III	35	14.3	11.7	26.0	0.11	14.6	D
Magnolia Ave	III	35	21.4	9.3	30.7	0.17	19.6	C
Garnet Ave	III	35	13.8	60.5	74.3	0.10	5.0	F
Damon Ave	III	35	11.7	34.3	46.0	0.09	6.8	F
Bluffsides Av	III	35	20.1	4.9	25.0	0.16	22.6	C
Total	III		120.4	129.1	249.5	0.93	13.4	E

KHA
Arterial Level of ServiceSynchro 9 Report
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Balboa Transit Station

Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

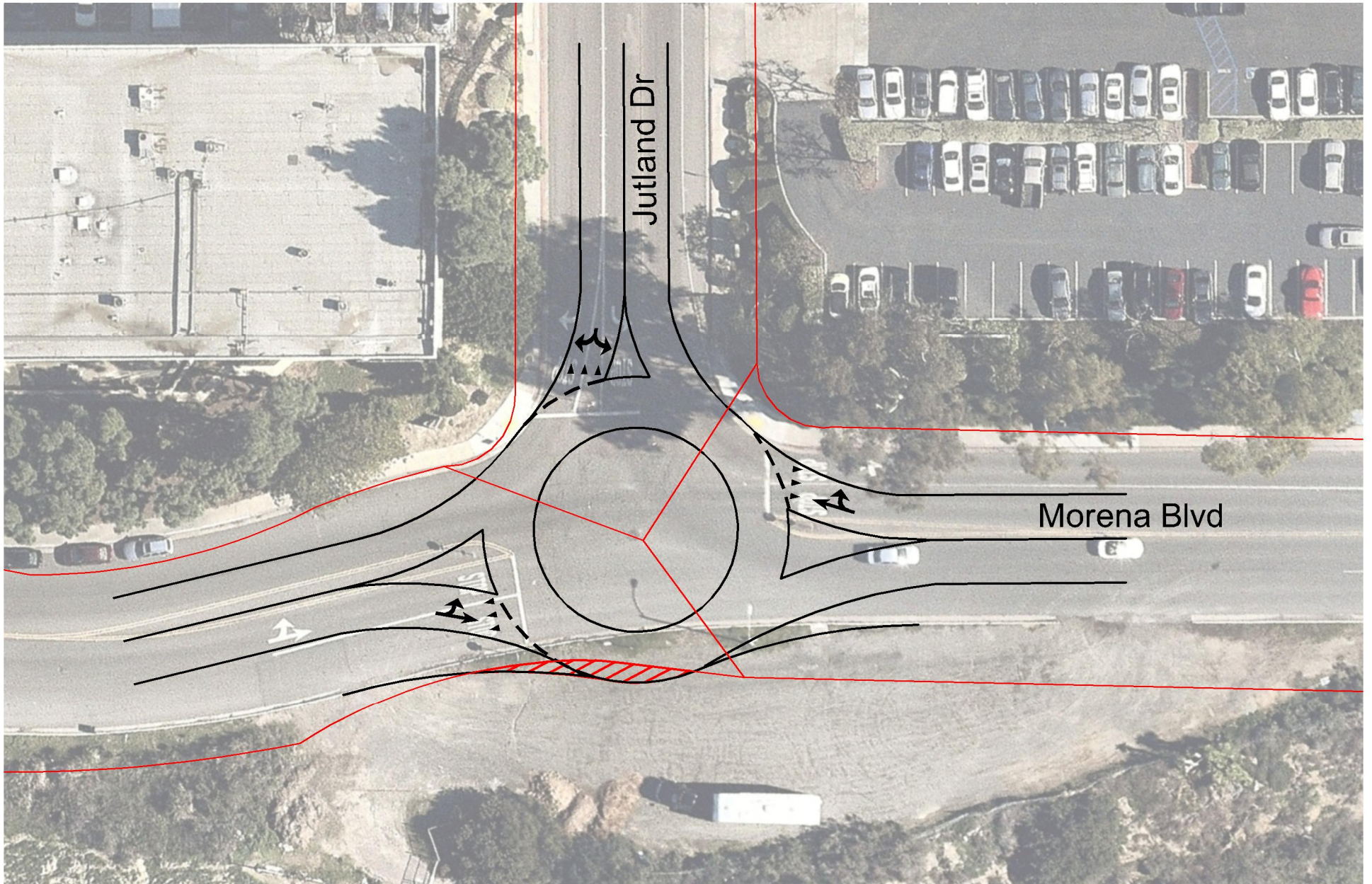
Arterial Level of Service: SB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bluffsides Av	III	35	20.0	43.3	63.3	0.16	8.9	F
Damon Ave	III	35	20.1	1.1	21.2	0.16	26.7	B
Garnet Ave	III	35	11.7	122.4	134.1	0.09	2.3	F
Magnolia Ave	III	35	13.8	11.9	25.7	0.10	14.4	D
Bunker Hill St	III	35	21.4	5.6	27.0	0.17	22.3	C
Grand Ave	III	35	14.3	70.6	84.9	0.11	4.5	F
Rosewood St	III	35	15.5	9.4	24.9	0.11	16.6	D
Total	III		118.8	264.3	381.1	0.89	8.4	F


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APPENDIX F

INTERSECTION MITIGATIONS



KEY

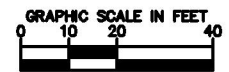
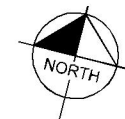
 RIGHT OF WAY IMPACT

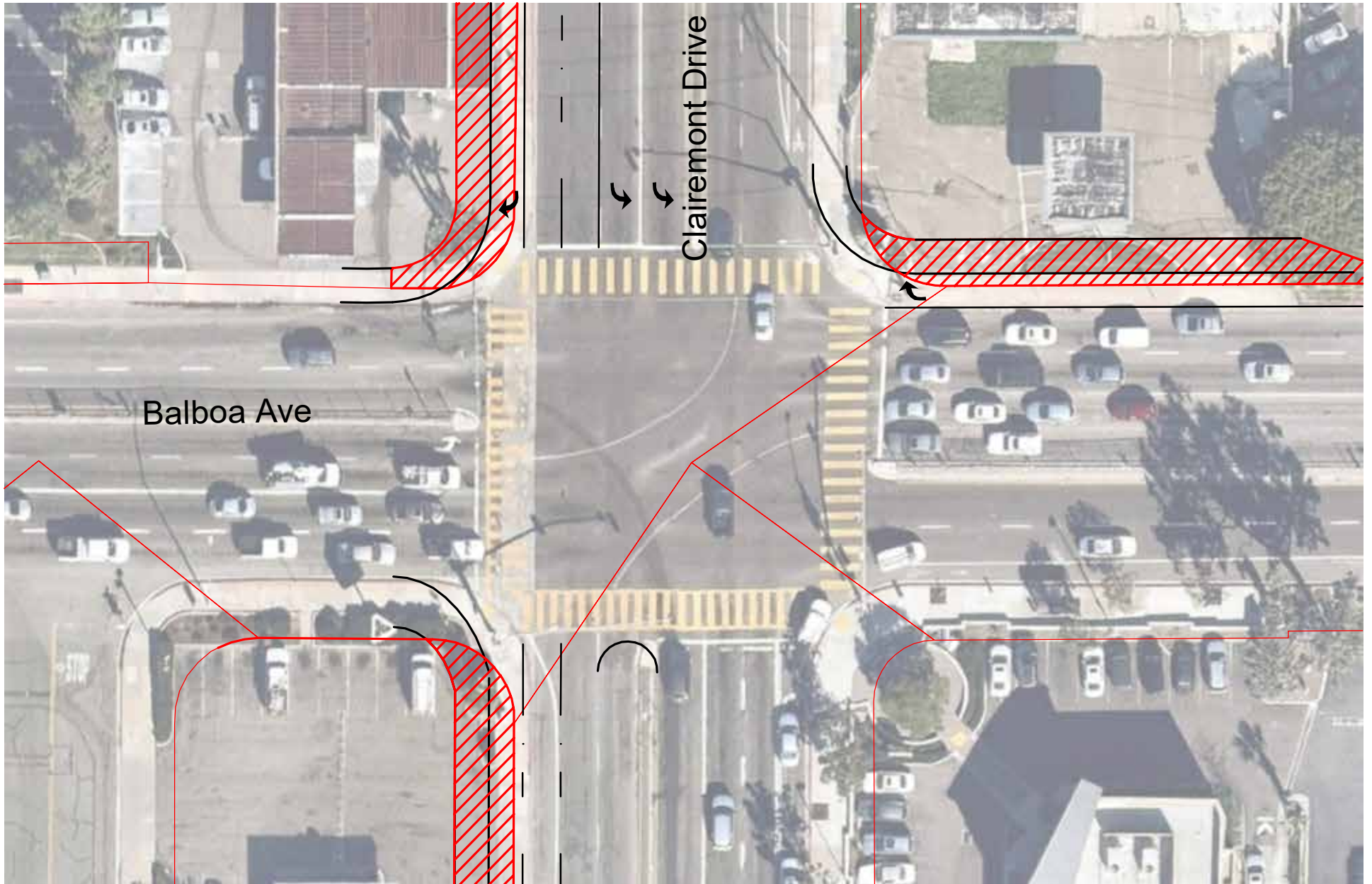
ADOPTED, PREFERRED, & REDUCED MITIGATION






PREFERRED MITIGATION

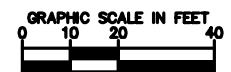




KEY

 RIGHT OF WAY IMPACT

PREFERRED & REDUCED MITIGATION



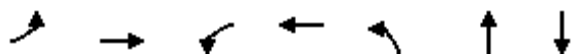
APPENDIX G

MITIGATED ADOPTED FUTURE CONDITIONS ANALYSIS SUPPORTING INFORMATION

Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year Adopted Conditions MITIGATED

Timing Plan: AM Peak Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	15	1301	8	777	109	101	257
v/c Ratio	0.03	0.99	0.11	0.31	0.69	0.29	0.86
Control Delay	5.2	39.5	9.3	6.0	59.5	31.4	64.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	39.5	9.3	6.0	59.5	31.4	64.8
Queue Length 50th (ft)	3	-885	2	90	63	47	152
Queue Length 95th (ft)	9	#1145	8	117	#136	93	#275
Internal Link Dist (ft)		374		899		244	450
Turn Bay Length (ft)	50		50		100		
Base Capacity (vph)	448	1311	73	2510	178	393	333
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.99	0.11	0.31	0.61	0.26	0.77




















Intersection Summary

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

Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year Adopted Conditions MITIGATED













Timing Plan: AM Peak Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1100	97	7	703	12	100	73	20	83	129	25
Future Volume (vph)	14	1100	97	7	703	12	100	73	20	83	129	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9		4.9	4.9			4.9	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.97			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	1840		1770	3530		1770	1802			1805	
Flt Permitted	0.34	1.00		0.06	1.00		0.45	1.00			0.84	
Satd. Flow (perm)	632	1840		105	3530		837	1802			1548	
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)	15	1196	105	8	764	13	109	79	22	90	140	27
RTOR Reduction (vph)	0	3	0	0	1	0	0	11	0	0	4	0
Lane Group Flow (vph)	15	1298	0	8	776	0	109	90	0	0	253	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	71.1	71.1		71.1	71.1		19.1	19.1			19.1	
Effective Green, g (s)	71.1	71.1		71.1	71.1		19.1	19.1			19.1	
Actuated g/C Ratio	0.71	0.71		0.71	0.71		0.19	0.19			0.19	
Clearance Time (s)	4.9	4.9		4.9	4.9		4.9	4.9			4.9	
Vehicle Extension (s)	3.4	3.4		5.9	5.9		2.0	2.0			2.0	
Lane Grp Cap (vph)	449	1308		74	2509		159	344			295	
v/s Ratio Prot		c0.71			0.22			0.05				
v/s Ratio Perm	0.02			0.08			0.13				c0.16	
v/c Ratio	0.03	0.99		0.11	0.31		0.69	0.26			0.86	
Uniform Delay, d1	4.3	14.2		4.5	5.4		37.7	34.5			39.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.1	23.1		2.9	0.3		9.4	0.1			20.3	
Delay (s)	4.4	37.3		7.5	5.7		47.0	34.6			59.5	
Level of Service	A	D		A	A		D	C			E	
Approach Delay (s)		37.0			5.7			41.0			59.5	
Approach LOS		D			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			30.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			9.8			
Intersection Capacity Utilization			91.5%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Horizon Year Adopted Conditions MITIGATED

Timing Plan: AM Peak Period

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	905	935	588	198	753	264	501	484	249	273	282	498
v/c Ratio	1.02	0.72	0.60	0.68	0.77	0.51	0.85	0.44	0.34	0.75	0.32	0.32
Control Delay	86.9	43.3	16.2	76.6	61.4	8.9	72.8	42.2	20.2	75.4	46.5	17.5
Queue Delay	0.0	0.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.9	43.9	17.8	76.6	61.4	8.9	72.8	42.2	20.2	75.4	46.5	17.5
Queue Length 50th (ft)	~464	401	234	94	250	0	235	192	101	130	117	133
Queue Length 95th (ft)	#597	463	359	137	288	75	#357	266	184	177	162	176
Internal Link Dist (ft)		574			1151			461			376	
Turn Bay Length (ft)	565		120	410		325	265		100	200		265
Base Capacity (vph)	890	1376	980	336	1157	564	587	1112	751	430	875	1535
Starvation Cap Reductn	0	154	221	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.77	0.77	0.59	0.65	0.47	0.85	0.44	0.33	0.63	0.32	0.32

























Intersection Summary

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

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Horizon Year Adopted Conditions MITIGATED

Timing Plan: AM Peak Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	833	860	541	182	693	243	461	445	229	251	259	458
Future Volume (vph)	833	860	541	182	693	243	461	445	229	251	259	458
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	4.4	4.9	4.9	4.4	4.9	4.4	4.4	5.3	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	3433	3539	1583	3433	3539	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	3433	3539	1583	3433	3539	2787
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)	905	935	588	198	753	264	501	484	249	273	282	498
RTOR Reduction (vph)	0	0	83	0	0	213	0	0	49	0	0	23
Lane Group Flow (vph)	905	935	505	198	753	51	501	484	200	273	282	475
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4		1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	37.6	53.1	77.9	12.3	27.8	27.8	24.8	45.5	57.8	15.5	35.8	73.4
Effective Green, g (s)	37.6	53.1	77.9	12.3	27.8	27.8	24.8	45.5	57.8	15.5	35.8	73.4
Actuated g/C Ratio	0.26	0.37	0.54	0.08	0.19	0.19	0.17	0.31	0.40	0.11	0.25	0.51
Clearance Time (s)	4.4	4.9	4.4	4.4	4.9	4.9	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	4.3	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	890	1296	850	291	974	303	587	1110	631	366	873	1410
v/s Ratio Prot	c0.26	c0.26	0.10	0.06	0.15		c0.15	c0.14	0.03	0.08	0.08	0.09
v/s Ratio Perm			0.22			0.03			0.10			0.08
v/c Ratio	1.02	0.72	0.59	0.68	0.77	0.17	0.85	0.44	0.32	0.75	0.32	0.34
Uniform Delay, d1	53.7	39.6	22.8	64.4	55.6	48.9	58.3	39.6	30.0	62.8	44.7	21.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	34.4	2.2	0.7	5.1	4.2	0.4	11.2	1.2	0.1	7.1	1.0	0.1
Delay (s)	88.1	41.8	23.5	69.6	59.9	49.3	69.5	40.8	30.1	69.9	45.7	21.4
Level of Service	F	D	C	E	E	D	E	D	C	E	D	C
Approach Delay (s)		54.6			59.2			50.3			40.5	
Approach LOS		D			E			D			D	
Intersection Summary												
HCM 2000 Control Delay			52.1				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			145.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			73.3%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
7: Balboa EB Ramps & Garnet Ave

Horizon Year Adopted Conditions MITIGATED













Timing Plan: AM Peak Period

	→	↘	←	↗	↙
Lane Group	EBT	EBR	WBT	NBR	SBR
Lane Group Flow (vph)	938	714	1632	228	304
v/c Ratio	0.59	0.64	0.46	0.36	0.19
Control Delay	10.6	4.0	0.4	9.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	4.0	0.4	9.3	0.3
Queue Length 50th (ft)	84	0	0	27	0
Queue Length 95th (ft)	127	43	0	66	0
Internal Link Dist (ft)	362		554		
Turn Bay Length (ft)					
Base Capacity (vph)	1738	1140	3511	650	1598
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.63	0.46	0.35	0.19
Intersection Summary					

Balboa Transit Station
7: Balboa EB Ramps & Garnet Ave

Horizon Year Adopted Conditions MITIGATED












Timing Plan: AM Peak Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑				↑			↑
Traffic Volume (vph)	0	863	657	0	1501	0	0	0	210	0	0	280
Future Volume (vph)	0	863	657	0	1501	0	0	0	210	0	0	280
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				4.0			4.0
Lane Util. Factor		0.95	1.00		0.95				1.00			1.00
Frt		1.00	0.85		1.00				0.86			0.86
Flt Protected		1.00	1.00		1.00				1.00			1.00
Satd. Flow (prot)		3539	1583		3539				1611			1611
Flt Permitted		1.00	1.00		1.00				1.00			1.00
Satd. Flow (perm)		3539	1583		3539				1611			1611
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)	0	938	714	0	1632	0	0	0	228	0	0	304
RTOR Reduction (vph)	0	0	390	0	0	0	0	0	48	0	0	0
Lane Group Flow (vph)	0	938	324	0	1632	0	0	0	180	0	0	304
Turn Type		NA	Perm		NA				Prot			Perm
Protected Phases		4			5 8				5			
Permitted Phases			4									4 5
Actuated Green, G (s)		19.5	19.5		43.0				15.5			43.0
Effective Green, g (s)		19.5	19.5		43.0				15.5			43.0
Actuated g/C Ratio		0.45	0.45		1.00				0.36			1.00
Clearance Time (s)		4.0	4.0						4.0			
Vehicle Extension (s)		3.0	3.0						3.0			
Lane Grp Cap (vph)		1604	717		3539				580			1611
v/s Ratio Prot		c0.27			c0.46				0.11			
v/s Ratio Perm			0.20									0.19
v/c Ratio		0.58	0.45		0.46				0.31			0.19
Uniform Delay, d1		8.7	8.1		0.0				9.9			0.0
Progression Factor		1.00	1.00		1.00				1.00			1.00
Incremental Delay, d2		0.5	0.5		0.1				0.3			0.1
Delay (s)		9.3	8.5		0.1				10.2			0.1
Level of Service		A	A		A				B			A
Approach Delay (s)		9.0			0.1			10.2			0.1	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			4.5									HCM 2000 Level of Service A
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			43.0									Sum of lost time (s) 8.0
Intersection Capacity Utilization			65.5%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
9: Clairemont Dr & Garnet Ave

Horizon Year Adopted Conditions MITIGATED

Timing Plan: AM Peak Period

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	260	1018	400	886	124	159	407	395	201	342	386
v/c Ratio	0.67	0.85	0.85	0.70	0.19	0.77	0.54	0.56	0.80	0.57	0.77
Control Delay	46.7	34.7	55.6	28.0	5.2	63.5	32.1	17.9	64.6	35.9	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	34.7	55.6	28.0	5.2	63.5	32.1	17.9	64.6	35.9	21.1
Queue Length 50th (ft)	68	251	107	205	0	82	102	122	54	89	52
Queue Length 95th (ft)	#128	#440	#217	329	39	#208	145	204	#129	130	150
Internal Link Dist (ft)		3203		630			1350			860	
Turn Bay Length (ft)	240		220		220	200		100	120		120
Base Capacity (vph)	413	1219	469	1267	646	208	1378	704	251	1219	727
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.84	0.85	0.70	0.19	0.76	0.30	0.56	0.80	0.28	0.53
























Intersection Summary






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

Balboa Transit Station
9: Clairemont Dr & Garnet Ave

Horizon Year Adopted Conditions MITIGATED

Timing Plan: AM Peak Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	864	73	368	815	114	146	374	363	185	315	355
Future Volume (vph)	239	864	73	368	815	114	146	374	363	185	315	355
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	6.4	6.4	4.4	5.3	4.4	4.4	5.3	5.3
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3498		3433	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3498		3433	3539	1583	1770	3539	1583	3433	3539	1583
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)	260	939	79	400	886	124	159	407	395	201	342	386
RTOR Reduction (vph)	0	6	0	0	0	80	0	0	55	0	0	231
Lane Group Flow (vph)	260	1012	0	400	886	44	159	407	340	201	342	155
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	9.6	29.1		11.7	30.5	30.5	9.9	18.2	29.9	6.2	14.5	14.5
Effective Green, g (s)	9.6	29.1		11.7	30.5	30.5	9.9	18.2	29.9	6.2	14.5	14.5
Actuated g/C Ratio	0.11	0.34		0.14	0.36	0.36	0.12	0.21	0.35	0.07	0.17	0.17
Clearance Time (s)	4.4	5.7		4.4	6.4	6.4	4.4	5.3	4.4	4.4	5.3	5.3
Vehicle Extension (s)	2.0	3.5		2.0	3.0	3.0	2.0	2.4	2.0	2.0	2.6	2.6
Lane Grp Cap (vph)	387	1197		472	1269	568	206	757	556	250	603	270
v/s Ratio Prot	0.08	c0.29		c0.12	0.25		c0.09	0.11	c0.08	0.06	0.10	
v/s Ratio Perm						0.03			0.13			0.10
v/c Ratio	0.67	0.85		0.85	0.70	0.08	0.77	0.54	0.61	0.80	0.57	0.58
Uniform Delay, d1	36.2	25.9		35.8	23.3	18.0	36.5	29.7	22.8	38.8	32.4	32.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	5.8		12.7	1.7	0.1	15.0	0.5	1.4	16.0	1.0	2.5
Delay (s)	39.8	31.7		48.5	25.0	18.0	51.4	30.2	24.2	54.8	33.4	35.0
Level of Service	D	C		D	C	B	D	C	C	D	C	C
Approach Delay (s)		33.3			31.1			31.2			38.7	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			33.3		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			85.0		Sum of lost time (s)				20.5			
Intersection Capacity Utilization			70.0%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

					
Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	211	22	271	452	178
v/c Ratio	0.42	0.05	0.26	0.41	0.09
Control Delay	11.9	4.5	6.7	2.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	4.5	6.7	2.3	5.6
Queue Length 50th (ft)	25	0	24	0	7
Queue Length 95th (ft)	63	8	66	31	21
Internal Link Dist (ft)	618		1658		240
Turn Bay Length (ft)					
Base Capacity (vph)	914	828	1113	1128	2005
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.03	0.24	0.40	0.09
Intersection Summary					

Balboa Transit Station
22: Morena Blvd & Jutland Dr

Horizon Year Adopted Conditions MITIGATED

Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	194	20	249	416	5	159
Future Volume (vph)	194	20	249	416	5	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	1.00	1.00	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1770	1583	1863	1583		3534
Flt Permitted	0.95	1.00	1.00	1.00		0.95
Satd. Flow (perm)	1770	1583	1863	1583		3355
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	211	22	271	452	5	173
RTOR Reduction (vph)	0	17	0	217	0	0
Lane Group Flow (vph)	211	5	271	235	0	178
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	7.6	7.6	16.9	16.9		16.9
Effective Green, g (s)	7.6	7.6	16.9	16.9		16.9
Actuated g/C Ratio	0.23	0.23	0.52	0.52		0.52
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	413	370	968	823		1744
v/s Ratio Prot	c0.12		0.15			
v/s Ratio Perm		0.00		c0.15		0.05
v/c Ratio	0.51	0.01	0.28	0.29		0.10
Uniform Delay, d1	10.8	9.6	4.4	4.4		4.0
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	1.1	0.0	0.2	0.2		0.0
Delay (s)	11.9	9.6	4.5	4.6		4.0
Level of Service	B	A	A	A		A
Approach Delay (s)	11.7		4.6			4.0
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			0.36			
Actuated Cycle Length (s)			32.5		Sum of lost time (s)	8.0
Intersection Capacity Utilization			37.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

MOVEMENT SUMMARY

 **Site: 1 [AM - Future Adopted MITIGATED - Morena at Jutland]**

Roundabout
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Morena Blvd											
8	T1	271	2.0	0.515	7.8	LOS A	4.3	110.5	0.08	0.01	20.1
18	R2	452	2.0	0.515	7.8	LOS A	4.3	110.5	0.08	0.01	18.9
Approach		723	2.0	0.515	7.8	LOS A	4.3	110.5	0.08	0.01	19.4
East: Jutland Ave											
1	L2	211	2.0	0.277	7.3	LOS A	1.1	28.7	0.44	0.36	19.1
16	R2	22	2.0	0.277	7.3	LOS A	1.1	28.7	0.44	0.36	19.0
Approach		233	2.0	0.277	7.3	LOS A	1.1	28.7	0.44	0.36	19.1
North: Morena Blvd											
7	L2	5	2.0	0.200	6.0	LOS A	0.8	19.6	0.36	0.26	22.5
4	T1	173	2.0	0.200	6.0	LOS A	0.8	19.6	0.36	0.26	21.4
Approach		178	2.0	0.200	6.0	LOS A	0.8	19.6	0.36	0.26	21.5
All Vehicles		1134	2.0	0.515	7.4	LOS A	4.3	110.5	0.20	0.12	19.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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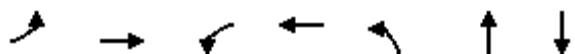
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Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year Adopted Conditions MITIGATED

Timing Plan: PM Peak Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	34	1164	20	1522	295	144	194
v/c Ratio	0.31	1.11	0.18	0.76	0.90	0.27	0.43
Control Delay	18.0	82.6	11.2	13.6	54.0	17.1	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	82.6	11.2	13.6	54.0	17.1	19.3
Queue Length 50th (ft)	7	~586	3	266	110	38	53
Queue Length 95th (ft)	31	#815	m9	366	#237	78	104
Internal Link Dist (ft)		374		899		244	450
Turn Bay Length (ft)	50		50		100		
Base Capacity (vph)	111	1048	111	2007	363	582	501
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	1.11	0.18	0.76	0.81	0.25	0.39




















Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year Adopted Conditions MITIGATED













Timing Plan: PM Peak Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	956	115	18	1373	28	271	110	22	56	65	57
Future Volume (vph)	31	956	115	18	1373	28	271	110	22	56	65	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9		4.9	4.9			4.9	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.97			0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	1833		1770	3529		1770	1816			1755	
Flt Permitted	0.10	1.00		0.10	1.00		0.62	1.00			0.86	
Satd. Flow (perm)	196	1833		196	3529		1154	1816			1538	
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)	34	1039	125	20	1492	30	295	120	24	61	71	62
RTOR Reduction (vph)	0	6	0	0	2	0	0	11	0	0	18	0
Lane Group Flow (vph)	34	1158	0	20	1520	0	295	133	0	0	176	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	38.1	38.1		38.1	38.1		19.1	19.1			19.1	
Effective Green, g (s)	38.1	38.1		38.1	38.1		19.1	19.1			19.1	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.29	0.29			0.29	
Clearance Time (s)	4.9	4.9		4.9	4.9		4.9	4.9			4.9	
Vehicle Extension (s)	3.4	3.4		5.9	5.9		2.0	2.0			2.0	
Lane Grp Cap (vph)	111	1042		111	2006		328	517			438	
v/s Ratio Prot		c0.63			0.43			0.07				
v/s Ratio Perm	0.17			0.10			c0.26				0.11	
v/c Ratio	0.31	1.11		0.18	0.76		0.90	0.26			0.40	
Uniform Delay, d1	7.5	14.4		6.9	11.0		23.0	18.5			19.3	
Progression Factor	1.00	1.00		0.84	0.93		1.00	1.00			1.00	
Incremental Delay, d2	7.0	63.7		3.2	2.5		25.3	0.1			0.2	
Delay (s)	14.6	78.1		9.1	12.7		48.3	18.6			19.6	
Level of Service	B	E		A	B		D	B			B	
Approach Delay (s)		76.3			12.7			38.5			19.6	
Approach LOS		E			B			D			B	
Intersection Summary												
HCM 2000 Control Delay			39.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			67.0			Sum of lost time (s)			9.8			
Intersection Capacity Utilization			94.6%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Horizon Year Adopted Conditions MITIGATED

Timing Plan: PM Peak Period

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	618	904	496	297	979	398	721	430	315	298	401	984
v/c Ratio	0.74	0.66	0.49	0.72	0.73	0.54	1.07	0.52	0.47	0.73	0.73	0.78
Control Delay	53.6	38.1	13.8	67.2	49.3	22.4	104.7	47.4	23.6	68.1	62.5	34.2
Queue Delay	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4
Total Delay	53.6	38.1	14.5	67.2	49.3	22.4	104.7	47.4	23.6	68.1	62.5	46.6
Queue Length 50th (ft)	257	341	178	130	290	178	~359	173	146	131	178	376
Queue Length 95th (ft)	338	463	316	175	349	269	#484	227	220	176	226	463
Internal Link Dist (ft)		574			1151			461			376	
Turn Bay Length (ft)	565		120	410		325	265		100	200		265
Base Capacity (vph)	835	1371	1018	428	1344	795	676	1009	680	546	865	1266
Starvation Cap Reductn	0	0	238	0	0	0	0	0	0	0	0	274
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.66	0.64	0.69	0.73	0.50	1.07	0.43	0.46	0.55	0.46	0.99

























Intersection Summary

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

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Horizon Year Adopted Conditions MITIGATED

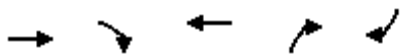
Timing Plan: PM Peak Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	569	832	456	273	901	366	663	396	290	274	369	905
Future Volume (vph)	569	832	456	273	901	366	663	396	290	274	369	905
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	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	3433	3539	1583	3433	3539	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	3433	3539	1583	3433	3539	2787
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)	618	904	496	297	979	398	721	430	315	298	401	984
RTOR Reduction (vph)	0	0	39	0	0	77	0	0	55	0	0	52
Lane Group Flow (vph)	618	904	457	297	979	321	721	430	260	298	401	932
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	32.8	52.3	78.9	16.2	35.7	51.7	26.6	31.9	48.1	16.0	20.9	53.7
Effective Green, g (s)	32.8	52.3	78.9	16.2	35.7	51.7	26.6	31.9	48.1	16.0	20.9	53.7
Actuated g/C Ratio	0.24	0.39	0.58	0.12	0.26	0.38	0.20	0.24	0.36	0.12	0.15	0.40
Clearance Time (s)	4.4	4.9	4.4	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	834	1371	925	411	1344	606	676	836	564	406	547	1108
v/s Ratio Prot	0.18	0.26	0.10	0.09	c0.19	0.06	c0.21	0.12	0.06	0.09	0.11	c0.20
v/s Ratio Perm			0.19			0.14			0.11			0.13
v/c Ratio	0.74	0.66	0.49	0.72	0.73	0.53	1.07	0.51	0.46	0.73	0.73	0.84
Uniform Delay, d1	47.2	34.0	16.4	57.2	45.2	32.2	54.2	44.8	33.5	57.4	54.4	36.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	2.5	0.2	5.3	3.5	0.4	53.7	0.9	0.2	5.8	5.1	5.7
Delay (s)	50.3	36.5	16.5	62.5	48.7	32.6	107.9	45.7	33.7	63.3	59.5	42.5
Level of Service	D	D	B	E	D	C	F	D	C	E	E	D
Approach Delay (s)		35.8			47.3			73.7			50.2	
Approach LOS		D			D			E			D	
Intersection Summary												
HCM 2000 Control Delay			50.3				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			135.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			79.4%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
7: Balboa EB Ramps & Garnet Ave/Balboa Ave

Horizon Year Adopted Conditions MITIGATED

Timing Plan: PM Peak Period



Lane Group	EBT	EBR	WBT	NBR	SBR
Lane Group Flow (vph)	1575	935	1828	366	98
v/c Ratio	0.84	0.73	0.52	0.68	0.06
Control Delay	16.9	4.8	0.5	23.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	4.8	0.5	23.0	0.1
Queue Length 50th (ft)	207	0	0	95	0
Queue Length 95th (ft)	#307	46	0	#188	0
Internal Link Dist (ft)	362		554		
Turn Bay Length (ft)					
Base Capacity (vph)	1868	1276	3491	541	1589
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	0.73	0.52	0.68	0.06

Intersection Summary













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

Balboa Transit Station

Horizon Year Adopted Conditions MITIGATED

7: Balboa EB Ramps & Garnet Ave/Balboa Ave












Timing Plan: PM Peak Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑				↑			↑
Traffic Volume (vph)	0	1449	860	0	1682	0	0	0	337	0	0	90
Future Volume (vph)	0	1449	860	0	1682	0	0	0	337	0	0	90
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				4.0			4.0
Lane Util. Factor		0.95	1.00		0.95				1.00			1.00
Frt		1.00	0.85		1.00				0.86			0.86
Flt Protected		1.00	1.00		1.00				1.00			1.00
Satd. Flow (prot)		3539	1583		3539				1611			1611
Flt Permitted		1.00	1.00		1.00				1.00			1.00
Satd. Flow (perm)		3539	1583		3539				1611			1611
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)	0	1575	935	0	1828	0	0	0	366	0	0	98
RTOR Reduction (vph)	0	0	441	0	0	0	0	0	13	0	0	0
Lane Group Flow (vph)	0	1575	494	0	1828	0	0	0	353	0	0	98
Turn Type		NA	Perm		NA				Prot			Perm
Protected Phases		4			5 8				5			
Permitted Phases			4									4 5
Actuated Green, G (s)		29.0	29.0		54.9				17.9			54.9
Effective Green, g (s)		29.0	29.0		54.9				17.9			54.9
Actuated g/C Ratio		0.53	0.53		1.00				0.33			1.00
Clearance Time (s)		4.0	4.0						4.0			
Vehicle Extension (s)		3.0	3.0						3.0			
Lane Grp Cap (vph)		1869	836		3539				525			1611
v/s Ratio Prot		c0.45			0.52				c0.22			
v/s Ratio Perm			0.31									0.06
v/c Ratio		0.84	0.59		0.52				0.67			0.06
Uniform Delay, d1		11.0	8.9		0.0				16.0			0.0
Progression Factor		1.00	1.00		1.00				1.00			1.00
Incremental Delay, d2		3.7	1.1		0.1				3.4			0.0
Delay (s)		14.7	10.0		0.1				19.3			0.0
Level of Service		B	B		A				B			A
Approach Delay (s)		12.9			0.1			19.3			0.0	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			8.3									HCM 2000 Level of Service A
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			54.9									Sum of lost time (s) 8.0
Intersection Capacity Utilization			67.6%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
9: Clairemont Dr & Balboa Ave

Horizon Year Adopted Conditions MITIGATED

Timing Plan: PM Peak Period

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	472	1307	485	1180	145	93	389	395	334	628	364
v/c Ratio	0.90	0.93	0.90	0.84	0.21	0.70	0.60	0.62	0.90	0.82	0.71
Control Delay	75.5	50.9	75.3	43.1	11.7	86.9	52.4	31.5	84.8	58.2	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.5	50.9	75.3	43.1	11.7	86.9	52.4	31.5	84.8	58.2	25.9
Queue Length 50th (ft)	207	556	212	477	27	78	161	229	148	273	115
Queue Length 95th (ft)	#331	#782	#340	628	79	#163	214	337	#258	342	229
Internal Link Dist (ft)		3203		630			1350			860	
Turn Bay Length (ft)	240		220		220	200		100	120		120
Base Capacity (vph)	537	1433	547	1433	697	150	904	646	372	986	600
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.91	0.89	0.82	0.21	0.62	0.43	0.61	0.90	0.64	0.61
























Intersection Summary

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

Balboa Transit Station
9: Clairemont Dr & Balboa Ave

Horizon Year Adopted Conditions MITIGATED






Timing Plan: PM Peak Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	434	1144	59	446	1086	133	86	358	363	307	578	335
Future Volume (vph)	434	1144	59	446	1086	133	86	358	363	307	578	335
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	6.4	6.4	4.4	5.3	4.4	4.4	5.3	5.3
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3513		3433	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3513		3433	3539	1583	1770	3539	1583	3433	3539	1583
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)	472	1243	64	485	1180	145	93	389	395	334	628	364
RTOR Reduction (vph)	0	2	0	0	0	57	0	0	40	0	0	173
Lane Group Flow (vph)	472	1305	0	485	1180	88	93	389	355	334	628	191
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	19.9	51.6		20.4	51.4	51.4	9.8	23.9	44.3	14.1	28.2	28.2
Effective Green, g (s)	19.9	51.6		20.4	51.4	51.4	9.8	23.9	44.3	14.1	28.2	28.2
Actuated g/C Ratio	0.15	0.40		0.16	0.40	0.40	0.08	0.18	0.34	0.11	0.22	0.22
Clearance Time (s)	4.4	5.7		4.4	6.4	6.4	4.4	5.3	4.4	4.4	5.3	5.3
Vehicle Extension (s)	2.0	3.5		2.0	3.0	3.0	2.0	2.4	2.0	2.0	2.6	2.6
Lane Grp Cap (vph)	526	1396		539	1401	626	133	651	540	372	768	343
v/s Ratio Prot	0.14	c0.37		c0.14	0.33		0.05	0.11	0.10	c0.10	c0.18	
v/s Ratio Perm						0.06			0.12			0.12
v/c Ratio	0.90	0.93		0.90	0.84	0.14	0.70	0.60	0.66	0.90	0.82	0.56
Uniform Delay, d1	53.9	37.5		53.7	35.5	25.1	58.6	48.5	36.3	57.1	48.4	45.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.4	11.8		17.4	4.8	0.1	12.2	1.2	2.2	22.8	6.6	1.6
Delay (s)	71.4	49.3		71.1	40.3	25.2	70.7	49.7	38.5	79.9	55.0	46.9
Level of Service	E	D		E	D	C	E	D	D	E	D	D
Approach Delay (s)		55.2			47.3			46.9			59.0	
Approach LOS		E			D			D			E	

Intersection Summary

HCM 2000 Control Delay	52.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	129.8	Sum of lost time (s)	20.5
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

					
Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	666	18	186	299	355
v/c Ratio	0.76	0.02	0.36	0.46	0.39
Control Delay	15.0	3.1	14.4	4.7	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	3.1	14.4	4.7	13.3
Queue Length 50th (ft)	90	0	29	0	30
Queue Length 95th (ft)	#243	7	80	41	68
Internal Link Dist (ft)	618		1658		240
Turn Bay Length (ft)					
Base Capacity (vph)	1300	1167	849	884	1493
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.02	0.22	0.34	0.24

Intersection Summary

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

Balboa Transit Station
22: Morena Blvd & Jutland Dr

Horizon Year Adopted Conditions MITIGATED

Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	613	17	171	275	24	303
Future Volume (vph)	613	17	171	275	24	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	1.00	1.00	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1770	1583	1863	1583		3526
Flt Permitted	0.95	1.00	1.00	1.00		0.93
Satd. Flow (perm)	1770	1583	1863	1583		3279
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	666	18	186	299	26	329
RTOR Reduction (vph)	0	9	0	215	0	0
Lane Group Flow (vph)	666	9	186	85	0	355
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	18.4	18.4	10.4	10.4		10.4
Effective Green, g (s)	18.4	18.4	10.4	10.4		10.4
Actuated g/C Ratio	0.50	0.50	0.28	0.28		0.28
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	885	791	526	447		926
v/s Ratio Prot	c0.38		0.10			
v/s Ratio Perm		0.01		0.05		c0.11
v/c Ratio	0.75	0.01	0.35	0.19		0.38
Uniform Delay, d1	7.4	4.6	10.5	10.0		10.6
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	3.7	0.0	0.4	0.2		0.3
Delay (s)	11.0	4.6	10.9	10.2		10.9
Level of Service	B	A	B	B		B
Approach Delay (s)	10.9		10.5			10.9
Approach LOS	B		B			B
Intersection Summary						
HCM 2000 Control Delay			10.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.62			
Actuated Cycle Length (s)			36.8		Sum of lost time (s)	8.0
Intersection Capacity Utilization			62.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

MOVEMENT SUMMARY

 Site: 1 [PM - Future Adopted MITIGATED - Morena at Jutland - Copy]

Roundabout
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Morena Blvd											
8	T1	186	2.0	0.353	5.8	LOS A	2.2	56.6	0.15	0.05	21.4
18	R2	299	2.0	0.353	5.8	LOS A	2.2	56.6	0.15	0.05	20.1
Approach		485	2.0	0.353	5.8	LOS A	2.2	56.6	0.15	0.05	20.6
East: Jutland Ave											
1	L2	666	2.0	0.747	18.3	LOS C	7.7	195.0	0.72	0.63	14.8
16	R2	18	2.0	0.747	18.3	LOS C	7.7	195.0	0.72	0.63	15.5
Approach		685	2.0	0.747	18.3	LOS C	7.7	195.0	0.72	0.63	14.8
North: Morena Blvd											
7	L2	26	2.0	0.633	20.0	LOS C	3.7	94.3	0.76	0.91	16.6
4	T1	329	2.0	0.633	20.0	LOS C	3.7	94.3	0.76	0.91	15.0
Approach		355	2.0	0.633	20.0	LOS C	3.7	94.3	0.76	0.91	15.1
All Vehicles		1525	2.0	0.747	14.7	LOS B	7.7	195.0	0.55	0.51	16.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX H

PREFERRED FUTURE CONDITIONS ANALYSIS SUPPORTING INFORMATION

Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

	EBL	EBT	WBL	WBT	NBT	SBT	
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	
Lane Group Flow (vph)	14	1272	8	748	225	245	
v/c Ratio	0.03	1.00	0.11	0.31	0.94	0.73	
Control Delay	6.2	44.6	13.1	9.3	85.2	51.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.2	44.6	13.1	9.3	85.2	51.0	
Queue Length 50th (ft)	3	~926	2	114	145	148	
Queue Length 95th (ft)	10	#1187	m6	m145	#287	239	
Internal Link Dist (ft)		374		899	244	450	
Turn Bay Length (ft)	50		50				
Base Capacity (vph)	443	1267	70	2431	258	360	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.03	1.00	0.11	0.31	0.87	0.68	
Intersection Summary							
~ Volume exceeds capacity, queue is theoretically infinite.							
Queue shown is maximum after two cycles.							
# 95th percentile volume exceeds capacity, queue may be longer.							
Queue shown is maximum after two cycles.							
m Volume for 95th percentile queue is metered by upstream signal.							

Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	13	1063	108	7	679	9	115	75	17	69	131	26
Future Volume (vph)	13	1063	108	7	679	9	115	75	17	69	131	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99	1.00	1.00	1.00	1.00	0.99	1.00	0.99	1.00	0.98	0.98
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00	0.97	1.00	0.98	0.98
Satd. Flow (prot)	1770	1837	1770	3532	1770	3532	1793	1770	1793	1806	1806	1806
Flt Permitted	0.35	1.00	0.05	1.00	0.05	1.00	0.59	0.59	0.59	0.82	0.82	0.82
Satd. Flow (perm)	644	1837	102	3532	102	3532	1080	1080	1080	1500	1500	1500
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)	14	1155	117	8	738	10	125	82	18	75	142	28
RTOR Reduction (vph)	0	3	0	0	1	0	0	3	0	0	5	0
Lane Group Flow (vph)	14	1269	0	8	747	0	0	222	0	0	240	0
Turn Type	Perm	NA	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	NA
Protected Phases												
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	72.9	72.9		72.9	72.9		23.3			23.3		
Effective Green, g (s)	72.9	72.9		72.9	72.9		23.3			23.3		
Actuated g/c Ratio	0.69	0.69		0.69	0.69		0.22			0.22		
Clearance Time (s)	4.9	4.9		4.9	4.9		4.9			4.9		
Vehicle Extension (s)	3.4	3.4		5.9	5.9		2.0			2.0		
Lane Grp Cap (vph)	442	1263		70	2429		237			329		
v/s Ratio Prot		c0.69		0.08			c0.21			0.16		
v/c Ratio	0.03	1.00		0.11	0.31		0.94			0.73		
Uniform Delay, d1	5.3	16.5		5.6	6.6		40.6			38.4		
Progression Factor	1.00	1.00		1.38	1.32		1.00			1.00		
Incremental Delay, d2	0.1	26.5		3.0	0.3		40.4			7.0		
Delay (s)	5.4	43.0		10.7	9.0		81.1			45.4		
Level of Service	A	D		B	A		F			D		
Approach Delay (s)		42.6			9.0		81.1			45.4		
Approach LOS		D			A		F			D		
Intersection Summary												
HCM 2000 Control Delay				36.2			HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio				0.99								
Actuated Cycle Length (s)				106.0			Sum of lost time (s)			9.8		
Intersection Capacity Utilization				90.7%			ICU Level of Service			E		
Analysis Period (min)				15								
c Critical Lane Group												

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

	EBT	WBT	SBL	SBR
Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	561	750	392	1012
v/c Ratio	1.29	0.53	0.27	0.68
Control Delay	169.6	7.3	0.5	12.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	169.6	7.3	0.5	12.0
Queue Length 50th (ft)	-123	41	0	201
Queue Length 95th (ft)	#206	80	0	m204
Internal Link Dist (ft)	936	284		899
Turn Bay Length (ft)				
Base Capacity (vph)	434	1422	1441	1496
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.29	0.53	0.27	0.68
Intersection Summary				
~ Volume exceeds capacity, queue is theoretically infinite.				
Queue shown is maximum after two cycles.				
# 95th percentile volume exceeds capacity, queue may be longer.				
Queue shown is maximum after two cycles.				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		←	←	←	←	←
Traffic Volume (vph)	46	470	328	722	931	0
Future Volume (vph)	46	470	328	722	931	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	4.9		
Lane Util. Factor	0.95	0.91	0.91	0.97		
Frt	1.00	0.92	0.85	1.00		
Flt Protected	1.00	1.00	1.00	0.95		
Satd. Flow (prot)	3524	3124	1441	3433		
Flt Permitted	0.83	1.00	1.00	0.95		
Satd. Flow (perm)	2953	3124	1441	3433		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	511	357	785	1012	0
RTOR Reduction (vph)	0	0	245	0	0	0
Lane Group Flow (vph)	0	561	505	392	1012	0
Turn Type	NA	NA	Free	Free	Prot	Prot
Protected Phases		2	2		4	
Permitted Phases				Free		
Actuated Green, G (s)		20.0	20.0	53.0	23.1	
Effective Green, g (s)		20.0	20.0	53.0	23.1	
Actuated g/C Ratio		0.38	0.38	1.00	0.44	
Clearance Time (s)		5.0	5.0	4.9		
Vehicle Extension (s)		6.1	6.1	5.2		
Lane Grp Cap (vph)	1114	1178	1441	1496		
v/s Ratio Prot		0.16		c0.29		
v/c Ratio		0.50	0.43	0.27	0.68	
Uniform Delay, d1		12.7	12.3	0.0	12.0	
Progression Factor		1.00	1.00	1.00	0.94	
Incremental Delay, d2		1.0	0.7	0.5	0.6	
Delay (s)		13.7	13.0	0.5	11.9	
Level of Service		B	B	A	B	
Approach Delay (s)		13.7	8.7	11.9		
Approach LOS		B	A	B		
Intersection Summary						
HCM 2000 Control Delay			10.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			53.0		Sum of lost time (s)	9.9
Intersection Capacity Utilization			70.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
3: Garnet Ave & Soledad Mtn Rd

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group						
Lane Group Flow (vph)	154	1562	886	557	529	73
v/c Ratio	0.53	0.61	0.42	0.42	0.79	0.20
Control Delay	61.9	10.8	6.2	2.5	56.8	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	10.8	6.2	2.5	56.8	9.8
Queue Length 50th (ft)	62	302	65	45	210	0
Queue Length 95th (ft)	99	432	96	73	258	38
Internal Link Dist (ft)		770	806		594	
Turn Bay Length (ft)	200			200	225	225
Base Capacity (vph)	291	2541	2134	1324	1032	366
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.61	0.42	0.42	0.51	0.20
Intersection Summary						

Balboa Transit Station
3: Garnet Ave & Soledad Mtn Rd

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Movement						
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	142	1437	815	512	487	67
Future Volume (vph)	142	1437	815	512	487	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Flt	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)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	154	1562	886	557	529	73
RTOR Reduction (vph)	0	0	0	0	0	59
Lane Group Flow (vph)	154	1562	886	557	529	14
Turn Type	Prot	NA	NA	pm-ov	Prot	custom
Protected Phases	5	2	6	7	7	4
Permitted Phases		2		6		7
Actuated Green, G (s)	10.6	89.8	75.4	99.7	24.3	24.3
Effective Green, g (s)	10.6	89.8	75.4	99.7	24.3	24.3
Actuated g/c Ratio	0.08	0.72	0.60	0.80	0.19	0.19
Clearance Time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Vehicle Extension (s)	2.0	5.6	8.0	2.0	2.0	3.0
Lane Grp Cap (vph)	291	2542	2134	1330	667	307
v/s Ratio Prot	0.04	c0.44	0.25	0.08	c0.15	0.01
v/s Ratio Perm				0.27		
v/c Ratio	0.53	0.61	0.42	0.42	0.79	0.05
Uniform Delay, d1	54.8	8.9	13.1	3.8	48.0	40.9
Progression Factor	1.00	1.00	0.41	0.61	1.00	1.00
Incremental Delay, d2	0.8	1.1	0.6	0.1	6.0	0.1
Delay (s)	55.6	10.0	5.9	2.4	54.0	41.0
Level of Service	E	A	A	A	D	D
Approach Delay (s)		14.1	4.6		52.4	
Approach LOS		B	A		D	
Intersection Summary						
HCM 2000 Control Delay			16.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			125.0		Sum of lost time (s)	18.7
Intersection Capacity Utilization			62.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
4: Bond St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

	EBT	WBT	NBR	
Lane Group	EBT	WBT	NBR	
Lane Group Flow (vph)	1992	1504	40	
v/c Ratio	0.56	0.42	0.02	
Control Delay	0.6	0.9	0.0	
Queue Delay	0.0	0.0	0.0	
Total Delay	0.6	0.9	0.0	
Queue Length 50th (ft)	0	6	0	
Queue Length 95th (ft)	0	39	0	
Internal Link Dist (ft)	806	574		
Turn Bay Length (ft)				
Base Capacity (vph)	3529	3539	1611	
Starvation Cap Reductn	0	0	0	
Spillback Cap Reductn	38	0	17	
Storage Cap Reductn	0	0	0	
Reduced v/c Ratio	0.57	0.42	0.03	
Intersection Summary				

Balboa Transit Station
4: Bond St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4B			4A				4B			4A
Traffic Volume (vph)	0	1796	37	0	1384	0	0	0	37	0	0	0
Future Volume (vph)	0	1796	37	0	1384	0	0	0	37	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9				4.9			
Lane Util. Factor		0.95			0.95				1.00			
Frt		1.00			1.00				0.86			
Flt Protected		1.00			1.00				1.00			
Satd. Flow (prot)		3529			3539				1611			
Flt Permitted		1.00			1.00				1.00			
Satd. Flow (perm)		3529			3539				1611			
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)	0	1952	40	0	1504	0	0	0	40	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1992	0	0	1504	0	0	0	40	0	0	0
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases		2			6				2			6
Permitted Phases												
Actuated Green, G (s)		125.0			125.0				125.0			125.0
Effective Green, g (s)		125.0			125.0				125.0			125.0
Actuated g/c Ratio		1.00			1.00				1.00			1.00
Clearance Time (s)		4.9			4.9				4.9			4.9
Vehicle Extension (s)		7.3			7.3				7.3			7.3
Lane Grp Cap (vph)		3529			3539				1611			
v/s Ratio Prot		c0.56			0.42				0.02			0.02
v/c Ratio		0.56			0.42				0.02			0.02
Uniform Delay, d1		0.0			0.0				0.0			0.0
Progression Factor		1.00			1.00				1.00			1.00
Incremental Delay, d2		0.5			0.3				0.3			0.0
Delay (s)		0.5			0.3				0.0			0.0
Level of Service		A			A				A			A
Approach Delay (s)		0.5			0.3				0.0			0.0
Approach LOS		A			A				A			A
Intersection Summary												
HCM 2000 Control Delay			0.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			125.0		Sum of lost time (s)				7.9			
Intersection Capacity Utilization			71.5%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Timing Plan: AM Peak Period

Horizon Year with Preferred LU													
Timing Plan: AM Peak Period													
	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR		

Lane Group	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Group Flow (vph)	718	716	585	251	572	268	479	617	307	274	367	389	
v/c Ratio	1.16	0.82	0.72	0.87	0.71	0.42	0.88	0.53	0.35	0.72	0.71	0.27	
Control Delay	131.7	55.4	29.5	80.1	48.9	23.0	69.7	37.4	15.8	64.6	49.2	14.8	
Queue Delay	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	
Total Delay	131.7	55.4	29.7	80.1	48.9	23.0	69.7	37.4	15.8	64.6	51.7	14.8	
Queue Length 50th (ft)	~357	271	250	197	220	118	201	219	113	111	268	78	
Queue Length 95th (ft)	#483	339	521	#328	276	182	#338	295	192	156	380	115	
Internal Link Dist (ft)	574				1151			461			376		
Turn Bay Length (ft)	565	120	410	325	265			100	200		265		
Base Capacity (vph)	620	945	808	314	934	666	547	1168	890	447	518	1435	
Starvation Cap Reductn	0	0	16	0	0	0	0	0	0	0	67	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.16	0.76	0.74	0.80	0.61	0.40	0.88	0.53	0.34	0.61	0.81	0.27	

Intersection Summary
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Timing Plan: AM Peak Period

Horizon Year with Preferred LU													
Timing Plan: AM Peak Period													
	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR		

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	HH	HH	HH	HH	HH	HH	HH	HH	HH	HH	HH		
Traffic Volume (vph)	661	659	538	231	526	247	441	568	282	252	338	358	
Future Volume (vph)	661	659	538	231	526	247	441	568	282	252	338	358	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.3	4.4	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88	
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787	
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)	718	716	585	251	572	268	479	617	307	274	367	389	
RTOR Reduction (vph)	0	0	109	0	0	38	0	0	28	0	0	41	
Lane Group Flow (vph)	718	716	476	251	572	230	479	617	279	274	367	348	

Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3	
Permitted Phases			8		4			6				2	
Actuated Green, G (s)	22.6	31.0	50.9	20.3	28.7	42.6	19.9	41.2	61.5	13.9	34.8	57.4	
Effective Green, g (s)	22.6	31.0	50.9	20.3	28.7	42.6	19.9	41.2	61.5	13.9	34.8	57.4	
Actuated g/c Ratio	0.18	0.25	0.41	0.16	0.23	0.34	0.16	0.33	0.49	0.11	0.28	0.46	
Clearance Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.3	4.4	
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0	
Lane Grp Cap (vph)	620	877	644	287	812	539	546	1166	778	381	518	1279	
v/s Ratio Prot	c0.21	c0.20	0.12	0.14	0.16	0.05	c0.14	0.17	0.06	0.08	c0.20	0.05	
v/s Ratio Perm			0.18			0.10			0.12			0.08	
v/c Ratio	1.16	0.82	0.74	0.87	0.70	0.43	0.88	0.53	0.36	0.72	0.71	0.27	
Uniform Delay, d1	51.2	44.3	31.4	51.1	44.3	31.8	51.4	34.0	19.6	53.7	40.5	20.9	
Progression Factor	1.01	1.09	1.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	86.0	5.4	3.3	23.6	3.1	0.2	14.3	1.7	0.1	5.3	8.0	0.0	
Delay (s)	137.9	53.6	42.7	74.7	47.4	32.0	65.7	35.7	19.7	59.0	48.5	20.9	
Level of Service	F	D	D	E	D	C	E	D	B	E	D	C	
Approach Delay (s)		80.4			49.9			42.5			40.9		
Approach LOS		F			D			D			D		

Intersection Summary													
HCM 2000 Control Delay			57.5								E		
HCM 2000 Volume to Capacity ratio			0.88										
Actuated Cycle Length (s)			125.0							19.0			
Intersection Capacity Utilization			79.6%							D			
Analysis Period (min)			15										
c Critical Lane Group													

Balboa Transit Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

	EBT	WBT	NBR	SBR	
Lane Group					
Lane Group Flow (vph)	1297	2101	223	80	
v/c Ratio	0.81	0.42	0.21	0.12	
Control Delay	15.4	0.3	8.7	3.5	
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	15.4	0.3	8.7	3.5	
Queue Length 50th (ft)	134	0	17	0	
Queue Length 95th (ft)	202	0	36	18	
Internal Link Dist (ft)	1151	265			
Turn Bay Length (ft)					
Base Capacity (vph)	1688	5019	1041	640	
Starvation Cap Reductn	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	
Storage Cap Reductn	0	0	0	0	
Reduced v/c Ratio	0.77	0.42	0.21	0.13	
Intersection Summary					

Balboa Transit Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↔↔			↔↔↔				↔↔			↔
Traffic Volume (vph)	0	1193	0	0	1759	174	0	0	205	0	0	74
Future Volume (vph)	0	1193	0	0	1759	174	0	0	205	0	0	74
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			4.0
Lane Util. Factor		0.95			0.91				0.88			1.00
Frt		1.00			0.99				0.85			0.86
Flt Protected		1.00			1.00				1.00			1.00
Satd. Flow (prot)		3539			5017				2787			1611
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3539			5017				2787			1611
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)	0	1297	0	0	1912	189	0	0	223	0	0	80
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	28	0	0	51
Lane Group Flow (vph)	0	1297	0	0	2101	0	0	0	195	0	0	29
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	Prot	NA	NA	Perm
Protected Phases		8			2 4				2			6
Permitted Phases												
Actuated Green, G (s)		20.1			44.1				16.0			16.0
Effective Green, g (s)		20.1			44.1				16.0			16.0
Actuated g/c Ratio		0.46			1.00				0.36			0.36
Clearance Time (s)		4.0			4.0				4.0			4.0
Vehicle Extension (s)		3.0			3.0				3.0			3.0
Lane Grp Cap (vph)		1613			5017				1011			584
v/s Ratio Prot		c0.37			c0.42				0.07			0.02
v/c Ratio		0.80			0.42				0.19			0.05
Uniform Delay, d1		10.3			0.0				9.6			9.1
Progression Factor		1.00			1.00				1.00			1.00
Incremental Delay, d2		3.0			0.1				0.1			0.0
Delay (s)		13.3			0.1				9.7			9.2
Level of Service		B			A				A			A
Approach Delay (s)		13.3			0.1			9.7				9.2
Approach LOS		B			A			A				A
Intersection Summary												
HCM 2000 Control Delay			5.5			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			44.1			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			49.1%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
7: Balboa EB Ramps & Garnet Ave

Horizon Year with Preferred LU
 Timing Plan: AM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔↔	↔	↔	↔↔	↔	↔
Traffic Volume (veh/h)	741	657	0	1312	0	210
Future Volume (Veh/h)	741	657	0	1312	0	210
Sign Control	Free	Free	Free	Stop	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	805	714	0	1426	0	228
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)	None			None		
Median type						
Median storage (veh)						
Upstream signal (ft)	442			634		
pX, platoon unblocked						
VC, conflicting volume		805			1518	402
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		805			934	402
IC, single (s)		4.1			6.8	6.9
IC, 2 stage (s)		2.2			3.5	3.3
p0 queue free %		100			100	62
IF (s)		815			190	597
CM capacity (veh/h)						
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	402	402	714	713	713	228
Volume Left	0	0	0	0	0	0
Volume Right	0	0	714	0	0	228
cSH	1700	1700	1700	1700	1700	597
Volume to Capacity	0.24	0.24	0.42	0.42	0.42	0.38
Queue Length 95th (ft)	0	0	0	0	0	45
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.7
Lane LOS						B
Approach Delay (s)	0.0			0.0		14.7
Approach LOS						B
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			44.0%			A
Analysis Period (min)			15			

Balboa Transit Station
8: Garnet Ave & Moraga Ave

Horizon Year with Preferred LU
 Timing Plan: AM Peak Period

Movement	EBL	EBT	WBL	WBT	SBL	SBR
Lane Group	EBL	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	338	988	1142	84	102	284
v/c Ratio	0.60	0.41	0.76	0.12	0.41	0.61
Control Delay	30.0	5.2	19.2	3.5	31.0	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	5.2	19.2	3.5	31.0	10.3
Queue Length 50th (ft)	60	67	181	0	36	1
Queue Length 95th (ft)	113	116	273	22	82	62
Internal Link Dist (ft)	554	3203			501	
Turn Bay Length (ft)	215		250	155		
Base Capacity (vph)	599	2779	1858	871	903	946
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.36	0.61	0.10	0.11	0.30
Intersection Summary						

Balboa Transit Station
8: Garnet Ave & Moraga Ave

Balboa Transit Station
9: Claremont Dr & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	311	909	1051	77	94	261
Future Volume (vph)	311	909	1051	77	94	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	6.5	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Flt	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)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	338	988	1142	84	102	284
RTOR Reduction (vph)	0	0	0	48	0	242
Lane Group Flow (vph)	338	988	1142	36	102	42
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	10.1	41.4	26.1	26.1	8.6	8.6
Effective Green, g (s)	10.1	41.4	26.1	26.1	8.6	8.6
Actuated g/C Ratio	0.16	0.68	0.43	0.43	0.14	0.14
Clearance Time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Vehicle Extension (s)	2.0	4.8	3.9	3.9	2.0	2.0
Lane Grp Cap (vph)	565	2390	1506	674	248	222
v/s Ratio Prot	c0.10	0.28	c0.32		c0.06	
v/s Ratio Perm				0.02		0.03
v/c Ratio	0.60	0.41	0.76	0.05	0.41	0.19
Uniform Delay, d1	23.7	4.5	14.9	10.3	24.0	23.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.2	2.4	0.0	0.4	0.1
Delay (s)	24.9	4.7	17.3	10.4	24.4	23.4
Level of Service	C	A	B	B	C	C
Approach Delay (s)		9.8	16.8		23.7	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay			14.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			61.3		Sum of lost time (s)	16.5
Intersection Capacity Utilization			57.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	202	884	472	913	137	441	478	228	684
v/c Ratio	0.71	0.85	0.94	0.75	0.64	0.59	0.68	0.95	0.77
Control Delay	59.2	41.0	70.7	31.6	55.1	36.8	24.4	91.6	31.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.2	41.0	70.7	31.6	55.1	36.8	24.4	91.6	31.7
Queue Length 50th (ft)	62	253	148	240	80	129	201	140	154
Queue Length 95th (ft)	#134	#419	#296	376	154	178	315	#338	231
Internal Link Dist (ft)		3203		630		1350			860
Turn Bay Length (ft)	240		220		200		100	120	
Base Capacity (vph)	287	1171	501	1354	304	1254	700	239	1177
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.75	0.94	0.67	0.45	0.35	0.68	0.95	0.58
Intersection Summary									
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.									

Balboa Transit Station
9: Clairemont Dr & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	HH	4B	4B	HH	4B	4B	HH	4B	4B	HH	4B	4B
Traffic Volume (vph)	186	752	62	434	716	124	126	406	440	210	344	285
Future Volume (vph)	186	752	62	434	716	124	126	406	440	210	344	285
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	6.4	6.4	4.4	5.3	4.4	4.4	4.4	5.3	5.3
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.95
Flt	1.00	0.99	1.00	0.98	1.00	0.98	1.00	1.00	0.85	1.00	0.93	0.93
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3499	3433	3461	3461	3433	3461	3433	3461	3433	3461	3433
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3499	3433	3461	3461	3433	3461	3433	3461	3433	3461	3433
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)	202	817	67	472	778	135	137	441	478	228	374	310
RTOR Reduction (vph)	0	6	0	0	12	0	0	0	0	49	0	146
Lane Group Flow (vph)	202	878	0	472	901	0	137	441	479	228	538	0
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	NA
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	7.8	27.8		13.8	33.1		11.5	19.9	33.7	12.8	21.2	
Effective Green, g (s)	7.8	27.8		13.8	33.1		11.5	19.9	33.7	12.8	21.2	
Actuated g/C Ratio	0.08	0.30		0.15	0.35		0.12	0.21	0.36	0.14	0.23	
Clearance Time (s)	4.4	5.7		4.4	6.4		4.4	5.3	4.4	4.4	5.3	
Vehicle Extension (s)	2.0	3.5		2.0	3.0		2.0	2.4	2.0	2.0	2.6	
Lane Grp Cap (vph)	284	1033		503	1217		216	748	566	240	743	
v/s Ratio Prot	0.06	c0.25		c0.14	0.26		0.08	0.12	0.11	c0.13	c0.16	
v/s Ratio Perm									0.16			
v/c Ratio	0.71	0.85		0.94	0.74		0.63	0.59	0.76	0.95	0.72	
Uniform Delay, d1	42.1	31.2		39.7	26.7		39.3	33.4	26.6	40.3	33.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.8	7.0		25.0	2.5		4.4	0.9	5.1	43.4	3.3	
Delay (s)	48.9	38.2		64.8	29.2		43.7	34.4	31.7	83.7	37.1	
Level of Service	D	D		E	C		D	C	C	F	D	
Approach Delay (s)		40.2			41.3			34.4			48.8	
Approach LOS		D			D			C			D	
Intersection Summary												
HCM 2000 Control Delay			40.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			94.1			Sum of lost time (s)				20.5		
Intersection Capacity Utilization			77.3%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
10: Olney St & Balboa Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	62	588	50	197	329	284
v/c Ratio	0.23	0.46	0.23	0.19	0.61	0.53
Control Delay	21.9	12.8	24.0	13.0	17.0	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	12.8	24.0	13.0	17.0	16.6
Queue Length 50th (ft)	14	41	11	18	59	56
Queue Length 95th (ft)	49	126	44	46	139	127
Internal Link Dist (ft)		1172		936	328	244
Turn Bay Length (ft)		150				
Base Capacity (vph)	321	1914	220	1709	1366	1424
Starvation Cap Reductn	0	0	0	0	0	14
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.31	0.23	0.12	0.24	0.20
Intersection Summary						

Balboa Transit Station
10: Olney St & Balboa Ave

Balboa Transit Station
11: Olney St & Grand Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (vph)	57	521	20	46	165	17	19	192	91	11	236	14
Future Volume (vph)	57	521	20	46	165	17	19	192	91	11	236	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	5.0		4.9				4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00				1.00	
Flt	1.00	0.99		1.00	0.99		0.96				0.99	
Flt Protected	0.95	1.00		0.95	1.00		1.00				1.00	
Satd. Flow (prot)	1770	3519		1770	3491		1781				1846	
Flt Permitted	0.95	1.00		0.95	1.00		0.97				0.98	
Satd. Flow (perm)	1770	3519		1770	3491		1728				1810	
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)	62	566	22	50	179	18	21	209	99	12	257	15
RTOR Reduction (vph)	0	4	0	0	10	0	0	29	0	0	4	0
Lane Group Flow (vph)	62	584	0	50	187	0	0	300	0	0	280	0
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		8		4	
Permitted Phases												
Actuated Green, G (s)	3.2	14.6		1.4	12.9		8		11.9		11.9	
Effective Green, g (s)	3.2	14.6		1.4	12.9		11.9		11.9		11.9	
Actuated g/C Ratio	0.08	0.35		0.03	0.30		0.28		0.28		0.28	
Clearance Time (s)	4.4	5.1		4.4	5.0		4.9		4.9		4.9	
Vehicle Extension (s)	2.0	2.8		2.0	2.5		2.0		2.0		2.0	
Lane Grp Cap (vph)	133	1214		58	1064		486		509		509	
v/s Ratio Prot	c0.04	c0.17		0.03	0.05		c0.17		0.15		0.15	
v/s Ratio Perm				0.86	0.18		0.62		0.55		0.55	
Uniform Delay, d1	18.7	10.9		20.4	10.8		13.2		12.9		12.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00		1.00	
Incremental Delay, d2	0.9	0.3		68.8	0.1		1.6		0.7		0.7	
Delay (s)	19.7	11.1		89.2	10.9		14.9		13.7		13.7	
Level of Service	B	B		F	B		B		B		B	
Approach Delay (s)		12.0			26.7		14.9		13.7		13.7	
Approach LOS		B			C		B		B		B	
Intersection Summary												
HCM 2000 Control Delay			15.3			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			42.3			Sum of lost time (s)				14.4		
Intersection Capacity Utilization			53.5%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	30	1382	49	574	639	319
v/c Ratio	0.32	0.97	0.69	0.40	0.83	1.03
Control Delay	57.5	49.0	94.7	23.3	33.4	89.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	49.0	94.7	23.3	33.4	89.2
Queue Length 50th (ft)	20	~493	35	107	326	~230
Queue Length 95th (ft)	51	#656	m#95	203	#539	#406
Internal Link Dist (ft)		276		1076	315	328
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	101	1430	71	1449	770	311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.97	0.69	0.40	0.83	1.03
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
11: Olney St & Grand Ave

Balboa Transit Station
12: Grand Ave & Culver St

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (vph)	28	1247	25	45	479	49	34	193	361	163	114	17
Future Volume (vph)	28	1247	25	45	479	49	34	193	361	163	114	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.4	4.4	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	1.00	1.00	0.99	1.00	0.92	0.92	1.00	0.97	0.99	0.99
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	0.97	0.97	0.97	0.97
Satd. Flow (prot)	1770	3529	1770	1770	3490	1770	1704	1704	1799	1799	1799	1799
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.96	0.96	0.38	0.38	0.38	0.38
Satd. Flow (perm)	1770	3529	1770	1770	3490	1770	1648	1648	711	711	711	711
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)	30	1355	27	49	521	53	37	210	392	177	124	18
RTOR Reduction (vph)	0	1	0	0	7	0	0	54	0	0	2	0
Lane Group Flow (vph)	30	1381	0	49	567	0	0	585	0	0	317	0
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	NA
Protected Phases	5	2		1	6		8			4		4
Permitted Phases							8			4		
Actuated Green, G (s)	3.7	42.1	3.4	3.4	42.0			46.1			46.1	
Effective Green, g (s)	3.7	42.1	3.4	3.4	42.0			46.1			46.1	
Actuated g/C Ratio	0.03	0.40	0.03	0.40	0.40			0.43			0.43	
Clearance Time (s)	4.4	5.1	4.4	4.4	4.9			4.9			4.9	
Vehicle Extension (s)	2.0	5.4	2.0	2.0	5.5			2.0			2.0	
Lane Grp Cap (vph)	61	1401	56	1382			716				309	
v/s Ratio Prot	0.02	c0.39	c0.03	0.16							c0.45	
v/s Ratio Perm							0.36				1.03	
v/c Ratio	0.49	0.99	0.88	0.41			0.82				1.03	
Uniform Delay, d1	50.2	31.6	51.1	23.1			26.3				29.9	
Progression Factor	1.00	1.00	1.03	1.01			1.00				1.00	
Incremental Delay, d2	2.3	20.8	72.7	0.9			6.8				57.8	
Delay (s)	52.5	52.5	125.1	24.1			33.1				87.7	
Level of Service	D	D	F	C			C				F	
Approach Delay (s)	52.5		32.0				33.1				87.7	
Approach LOS	D		C				C				F	
Intersection Summary												
HCM 2000 Control Delay			47.8				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			14.4		
Intersection Capacity Utilization			99.9%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	70	1751	669	238
v/c Ratio	0.49	0.67	0.31	0.77
Control Delay	51.8	4.7	9.5	55.9
Queue Delay	0.0	0.5	0.3	0.0
Total Delay	51.8	5.2	9.7	55.9
Queue Length 50th (ft)	48	146	107	148
Queue Length 95th (ft)	m50	m172	180	217
Internal Link Dist (ft)		1076	211	186
Turn Bay Length (ft)	55			
Base Capacity (vph)	188	2600	2188	434
Starvation Cap Reductn	0	0	801	0
Spillback Cap Reductn	0	392	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.79	0.48	0.55
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
12: Grand Ave & Culver St

Balboa Transit Station
13: Lee St & Grand Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBU	WBT	SBL	SBR
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (vph)	64	1611	0	496	120	171
Future Volume (vph)	64	1611	0	496	120	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.97
Flt	1.00	1.00	0.97	1.00	0.96	0.96
Flt Protected	0.95	1.00	1.00	0.96	0.96	0.96
Satd. Flow (prot)	1770	3539	3436	1740	0.96	0.96
Flt Permitted	0.95	1.00	1.00	0.96	0.96	0.96
Satd. Flow (perm)	1770	3539	3436	1740	0.96	0.96
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	1751	0	539	130	186
RTOR Reduction (vph)	0	0	0	15	0	11
Lane Group Flow (vph)	70	1751	0	654	0	227
Turn Type	Prot	NA	Prot	NA	Prot	Prot
Protected Phases	5	2	1	6	4	4
Permitted Phases						
Actuated Green, G (s)	7.5	77.9	66.2	66.2	18.1	18.1
Effective Green, g (s)	7.5	77.9	66.2	66.2	18.1	18.1
Actuated g/C Ratio	0.07	0.73	0.62	0.62	0.17	0.17
Clearance Time (s)	4.4	5.1	4.9	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.2	4.1	4.1	2.0	2.0
Lane Grp Cap (vph)	125	2600		2145	297	
v/s Ratio Prot	0.04	cd.49		0.19	cd.13	
v/s Ratio Perm						
v/c Ratio	0.56	0.67		0.30	0.77	
Uniform Delay, d1	47.7	7.4		9.2	41.9	
Progression Factor	1.04	0.50		0.92	1.00	
Incremental Delay, d2	1.1	0.5		0.4	10.1	
Delay (s)	50.6	4.1		8.8	52.0	
Level of Service	D	A		A	D	
Approach Delay (s)		5.9		8.8	52.0	
Approach LOS		A		A	D	
Intersection Summary						
HCM 2000 Control Delay			10.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			106.0		Sum of lost time (s)	14.4
Intersection Capacity Utilization			72.3%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1898	141	671	109
v/c Ratio	0.81	0.67	0.23	0.61
Control Delay	12.1	59.1	2.6	42.2
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	12.2	59.1	2.6	42.2
Queue Length 50th (ft)	334	93	38	43
Queue Length 95th (ft)	#790	151	70	95
Internal Link Dist (ft)	211		1401	337
Turn Bay Length (ft)		400		
Base Capacity (vph)	2338	274	2902	545
Starvation Cap Reductn	25	0	0	0
Spillback Cap Reductn	0	0	11	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.82	0.51	0.23	0.20
Intersection Summary				
# 95th percentile volume exceeds capacity, queue may be longer.				
Queue shown is maximum after two cycles.				

Balboa Transit Station
13: Lee St & Grand Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (vph)	1698	48	130	617	52	48
Future Volume (vph)	1698	48	130	617	52	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.4	4.9		
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	
Flt	1.00	1.00	1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3525		1770	3539	1698	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3525		1770	3539	1698	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1846	52	141	671	57	52
RTOR Reduction (vph)	1	0	0	0	40	0
Lane Group Flow (vph)	1897	0	141	671	69	0
Turn Type	NA	Prot	Prot	NA	Prot	
Protected Phases	2		1	6	8	
Permitted Phases						
Actuated Green, G (s)	70.3		12.7	86.9	8.8	
Effective Green, g (s)	70.3		12.7	86.9	8.8	
Actuated g/C Ratio	0.66		0.12	0.82	0.08	
Clearance Time (s)	4.9		4.4	5.4	4.9	
Vehicle Extension (s)	4.0		2.0	4.4	2.0	
Lane Grp Cap (vph)	2337		212	2901	140	
v/s Ratio Prot	0.54		0.08	0.19	0.04	
v/s Ratio Perm						
v/c Ratio	0.81		0.67	0.23	0.49	
Uniform Delay, d1	13.0		44.6	2.1	46.5	
Progression Factor	0.60		1.00	1.00	1.00	
Incremental Delay, d2	2.4		6.0	0.2	1.0	
Delay (s)	10.2		50.6	2.3	47.4	
Level of Service	B		D	A	D	
Approach Delay (s)	10.2			10.7	47.4	
Approach LOS	B			B	D	
Intersection Summary						
HCM 2000 Control Delay			11.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.76			
Actuated Cycle Length (s)			106.0		Sum of lost time (s)	14.2
Intersection Capacity Utilization			73.3%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Lane Group	EBL	EBT	WBT
Lane Group Flow (vph)	141	1845	771
v/c Ratio	0.73	0.52	0.27
Control Delay	86.0	0.6	1.1
Queue Delay	0.0	0.0	0.0
Total Delay	86.0	0.6	1.1
Queue Length 50th (ft)	136	0	14
Queue Length 95th (ft)	204	0	23
Internal Link Dist (ft)		605	773
Turn Bay Length (ft)	90		
Base Capacity (vph)	260	3539	2898
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.54	0.52	0.27
Intersection Summary			

Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Balboa Transit Station
15: Grand Ave & Mission Bay Dr

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	130	1697	662	47	0	0
Future Volume (vph)	130	1697	662	47	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.3	5.3			
Lane Util. Factor	1.00	0.95	0.95			
Flt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	3539	3504			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1770	3539	3504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	1845	720	51	0	0
RTOR Reduction (vph)	0	0	1	0	0	0
Lane Group Flow (vph)	141	1845	770	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	16.3	150.0	124.0			
Effective Green, g (s)	16.3	150.0	124.0			
Actuated g/C Ratio	0.11	1.00	0.83			
Clearance Time (s)	4.4	5.3	5.3			
Vehicle Extension (s)	2.0	4.4	4.4			
Lane Grp Cap (vph)	192	3539	2896			
v/s Ratio Prot	c0.08	c0.52	0.22			
v/s Ratio Perm						
v/c Ratio	0.73	0.52	0.27			
Uniform Delay, d1	64.8	0.0	2.9			
Progression Factor	1.00	1.00	0.29			
Incremental Delay, d2	11.8	0.6	0.2			
Delay (s)	76.5	0.6	1.0			
Level of Service	E	A	A			
Approach Delay (s)	5.9	1.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
HCM 2000 Control Delay			4.6	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			150.0	Sum of lost time (s)		12.7
Intersection Capacity Utilization			51.3%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	299	1632	530	975	918	99
v/c Ratio	0.84	0.82	0.55	0.67	0.87	0.06
Control Delay	47.2	17.5	30.3	9.0	38.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	1.6	0.0
Total Delay	47.2	17.5	30.3	9.0	40.3	0.1
Queue Length 50th (ft)	131	309	116	0	300	0
Queue Length 95th (ft)	#189	358	195	192	358	0
Internal Link Dist (ft)		773	535		495	
Turn Bay Length (ft)		225				150
Base Capacity (vph)	391	1982	960	1466	1103	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	73	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.82	0.55	0.67	0.89	0.06
Intersection Summary						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						

Balboa Transit Station
15: Grand Ave & Mission Bay Dr

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	275	1501	488	897	845	91
Future Volume (vph)	275	1501	488	897	845	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	4.9	5.7	4.9	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	0.88	0.97	1.00
Flt	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	2787	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	2787	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	299	1632	530	975	918	99
RTOR Reduction (vph)	0	0	0	711	0	0
Lane Group Flow (vph)	299	1632	530	264	918	99
Turn Type	Prot	NA	NA	Prot	Prot	Free
Protected Phases	5	2	6	6	4	
Permitted Phases						Free
Actuated Green, G (s)	15.2	42.0	20.3	20.3	23.2	75.0
Effective Green, g (s)	15.2	42.0	20.3	20.3	23.2	75.0
Actuated g/C Ratio	0.20	0.56	0.27	0.27	0.31	1.00
Clearance Time (s)	5.7	4.9	5.7	5.7	4.9	
Vehicle Extension (s)	2.0	3.6	2.0	2.0	3.6	
Lane Grp Cap (vph)	358	1981	957	754	1061	1583
v/s Ratio Prot	0.17	d0.46	0.15	0.09	d0.27	
v/s Ratio Perm	0.84	0.82	0.55	0.35	0.87	0.06
Uniform Delay, d1	28.7	13.5	23.5	22.0	24.4	0.0
Progression Factor	1.00	1.00	1.14	3.38	1.21	1.00
Incremental Delay, d2	13.2	3.6	2.2	1.2	7.5	0.1
Delay (s)	41.9	17.1	29.0	75.7	37.0	0.1
Level of Service	D	B	C	E	D	A
Approach Delay (s)		20.9	59.3		33.4	
Approach LOS		C	E		C	
Intersection Summary						
HCM 2000 Control Delay			36.7		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			75.0		Sum of lost time (s)	16.3
Intersection Capacity Utilization			73.8%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	931	110	1472	834	278
v/c Ratio	0.87	0.60	0.74	0.56	0.36
Control Delay	33.2	39.9	21.7	20.0	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	39.9	21.7	20.0	8.3
Queue Length 50th (ft)	197	56	526	166	31
Queue Length 95th (ft)	262	115	627	231	88
Internal Link Dist (ft)	261		749	743	
Turn Bay Length (ft)	270	205			70
Base Capacity (vph)	1175	204	1996	1484	767
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.79	0.54	0.74	0.56	0.36
Intersection Summary					

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W	W	W	W	W	W
Traffic Volume (vph)	728	129	101	1354	767	256
Future Volume (vph)	728	129	101	1354	767	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.6	5.6	5.6
Lane Util. Factor	0.97	1.00	0.95	0.95	1.00	1.00
Flt	0.98	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.96	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3388	1770	3539	3539	1583	1583
Flt Permitted	0.96	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3388	1770	3539	3539	1583	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	791	140	110	1472	834	278
RTOR Reduction (vph)	21	0	0	0	0	105
Lane Group Flow (vph)	910	0	110	1472	834	173
Turn Type	Prot	Prot	Prot	NA	NA	Perm
Protected Phases	4	5	2	6	6	6
Permitted Phases						
Actuated Green, G (s)	23.3	6.7	42.3	30.6	30.6	30.6
Effective Green, g (s)	23.3	6.7	42.3	30.6	30.6	30.6
Actuated g/C Ratio	0.31	0.09	0.56	0.41	0.41	0.41
Clearance Time (s)	4.4	4.4	5.0	5.6	5.6	5.6
Vehicle Extension (s)	2.0	2.0	4.0	4.8	4.8	4.8
Lane Grp Cap (vph)	1062	158	1995	1443	645	645
v/s Ratio Prot	0.27	0.06	0.42	0.24	0.11	0.11
v/s Ratio Perm	0.87	0.70	0.74	0.58	0.27	0.27
Uniform Delay, d1	24.4	33.2	12.2	17.2	14.8	14.8
Progression Factor	1.00	0.89	1.54	1.00	1.00	1.00
Incremental Delay, d2	7.3	8.3	2.0	1.7	1.0	1.0
Delay (s)	31.7	37.9	20.8	18.9	15.8	15.8
Level of Service	C	D	C	C	B	B
Approach Delay (s)	31.7		22.0	18.1		
Approach LOS	C		C	B		
Intersection Summary						
HCM 2000 Control Delay		23.3		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio		0.85				
Actuated Cycle Length (s)		75.0		Sum of lost time (s)		14.4
Intersection Capacity Utilization		70.1%		ICU Level of Service		C
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	93	64	1542	138	82	847
v/c Ratio	0.65	0.34	0.62	0.12	0.37	0.28
Control Delay	86.0	18.4	13.8	4.3	74.9	4.0
Queue Delay	0.0	0.0	11.7	0.0	0.0	0.0
Total Delay	86.0	18.4	25.6	4.3	74.9	4.0
Queue Length 50th (ft)	90	0	391	19	83	174
Queue Length 95th (ft)	148	46	512	47	m137	228
Internal Link Dist (ft)	1203		376			749
Turn Bay Length (ft)		75		160	185	
Base Capacity (vph)	361	373	2475	1128	224	3022
Starvation Cap Reductn	0	0	930	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.17	1.00	0.12	0.37	0.28
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (vph)	86	59	1419	127	75	779
Future Volume (vph)	86	59	1419	127	75	779
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Flt	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)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	64	1542	138	82	847
RTOR Reduction (vph)	0	59	0	21	0	0
Lane Group Flow (vph)	93	5	1542	117	82	847
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4		2		
Actuated Green, G (s)	12.3	12.3	104.9	104.9	19.0	128.1
Effective Green, g (s)	12.3	12.3	104.9	104.9	19.0	128.1
Actuated g/C Ratio	0.08	0.08	0.70	0.70	0.13	0.85
Clearance Time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Vehicle Extension (s)	2.0	2.0	3.8	3.8	2.0	3.5
Lane Grp Cap (vph)	145	129	2474	1107	224	3022
v/s Ratio Prot	c0.05		c0.44		c0.05	0.24
v/s Ratio Perm		0.00		0.07		
v/c Ratio	0.64	0.04	0.62	0.11	0.37	0.28
Uniform Delay, d1	66.7	63.4	12.0	7.3	60.0	2.1
Progression Factor	1.00	1.00	1.00	1.00	1.17	1.64
Incremental Delay, d2	7.1	0.0	1.2	0.2	0.3	0.2
Delay (s)	73.8	63.5	13.2	7.5	70.7	3.6
Level of Service	E	E	B	A	E	A
Approach Delay (s)	69.6		12.7		9.6	
Approach LOS	E		B		A	
Intersection Summary						
HCM 2000 Control Delay			14.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.59			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	13.8
Intersection Capacity Utilization			59.6%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	376	16	60	1260	35	1118
v/c Ratio	1.14	0.05	0.59	0.54	0.42	0.50
Control Delay	139.4	36.9	105.1	10.7	83.6	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.3
Total Delay	139.4	36.9	105.1	10.7	83.6	16.3
Queue Length 50th (ft)	-406	9	60	342	34	294
Queue Length 95th (ft)	#617	30	m103	492	73	352
Internal Link Dist (ft)	303	271		804		461
Turn Bay Length (ft)			65		50	
Base Capacity (vph)	331	313	119	2318	107	2254
Starvation Cap Reductn	0	0	0	0	0	863
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.05	0.50	0.54	0.33	0.80
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	173	10	163	8	2	5	55	1153	6	32	899	130
Future Volume (vph)	173	10	163	8	2	5	55	1153	6	32	899	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		4.9	4.9	4.9	4.4	5.0		4.4	5.0		
Lane Util. Factor	1.00		1.00	1.00	1.00	0.95	1.00		0.95	1.00		
Flt	0.94		0.96	0.96	0.96	1.00	1.00		1.00	0.98		
Flt Protected	0.98		0.97	0.97	0.95	1.00	1.00		0.95	1.00		
Satd. Flow (prot)	1702		1735	1735	1770	3536	1770		3472	3472		
Flt Permitted	0.83		0.81	0.81	0.95	1.00	0.95		0.95	1.00		
Satd. Flow (perm)	1454		1451	1451	1770	3536	1770		3472	3472		
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)	188	11	177	9	2	5	60	1253	7	35	977	141
RTOR Reduction (vph)	0	21	0	0	4	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	355	0	0	12	0	60	1260	0	35	1111	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	8		4		4		1		6		5	
Permitted Phases	8		4		4		6		6		5	
Actuated Green, G (s)	32.0		32.0		32.0		7.5		97.5		6.2	
Effective Green, g (s)	32.0		32.0		32.0		7.5		97.5		6.2	
Actuated g/C Ratio	0.21		0.21		0.21		0.05		0.65		0.04	
Clearance Time (s)	4.9		4.9		4.9		4.4		5.0		4.4	
Vehicle Extension (s)	2.0		2.0		2.0		2.0		3.7		2.0	
Lane Grp Cap (vph)	310		309		309		88		2298		73	
v/s Ratio Prot							c0.03		c0.36		0.02	
v/s Ratio Perm							0.68		0.55		0.48	
v/c Ratio	1.14		0.04		0.04		70.1		14.3		70.3	
Uniform Delay, d1	59.0		46.8		46.8		70.1		14.3		70.3	
Progression Factor	1.00		1.00		1.00		1.24		0.69		1.00	
Incremental Delay, d2	96.1		0.0		0.0		13.5		0.8		1.8	
Delay (s)	155.1		46.8		46.8		100.4		10.6		72.1	
Level of Service	F		D		D		F		B		E	
Approach Delay (s)	155.1		46.8		46.8		14.7		16.7		16.7	
Approach LOS	F		D		D		B		B		B	
Intersection Summary												
HCM 2000 Control Delay			34.1				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)				14.3	
Intersection Capacity Utilization			71.6%				ICU Level of Service				C	
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
19: Mission Bay Dr & Bunker Hill St

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Lane Group	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	144	1290	282	911
v/c Ratio	0.54	0.61	1.19	0.32
Control Delay	12.4	14.7	147.6	3.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.4	14.7	147.6	3.1
Queue Length 50th (ft)	0	227	-212	80
Queue Length 95th (ft)	38	323	m#367	m154
Internal Link Dist (ft)	514	495		804
Turn Bay Length (ft)			90	
Base Capacity (vph)	515	2104	236	2806
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.28	0.61	1.19	0.32
Intersection Summary				
~ Volume exceeds capacity, queue is theoretically infinite.				
Queue shown is maximum after two cycles.				
# 95th percentile volume exceeds capacity, queue may be longer.				
Queue shown is maximum after two cycles.				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
19: Mission Bay Dr & Bunker Hill St

Balboa Transit Station
20: Mission Bay Dr & Rosewood St

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	45	0	87	0	1076	110	259	838	0
Traffic Volume (vph)	0	0	0	45	0	87	0	1076	110	259	838	0
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Total Lost time (s)	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Lane Util. Factor	0.91	0.91	0.91	0.99	0.91	0.99	0.91	0.99	0.91	0.99	0.91	0.99
Flt Protected	0.98	0.98	0.98	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98	1.00
Satd. Flow (prot)	1668	1668	1668	3490	1668	3490	1668	3490	1668	3490	1668	3490
Flt Permitted	0.89	0.89	0.89	1.00	0.89	1.00	0.89	1.00	0.89	1.00	0.89	1.00
Satd. Flow (perm)	1504	1504	1504	3490	1504	3490	1504	3490	1504	3490	1504	3490
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)	0	0	0	49	0	95	0	1170	120	282	911	0
RTOR Reduction (vph)	0	0	0	133	0	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	11	0	0	1283	0	282	911	0
Turn Type	Protected Phases	4	4	Perm	NA	NA	Prot	NA	Prot	Prot	NA	NA
Permitted Phases	4	4	4	4	4	4	1	6	5	5	2	2
Actuated Green, G (s)	5.6	5.6	5.6	5.6	5.6	5.6	45.1	45.1	10.0	10.0	59.5	59.5
Effective Green, g (s)	5.6	5.6	5.6	5.6	5.6	5.6	45.1	45.1	10.0	10.0	59.5	59.5
Actuated g/C Ratio	0.07	0.07	0.07	0.07	0.07	0.07	0.60	0.60	0.13	0.13	0.79	0.79
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	5.0	5.0	4.4	4.4	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	3.2	3.2	2.0	2.0	3.2	3.2
Lane Grp Cap (vph)	112	112	112	2098	112	2098	236	2807	236	2807	236	2807
v/s Ratio Prot	0.01	0.01	0.01	0.16	0.01	0.16	0.16	0.26	0.16	0.16	0.26	0.26
v/s Ratio Perm	0.10	0.10	0.10	0.61	0.10	0.61	1.19	0.32	1.19	0.32	1.19	0.32
Uniform Delay, d1	32.3	32.3	32.3	9.4	32.3	9.4	32.5	2.2	32.5	2.2	32.5	2.2
Progression Factor	1.00	1.00	1.00	1.43	1.00	1.43	0.96	1.24	0.96	0.96	1.24	0.96
Incremental Delay, d2	0.1	0.1	0.1	1.0	0.1	1.0	116.7	0.3	116.7	0.3	116.7	0.3
Delay (s)	32.5	32.5	32.5	14.5	32.5	14.5	147.9	2.9	147.9	2.9	147.9	2.9
Level of Service	C	C	C	B	C	B	F	A	F	F	A	A
Approach Delay (s)	0.0	0.0	0.0	32.5	0.0	32.5	14.5	37.2	14.5	14.5	37.2	37.2
Approach LOS	A	A	A	C	A	C	B	D	B	B	D	D
Intersection Summary												
HCM 2000 Control Delay	25.8	25.8	25.8	HCM 2000 Level of Service	C	C	C	C	C	C	C	C
HCM 2000 Volume to Capacity ratio	0.66	0.66	0.66									
Actuated Cycle Length (s)	75.0	75.0	75.0	Sum of lost time (s)	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Intersection Capacity Utilization	67.4%	67.4%	67.4%	ICU Level of Service	C	C	C	C	C	C	C	C
Analysis Period (min)	15	15	15									
c Critical Lane Group												

Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	1496	17	2578
v/c Ratio	0.16	0.33	0.11	0.79
Control Delay	18.8	2.5	34.8	4.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.8	2.5	34.8	4.5
Queue Length 50th (ft)	2	0	8	2
Queue Length 95th (ft)	23	142	m9	480
Internal Link Dist (ft)	221	960	60	535
Turn Bay Length (ft)	365	4512	148	3256
Base Capacity (vph)	0	0	0	23
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.07	0.33	0.11	0.80
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
20: Mission Bay Dr & Rosewood St

Balboa Transit Station
21: Santa Fe St & Damon Ave

Horizon Year with Preferred LU
Timing Plan: AM Peak Period







Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		4+4+4		4	4+4
Traffic Volume (vph)	4	18	1355	21	16	2372
Future Volume (vph)	4	18	1355	21	16	2372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.95	1.00	0.95
Flt	0.89	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.99		1.00	0.95	1.00	
Satd. Flow (prot)	1640		5074	1770	3539	
Flt Permitted	0.99		1.00	0.95	1.00	
Satd. Flow (perm)	1640		5074	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	20	1473	23	17	2578
RTOR Reduction (vph)	19	0	1	0	0	0
Lane Group Flow (vph)	5	0	1495	0	17	2578
Turn Type	Prot		NA	Prot	NA	
Protected Phases	8		2	1	6	
Permitted Phases						
Actuated Green, G (s)	2.8		58.7	1.5	64.2	
Effective Green, g (s)	2.8		58.7	1.5	64.2	
Actuated g/C Ratio	0.04		0.78	0.02	0.86	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	61		3971	35	3029	
v/s Ratio Prot	c0.00		0.29	0.01	c0.73	
v/s Ratio Perm						
v/c Ratio	0.08		0.38	0.49	0.85	
Uniform Delay, d1	34.9		2.5	36.4	2.9	
Progression Factor	1.00		1.00	1.08	0.97	
Incremental Delay, d2	0.5		0.3	5.8	1.8	
Delay (s)	35.4		2.8	45.1	4.6	
Level of Service	D		A	D	A	
Approach Delay (s)	35.4		2.8		4.9	
Approach LOS	D		A		A	
Intersection Summary						
HCM 2000 Control Delay			4.3		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			75.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			75.6%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	4	Stop
Sign Control	Stop			Stop	Stop	Stop
Traffic Volume (vph)	129	37	21	134	47	88
Future Volume (vph)	129	37	21	134	47	88
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	140	40	23	146	51	96
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	180	169	147			
Volume Left (vph)	140	23	0			
Volume Right (vph)	40	0	96			
Had (s)	0.06	0.06	-0.36			
Departure Headway (s)	4.7	4.6	4.2			
Degree Utilization, x	0.23	0.21	0.17			
Capacity (veh/h)	722	751	809			
Control Delay (s)	9.1	8.8	8.1			
Approach Delay (s)	9.1	8.8	8.1			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.7			
Level of Service			A			
Intersection Capacity Utilization			35.5%			
Analysis Period (min)			15			
						A

Balboa Transit Station
22: Morena Blvd & Jutland Dr

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Volume (vph)	190	13	257	391	4	164
Future Volume (vph)	190	13	257	391	4	164
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	207	14	279	425	4	178
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	207	14	279	425	63	119
Volume Left (vph)	207	0	0	0	4	0
Volume Right (vph)	0	14	0	425	0	0
Head (s)	0.53	-0.67	0.03	-0.67	0.07	0.03
Departure Headway (s)	7.0	5.8	5.6	4.9	6.2	6.2
Degree Utilization, x	0.40	0.02	0.43	0.58	0.11	0.20
Capacity (veh/h)	486	574	628	720	551	556
Control Delay (s)	13.4	7.7	11.6	13.1	8.7	9.5
Approach Delay (s)	13.0		12.5		9.2	
Approach LOS	B		B		A	
Intersection Summary						
Delay	12.1					
Level of Service	B					
Intersection Capacity Utilization	35.5%					
Analysis Period (min)	15					
	ICU Level of Service					
	A					

Balboa Transit Station
23: Morena Blvd & Costco Dwy

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	WBL	NBT	SBL	SBT
Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	170	844	46	312
v/c Ratio	0.24	0.45	0.17	0.14
Control Delay	10.8	8.5	18.4	4.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.8	8.5	18.4	4.2
Queue Length 50th (ft)	7	39	7	12
Queue Length 95th (ft)	31	123	33	26
Internal Link Dist (ft)	195	3170	110	1658
Turn Bay Length (ft)	2556	2101	265	2849
Base Capacity (vph)	0	0	0	0
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.07	0.40	0.17	0.11
Intersection Summary				

Balboa Transit Station
23: Morena Blvd & Costco Dwy

Balboa Transit Station
24: Morena Blvd & Avati Dr

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W<W<W		W<W		W<W	W<W
Traffic Volume (vph)	100	56	654	122	42	287
Future Volume (vph)	100	56	654	122	42	287
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.5			5.5
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00
Flt	0.95	0.98	1.00	1.00	1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	3313		3456		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	3313		3456		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	61	711	133	46	312
RTOR Reduction (vph)	53	0	21	0	0	0
Lane Group Flow (vph)	117	0	823	0	46	312
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	4.5		14.5		1.2	20.1
Effective Green, g (s)	4.5		14.5		1.2	20.1
Actuated g/C Ratio	0.13		0.41		0.03	0.57
Clearance Time (s)	4.9		5.5		4.4	5.5
Vehicle Extension (s)	2.0		2.8		2.0	2.8
Lane Grp Cap (vph)	425		1431		60	2032
v/s Ratio Prot	c0.04		c0.24		c0.03	0.09
v/s Ratio Perm						
v/c Ratio	0.27		0.58		0.77	0.15
Uniform Delay, d1	13.8		7.9		16.8	3.5
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.1		0.5		40.0	0.0
Delay (s)	13.9		8.4		56.7	3.5
Level of Service	B		A		E	A
Approach Delay (s)	13.9		8.4			10.3
Approach LOS	B		A			B
Intersection Summary						
HCM 2000 Control Delay			9.6		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.52			
Actuated Cycle Length (s)			35.0		Sum of lost time (s)	14.8
Intersection Capacity Utilization			42.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	241	41	870	126	22	387
v/c Ratio	0.33	0.11	0.52	0.08	0.11	0.22
Control Delay	15.4	7.4	9.1	0.4	20.6	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	7.4	9.1	0.4	20.6	5.4
Queue Length 50th (ft)	18	0	50	0	4	18
Queue Length 95th (ft)	60	20	146	7	24	39
Internal Link Dist (ft)	317		2205			3170
Turn Bay Length (ft)		135		115	120	
Base Capacity (vph)	2682	1248	3219	1574	194	3187
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.27	0.08	0.11	0.12
Intersection Summary						

Balboa Transit Station
24: Morena Blvd & Avati Dr

Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↔	↔↔	↔	↔	↔↔
Traffic Volume (vph)	222	38	0	800	116	20	356
Future Volume (vph)	222	38	0	800	116	20	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)	-10%			-3%			0%
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	5.7	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95	
Flt	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3605	1662	3592	1607	1770	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3605	1662	3592	1607	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	241	41	0	870	126	22	387
RTOR Reduction (vph)	0	33	0	0	49	0	0
Lane Group Flow (vph)	241	8	0	870	77	22	387
Turn Type	Prot	Prot	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	7	1	6	7	5	2
Permitted Phases				6			5
Actuated Green, G (s)	7.7	7.7	7.7	17.7	25.4	0.6	23.0
Effective Green, g (s)	7.7	7.7	7.7	17.7	25.4	0.6	23.0
Actuated g/C Ratio	0.19	0.19	0.43	0.62	0.01	0.56	
Clearance Time (s)	4.9	4.9	6.0	4.9	4.4	5.7	
Vehicle Extension (s)	2.0	2.0	5.2	2.0	2.0	5.0	
Lane Grp Cap (vph)	672	309	1539	988	25	1970	
v/s Ratio Prot	c0.07	0.00	c0.24	0.01	c0.01	0.11	
v/s Ratio Perm				0.03			
v/c Ratio	0.36	0.02	0.57	0.08	0.88	0.20	
Uniform Delay, d1	14.6	13.7	8.9	3.2	20.3	4.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.0	0.8	0.0	124.9	0.1	
Delay (s)	14.8	13.7	9.7	3.2	145.2	4.7	
Level of Service	B	B	A	A	F	A	
Approach Delay (s)	14.6		8.9			12.2	
Approach LOS	B		A			B	
Intersection Summary							
HCM 2000 Control Delay			10.7		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.51				
Actuated Cycle Length (s)			41.3		Sum of lost time (s)		15.3
Intersection Capacity Utilization			37.5%		ICU Level of Service		A
Analysis Period (min)			15				
c. Critical Lane Group							

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	98	164	304	1546	237	446
v/c Ratio	0.30	0.39	0.60	0.60	0.21	0.28
Control Delay	21.3	7.2	21.2	5.9	14.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	7.2	21.2	5.9	14.0	0.4
Queue Length 50th (ft)	25	0	75	102	25	0
Queue Length 95th (ft)	62	40	153	190	54	0
Internal Link Dist (ft)	463			933	2205	
Turn Bay Length (ft)		50	200			100
Base Capacity (vph)	677	706	677	2777	1353	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.23	0.45	0.56	0.18	0.28
Intersection Summary						

Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Balboa Transit Station
26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

		Timing Plan: AM Peak Period				Horizon Year with Preferred LU			
		EBL	EBR	NBL	NBT	SBT	SBR		
Movement		EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations		90	151	280	1422	218	410		
Traffic Volume (vph)		90	151	280	1422	218	410		
Future Volume (vph)		1900	1900	1900	1900	1900	1900		
Ideal Flow (vphpl)		4.0	4.0	4.0	4.0	4.0	4.0		
Total Lost time (s)		1.00	1.00	1.00	0.95	0.95	1.00		
Lane Util. Factor		1.00	0.85	1.00	1.00	1.00	0.85		
Flt Protected		0.95	1.00	0.95	1.00	1.00	1.00		
Satd. Flow (prot)		1770	1583	1770	3539	3539	1583		
Flt Permitted		0.95	1.00	0.95	1.00	1.00	1.00		
Satd. Flow (perm)		1770	1583	1770	3539	3539	1583		
Peak-hour factor, PHF		0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)		98	164	304	1546	237	446		
RTOR Reduction (vph)		0	141	0	0	0	0		
Lane Group Flow (vph)		98	23	304	1546	237	446		
Turn Type		Perm	Perm	Prot	NA	NA	Free		
Protected Phases		4	4	5	2	6	Free		
Permitted Phases		4	4	5	2	6	Free		
Actuated Green, G (s)		6.4	6.4	12.9	31.4	14.5	45.8		
Effective Green, g (s)		6.4	6.4	12.9	31.4	14.5	45.8		
Actuated g/C Ratio		0.14	0.14	0.28	0.69	0.32	1.00		
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	4.0		
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		247	221	498	2426	1120	1583		
v/s Ratio Prot		0.06	0.01	0.17	0.44	0.07	0.28		
v/s Ratio Perm		0.40	0.10	0.61	0.64	0.21	0.28		
Uniform Delay, d1		17.9	17.2	14.3	4.0	11.5	0.0		
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2		1.1	0.2	2.2	0.6	0.1	0.4		
Delay (s)		19.0	17.4	16.5	4.6	11.6	0.4		
Level of Service		B	B	B	A	B	A		
Approach Delay (s)		18.0			6.5	4.3			
Approach LOS		B			A	A			
Intersection Summary									
HCM 2000 Control Delay				7.1	HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio				0.68					
Actuated Cycle Length (s)				45.8	Sum of lost time (s)		12.0		
Intersection Capacity Utilization				51.0%	ICU Level of Service		A		
Analysis Period (min)				15					
Critical Lane Group									

Balboa Transit Station
26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

Balboa Transit Station
27: Morena Blvd & Baker St

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	29	10	1	140	77	440	9	953	150	50	272	47
Future Volume (vph)	29	10	1	140	77	440	9	953	150	50	272	47
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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Flt	1.00	0.99		1.00	0.85	1.00	0.98	1.00	0.98	1.00	0.98	1.00
Flt Protected	0.95	1.00		0.97	1.00	0.97	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1839		1805	1583	1770	3467	1770	3467	1770	3461	1770
Flt Permitted	0.95	1.00		0.97	1.00	0.97	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	1839		1805	1583	1770	3467	1770	3467	1770	3461	1770
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)	32	11	1	152	84	478	10	1036	163	54	296	51
RTOR Reduction (vph)	0	1	0	0	0	316	0	13	0	0	14	0
Lane Group Flow (vph)	32	11	0	0	236	162	10	1186	0	54	333	0
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA	Prot	NA	NA
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	3.8	3.8		13.5	13.5	0.7	29.5			2.0	30.8	
Effective Green, g (s)	3.8	3.8		13.5	13.5	0.7	29.5			2.0	30.8	
Actuated g/C Ratio	0.06	0.06		0.21	0.21	0.01	0.46			0.03	0.48	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	103	107		376	329	19	1578			54	1645	
v/s Ratio Prot	c0.02	0.01		c0.13		0.01	c0.34			c0.03	0.10	
v/s Ratio Perm					0.10							
v/c Ratio	0.31	0.10		0.63	0.49	0.53	0.75			1.00	0.20	
Uniform Delay, d1	29.2	28.9		23.4	22.6	31.9	14.6			31.4	9.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	1.7	0.4		3.3	1.2	23.9	2.1			122.5	0.1	
Delay (s)	31.0	29.3		26.6	23.8	55.7	16.7			153.9	9.9	
Level of Service	C	C		C	C	E	B			F	A	
Approach Delay (s)		30.5		24.7			17.0				29.3	
Approach LOS		C		C			B				C	
Intersection Summary												
HCM 2000 Control Delay		21.7		HCM 2000 Level of Service								
HCM 2000 Volume to Capacity ratio		0.69		C								
Actuated Cycle Length (s)		64.8		Sum of lost time (s)								
Intersection Capacity Utilization		71.7%		ICU Level of Service								
Analysis Period (min)		15		C								
c Critical Lane Group												

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	27	36	782	23	20	290
Future Volume (Veh/h)	27	36	782	23	20	290
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	39	850	25	22	315
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)			None		None	
Median type						
Median storage (veh)						
Upstream signal (ft)						
pK, platoon unblocked	1052	850			875	
VC, conflicting volume						
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	1052	850			875	
IC, single (s)	6.8	6.9			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	87	87			97	
d0 capacity (veh/h)	216	304			767	
Direction, Lane #						
	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	68	850	25	22	158	158
Volume Left	29	0	0	22	0	0
Volume Right	39	0	25	0	0	0
cSH	259	1700	1700	767	1700	1700
Volume to Capacity	0.26	0.50	0.01	0.03	0.09	0.09
Queue Length 95th (ft)	26	0	0	2	0	0
Control Delay (s)	23.8	0.0	0.0	9.8	0.0	0.0
Lane LOS	C	C	A	A	C	C
Approach Delay (s)	23.8	0.0		0.6		
Approach LOS	C					
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			51.5%			
Analysis Period (min)			15			
				ICU Level of Service		A

Balboa Transit Station
28: Morena Blvd & Gesner St

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	WBL	NBT	NBR	SBL	SBT
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	88	951	45	52	372
v/c Ratio	0.23	0.39	0.04	0.19	0.14
Control Delay	11.0	7.1	4.0	20.0	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	7.1	4.0	20.0	3.2
Queue Length 50th (ft)	6	46	1	9	14
Queue Length 95th (ft)	38	146	14	39	31
Internal Link Dist (ft)	1333	298	95	95	3361
Turn Bay Length (ft)	1316	2458	1110	277	2885
Base Capacity (vph)	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.39	0.04	0.19	0.13
Intersection Summary					

Balboa Transit Station
28: Morena Blvd & Gesner St

Horizon Year with Preferred LU
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑	↑	↖	↑↑
Traffic Volume (vph)	33	48	875	41	48	342
Future Volume (vph)	33	48	875	41	48	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		5.9	5.9	4.4	6.0
Lane Util. Factor	1.00		0.95	1.00	1.00	0.95
Flt	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)	1680		3539	1583	1770	3539
Flt Permitted	0.98		1.00	1.00	0.95	1.00
Satd. Flow (perm)	1680		3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	52	951	45	52	372
RTOR Reduction (vph)	48	0	0	18	0	0
Lane Group Flow (vph)	40	0	951	27	52	372
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	3.0		17.1	17.1	1.1	22.5
Effective Green, g (s)	3.0		17.1	17.1	1.1	22.5
Actuated g/C Ratio	0.08		0.48	0.48	0.03	0.63
Clearance Time (s)	4.4		5.9	5.9	4.4	6.0
Vehicle Extension (s)	2.0		4.4	4.4	2.0	4.4
Lane Grp Cap (vph)	140		1685	754	54	2218
v/s Ratio Prot	c0.02		c0.27		c0.03	0.11
v/c Ratio Perm				0.02		
v/c Ratio	0.29		0.56	0.04	0.96	0.17
Uniform Delay, d1	15.4		6.7	5.0	17.4	2.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.6	0.0	107.7	0.1
Delay (s)	15.9		7.3	5.0	125.1	2.8
Level of Service	B		A	A	F	A
Approach Delay (s)	15.9		7.2			17.8
Approach LOS	B		A			B
Intersection Summary						
HCM 2000 Control Delay			10.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			35.9		Sum of lost time (s)	14.7
Intersection Capacity Utilization			44.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Queues

29: Garnet Ave & Balboa WB Ramps

12/20/2017



Lane Group	EBT	WBT	WBR	SBR
Lane Group Flow (vph)	1520	1164	262	750
v/c Ratio	0.30	0.54	0.32	0.71
Control Delay	0.2	9.3	2.5	15.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.2	9.3	2.5	15.1
Queue Length 50th (ft)	0	61	0	72
Queue Length 95th (ft)	0	88	26	#137
Internal Link Dist (ft)	265	362		
Turn Bay Length (ft)		300		
Base Capacity (vph)	5047	2405	886	1062
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.48	0.30	0.71

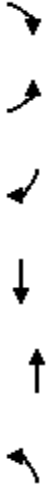
Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

29: Garnet Ave & Balboa WB Ramps

12/20/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	←←←	←←←	←←←	←	←	←←
Traffic Volume (vph)	0	1398	1071	241	0	690
Future Volume (vph)	0	1398	1071	241	0	690
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	0.91	0.91	0.91	1.00		0.88
Frt	1.00	1.00	1.00	0.85		0.85
Flt Protected	1.00	1.00	1.00	1.00		1.00
Satd. Flow (prot)	5085	5085	5085	1583		2787
Flt Permitted	1.00	1.00	1.00	1.00		1.00
Satd. Flow (perm)	5085	5085	5085	1583		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1520	1164	262	0	750
RTOR Reduction (vph)	0	0	0	152	0	37
Lane Group Flow (vph)	0	1520	1164	110	0	713
Turn Type	NA	NA	NA	Perm	Prot	Prot
Protected Phases	1 4	8				1
Permitted Phases				8		
Actuated Green, G (s)	38.2	16.1	16.1	16.1		14.1
Effective Green, g (s)	38.2	16.1	16.1	16.1		14.1
Actuated g/C Ratio	1.00	0.42	0.42	0.42		0.37
Clearance Time (s)		4.0	4.0	4.0		4.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	5085	2143	667		1028	
v/s Ratio Prot	0.30	c0.23			c0.26	
v/s Ratio Perm			0.07			
v/c Ratio	0.30	0.54	0.17		0.69	
Uniform Delay, d1	0.0	8.3	6.9		10.2	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.0	0.3	0.1		2.1	
Delay (s)	0.0	8.6	7.0		12.3	
Level of Service	A	A	A		B	
Approach Delay (s)	0.0	8.3		12.3		
Approach LOS	A	A		B		
Intersection Summary						
HCM 2000 Control Delay		5.7		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio		0.61				
Actuated Cycle Length (s)		38.2		Sum of lost time (s)		8.0
Intersection Capacity Utilization		51.5%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station

Horizon Year with Preferred LU

Timing Plan: AM Peak Period

Arterial Level of Service: EB Garnet Ave									
Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS	
Clarendon Dr	II	30	12.1	44.0	56.7	0.09	5.5	F	
Balboa Ave	II	30	23.5	12.0	35.5	0.19	18.8	D	
Soledad Mtn Rd	II	35	27.4	10.8	38.2	0.23	21.7	D	
Bond St	II	35	21.0	0.6	21.6	0.17	28.0	C	
Mission Bay Dr	II	35	15.5	55.4	70.9	0.12	6.3	F	
I-5 Off-ramp	II	45	24.2	46.4	10.2	34.4	21.2	D	
Balboa WB Ramps	II	45	7.1	0.4	1.5	0.07	31.4	B	
Miraga Ave	II	45	22.2	64.4	3.4	25.6	26.8	C	
Clarendon Dr	II	45	49.7	41.0	90.7	0.62	24.7	C	
Total	II		202.7	185.4	388.1	1.92	17.8	D	

*Reduction of signal delay for transit queue jump lane

Arterial Level of Service: WB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS	
Clarendon Dr	II	45	14.7	34.6	49.3	0.13	18.5	F	
Miraga Ave	II	45	49.7	19.2	68.9	0.62	32.5	B	
Balboa WB Ramps	II	45	22.2	12.9	35.1	0.20	20.9	D	
Santa Fe St	II	45	7.1	0.3	7.4	0.07	31.8	B	
Mission Bay Dr	II	45	24.2	48.9	73.1	0.23	11.5	F	
Bond St	II	35	15.5	0.9	16.4	0.12	27.2	C	
Soledad Mtn Rd	II	35	21.0	6.2	27.2	0.17	22.2	C	
Garnet Ave	II	35	27.4	0.5	27.9	0.23	29.7	B	
Ohney St	II	30	23.5	9.3	32.8	0.19	20.4	D	
Total	II		205.3	129.8	335.1	1.97	21.1	D	

Arterial Level of Service: NB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS	
Rosewood St	III	35	29.9	9.5	29.1	0.22	27.2	D	
Mission Bay Dr	III	35	16.7	9.8	24.7	0.12	17.8	D	
Bunker Hill St	III	35	14.7	14.7	29.4	0.11	13.3	E	
Magnolia Ave	III	35	21.4	10.7	32.1	0.17	18.8	C	
Garnet Ave	III	35	13.8	37.4	51.2	0.10	7.2	F	
Damon Ave	III	35	11.7	13.8	25.5	0.09	12.2	E	
Bluffs Ave	III	35	20.1	21.7	41.8	0.16	13.5	E	
Total	III		121.0	109.8	230.8	0.94	14.6	D	

Balboa Transit Station

Horizon Year with Preferred LU

Timing Plan: AM Peak Period

Arterial Level of Service: SB Mission Bay Dr									
Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS	
Bluffs Ave	III	35	29.9	20.0	49.9	0.16	11.0	D	
Damon Ave	III	35	20.1	4.0	24.1	0.16	23.5	C	
Garnet Ave	III	35	11.7	49.2	60.9	0.09	5.1	F	
Magnolia Ave	III	35	13.8	14.9	28.7	0.10	12.9	E	
Bunker Hill St	III	35	21.4	3.1	24.5	0.17	24.6	B	
Grand Ave	III	35	14.7	38.7	53.4	0.11	7.3	F	
Rosewood St	III	35	16.7	4.4	20.1	0.12	28.8	C	
Total	III		117.4	134.3	251.7	0.89	12.8	E	

Balboa Station
1: Olney St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	34	1137	16	1460	467	189
v/c Ratio	0.31	1.15	0.14	0.77	1.17	0.38
Control Delay	17.7	96.9	13.5	18.1	126.1	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	96.9	13.5	18.1	126.1	17.6
Queue Length 50th (ft)	7	~561	4	267	~235	49
Queue Length 95th (ft)	30	#790	m8	356	#405	100
Internal Link Dist (ft)	374		899	244	450	
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	111	992	111	1903	399	498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	1.15	0.14	0.77	1.17	0.38
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Station
1: Olney St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↰	↱	↰	↱	↰
Traffic Volume (vph)	31	918	128	15	1319	24	301	110	18	48	66	60
Future Volume (vph)	31	918	128	15	1319	24	301	110	18	48	66	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9			4.9			4.9	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00			1.00	
Frt	1.00	0.98		1.00	1.00			0.99			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (prot)	1770	1829		1770	3530			1789			1752	
Flt Permitted	0.11	1.00		0.11	1.00			0.68			0.86	
Satd. Flow (perm)	206	1829		206	3530			1259			1519	
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)	34	998	139	16	1434	26	327	120	20	52	72	65
RTOR Reduction (vph)	0	7	0	0	2	0	0	3	0	0	21	0
Lane Group Flow (vph)	34	1130	0	16	1458	0	0	464	0	0	168	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		6	6		8	8		4	4	
Permitted Phases	2			6			8					
Actuated Green, G (s)	36.1	36.1		36.1	36.1			21.1			21.1	
Effective Green, g (s)	36.1	36.1		36.1	36.1			21.1			21.1	
Actuated g/c Ratio	0.54	0.54		0.54	0.54			0.31			0.31	
Clearance Time (s)	4.9	4.9		4.9	4.9			4.9			4.9	
Vehicle Extension (s)	3.4	3.4		5.9	5.9			2.0			2.0	
Lane Grp Cap (vph)	110	985		110	1901			396			478	
v/s Ratio Prot	c0.62			0.08	0.41			c0.37			0.11	
v/s Ratio Perm	0.16			0.15	0.77			1.17			0.35	
v/c Ratio	0.31	1.15		0.15	0.77			1.17			0.35	
Uniform Delay, d1	8.5	15.4		7.7	12.1			22.9			17.7	
Progression Factor	1.00	1.00		1.26	1.24			1.00			1.00	
Incremental Delay, d2	7.2	78.1		2.3	2.6			101.3			0.2	
Delay (s)	15.7	93.6		12.1	17.6			124.2			17.8	
Level of Service	B	F		B	B			F			B	
Approach Delay (s)	91.3			17.5				124.2			17.8	
Approach LOS	F			B				F			B	
Intersection Summary												
HCM 2000 Control Delay	58.8				HCM 2000 Level of Service				E			
HCM 2000 Volume to Capacity ratio	1.16											
Actuated Cycle Length (s)	67.0				Sum of lost time (s)				9.8			
Intersection Capacity Utilization	101.7%				ICU Level of Service				G			
Analysis Period (min)	15											
Critical Lane Group												

Balboa Station
2: Balboa Ave & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

	EBT	WBT	SBL	SBR
Lane Group				
Lane Group Flow (vph)	421	1272	710	1017
v/c Ratio	0.23	0.65	0.49	0.90
Control Delay	9.0	6.3	1.2	29.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.0	6.3	1.2	29.8
Queue Length 50th (ft)	45	68	0	234
Queue Length 95th (ft)	68	129	0	m203
Internal Link Dist (ft)	936	329		899
Turn Bay Length (ft)				
Base Capacity (vph)	1854	1965	1441	1139
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.23	0.65	0.49	0.89
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Station
2: Balboa Ave & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Movement						
Lane Configurations		←	←	←	←	←
Traffic Volume (vph)	0	387	516	1307	796	140
Future Volume (vph)	0	387	516	1307	796	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	4.9		
Lane Util. Factor	0.95	0.91	0.91	0.97		
Frt	1.00	0.92	0.85	0.98		
Flt Protected	1.00	1.00	1.00	0.96		
Satd. Flow (prot)	3539	3106	1441	3389		
Flt Permitted	1.00	1.00	1.00	0.96		
Satd. Flow (perm)	3539	3106	1441	3389		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	421	561	1421	865	152
RTOR Reduction (vph)	0	0	339	0	22	0
Lane Group Flow (vph)	0	421	933	710	995	0
Turn Type	NA	NA	Free	Free	Prot	4
Protected Phases						
Permitted Phases				Free		
Actuated Green, G (s)		35.1	35.1	67.0	22.0	
Effective Green, g (s)		35.1	35.1	67.0	22.0	
Actuated g/c Ratio		0.52	0.52	1.00	0.33	
Clearance Time (s)		5.0	5.0	4.9		
Vehicle Extension (s)		6.1	6.1	5.2		
Lane Grp Cap (vph)	1854	1627	1441	1112		
v/s Ratio Prot	0.12	c0.30		c0.29		
v/c Ratio	0.23	0.57	0.49	0.89		
Uniform Delay, d1	8.6	10.9	0.0	21.4		
Progression Factor	1.00	1.00	1.00	1.33		
Incremental Delay, d2	0.3	1.5	1.2	1.1		
Delay (s)	8.9	12.3	1.2	29.5		
Level of Service	A	B	A	C		
Approach Delay (s)	8.9	8.3		29.5		
Approach LOS	A	A		C		
Intersection Summary						
HCM 2000 Control Delay			14.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			67.0		Sum of lost time (s)	9.9
Intersection Capacity Utilization			63.6%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
3: Garnet Ave & Soledad Mtn Rd

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	112	1238	1829	555	496	140
v/c Ratio	0.68	0.47	0.77	0.40	0.81	0.40
Control Delay	88.1	8.3	27.7	3.4	67.7	24.1
Queue Delay	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	88.1	8.3	28.0	3.4	67.7	24.1
Queue Length 50th (ft)	54	217	813	132	234	45
Queue Length 95th (ft)	#%	304	929	144	284	106
Internal Link Dist (ft)	724	806			594	
Turn Bay Length (ft)	200		200	225	225	
Base Capacity (vph)	165	2640	2376	1399	890	352
Starvation Cap Reductn	0	0	141	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.47	0.82	0.40	0.56	0.40
Intersection Summary						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						

Balboa Station
3: Garnet Ave & Soledad Mtn Rd

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	103	1139	1683	511	456	129
Future Volume (vph)	103	1139	1683	511	456	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	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)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	1238	1829	555	496	140
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	112	1238	1829	555	496	70
Turn Type	Prot	NA	NA	pm-ov	Prot	custom
Protected Phases	5	2	6	7	7	4
Permitted Phases		2		6		7
Actuated Green, G (s)	7.0	108.2	97.4	123.3	25.9	25.9
Effective Green, g (s)	7.0	108.2	97.4	123.3	25.9	25.9
Actuated g/c Ratio	0.05	0.75	0.67	0.85	0.18	0.18
Clearance Time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Vehicle Extension (s)	2.0	5.6	8.0	2.0	2.0	3.0
Lane Grp Cap (vph)	165	2640	2377	1405	613	282
v/s Ratio Prot	c0.03	0.35	c0.52	0.07	c0.14	0.04
v/s Ratio Perm			0.28			
v/c Ratio	0.68	0.47	0.77	0.40	0.81	0.25
Uniform Delay, d1	67.9	7.2	16.2	2.4	57.2	51.2
Progression Factor	1.00	1.00	1.48	1.77	1.00	1.00
Incremental Delay, d2	8.4	0.6	2.0	0.1	7.3	0.5
Delay (s)	76.3	7.8	25.9	4.4	64.5	51.7
Level of Service	E	A	C	A	E	D
Approach Delay (s)		13.5	20.9		61.7	
Approach LOS		B	C		E	
Intersection Summary						
HCM 2000 Control Delay			24.5		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			145.0		Sum of lost time (s)	18.7
Intersection Capacity Utilization			68.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
4: Bond St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

	EBT	WBT	NBR	
Lane Group	EBT	WBT	NBR	
Lane Group Flow (vph)	1708	2222	50	
v/c Ratio	0.49	0.63	0.03	
Control Delay	0.5	1.1	0.0	
Queue Delay	0.0	0.1	0.0	
Total Delay	0.5	1.2	0.0	
Queue Length 50th (ft)	0	18	0	
Queue Length 95th (ft)	0	m22	0	
Internal Link Dist (ft)	806	574		
Turn Bay Length (ft)				
Base Capacity (vph)	3511	3539	1611	
Starvation Cap Reductn	0	0	0	
Spillback Cap Reductn	0	222	0	
Storage Cap Reductn	0	0	0	
Reduced v/c Ratio	0.49	0.67	0.03	
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Station
4: Bond St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4B			4B							
Traffic Volume (vph)	0	1488	84	0	2044	0	0	0	46	0	0	0
Future Volume (vph)	0	1488	84	0	2044	0	0	0	46	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9				4.9			
Lane Util. Factor		0.95			0.95				1.00			
Frt		0.99			1.00				0.86			
Flt Protected		1.00			1.00				1.00			
Satd. Flow (prot)		3511			3539				1611			
Flt Permitted		1.00			1.00				1.00			
Satd. Flow (perm)		3511			3539				1611			
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)	0	1617	91	0	2222	0	0	0	50	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1708	0	0	2222	0	0	0	50	0	0	0
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases	2			6								
Permitted Phases									2			6
Actuated Green, G (s)		145.0			145.0				145.0			
Effective Green, g (s)		145.0			145.0				145.0			
Actuated g/c Ratio		1.00			1.00				1.00			
Clearance Time (s)		4.9			4.9				4.9			
Vehicle Extension (s)		7.3			7.3				7.3			
Lane Grp Cap (vph)		3511			3539				1611			
v/s Ratio Prot		0.49			c0.63				0.03			
v/c Ratio		0.49			0.63				0.03			
Uniform Delay, d1		0.0			0.0				0.0			
Progression Factor		1.00			1.00				1.00			
Incremental Delay, d2		0.4			0.5				0.0			
Delay (s)		0.4			0.5				0.0			
Level of Service		A			A				A			
Approach Delay (s)		0.4			0.5				0.0			
Approach LOS		A			A				A			
Intersection Summary												
HCM 2000 Control Delay			0.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			145.0		Sum of lost time (s)				7.9			
Intersection Capacity Utilization			64.5%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Station
5: Mission Bay Dr & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	484	685	482	360	737	388	710	551	385	301	523	795
v/c Ratio	0.90	0.82	0.63	1.09	0.79	0.55	1.08	0.47	0.43	0.75	1.10	0.61
Control Delay	68.8	59.9	35.1	130.7	56.9	27.6	112.4	40.4	18.7	73.5	120.1	29.2
Queue Delay	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.2	0.0	2.0	2.2
Total Delay	68.8	59.9	35.6	130.7	56.9	27.6	112.4	40.4	19.9	73.5	122.1	31.3
Queue Length 50th (ft)	223	338	343	~382	345	218	~384	216	180	144	~558	285
Queue Length 95th (ft)	#317	411	257	#586	424	305	#510	287	281	189	#785	359
Internal Link Dist (ft)	574			1151				461			376	
Turn Bay Length (ft)	565	120	410	325	265			250	200		265	
Base Capacity (vph)	558	832	770	329	935	759	658	1178	896	523	476	1312
Starvation Cap Reductn	0	0	68	0	0	0	0	0	302	0	72	361
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.82	0.69	1.09	0.79	0.51	1.08	0.47	0.65	0.58	1.29	0.84

Intersection Summary
- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Balboa Station
5: Mission Bay Dr & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	445	630	443	331	678	357	653	507	354	277	481	731
Future Volume (vph)	445	630	443	331	678	357	653	507	354	277	481	731
Ideal Flow (vphph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.3	4.4
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
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)	484	685	482	360	737	388	710	551	385	301	523	795
RTOR Reduction (vph)	0	0	44	0	0	52	0	0	23	0	0	48
Lane Group Flow (vph)	484	685	438	360	737	336	710	551	362	301	523	747
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8		4		4		6		2	
Actuated Green, G (s)	22.8	34.1	61.9	27.0	38.3	55.3	27.8	48.3	75.3	17.0	37.1	59.9
Effective Green, g (s)	22.8	34.1	61.9	27.0	38.3	55.3	27.8	48.3	75.3	17.0	37.1	59.9
Actuated g/C Ratio	0.16	0.24	0.43	0.19	0.26	0.38	0.19	0.33	0.52	0.12	0.26	0.41
Clearance Time (s)	4.4	4.9	4.4	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	539	832	675	329	934	603	658	1178	822	402	476	1151
v/s Ratio Prot	0.14	0.19	0.12	c0.20	c0.21	0.07	c0.21	0.16	0.08	0.09	c0.28	0.10
v/s Ratio Perm			0.15		0.15		0.15		0.15		0.17	
v/c Ratio	0.90	0.82	0.65	1.09	0.79	0.56	1.08	0.47	0.44	0.75	1.10	0.65
Uniform Delay, d1	60.0	52.6	32.9	59.0	49.6	35.2	58.6	38.2	21.7	61.9	54.0	34.1
Progression Factor	0.83	0.98	1.27	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.7	8.2	1.5	77.3	6.7	0.6	58.3	0.5	0.1	6.6	70.8	1.0
Delay (s)	65.6	59.6	43.2	136.3	56.3	35.9	116.9	38.7	21.9	68.5	124.8	35.1
Level of Service	E	E	D	F	E	D	F	D	C	E	F	D
Approach Delay (s)	56.6			70.4			68.5			70.3		
Approach LOS	E			E			E			E		

Intersection Summary

HCM 2000 Control Delay	66.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Balboa Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

	EBT	WBT	NBR	SBR	
Lane Group					
Lane Group Flow (vph)	1442	2250	875	205	
v/c Ratio	0.86	0.45	0.84	0.33	
Control Delay	18.8	0.3	24.3	10.0	
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	18.8	0.3	24.3	10.0	
Queue Length 50th (ft)	177	0	125	29	
Queue Length 95th (ft)	#311	0	#233	68	
Internal Link Dist (ft)	1151	265			
Turn Bay Length (ft)					
Base Capacity (vph)	1721	5035	1036	626	
Starvation Cap Reductn	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	
Storage Cap Reductn	0	0	0	0	
Reduced v/c Ratio	0.84	0.45	0.84	0.33	
Intersection Summary					
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.				

Balboa Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↔↔			↔↔↔				↔↔			↔
Traffic Volume (vph)	0	1327	0	0	1986	84	0	0	805	0	0	189
Future Volume (vph)	0	1327	0	0	1986	84	0	0	805	0	0	189
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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	0.91	0.91	0.99	0.86	0.85	0.85	0.86	0.85	0.86	0.86
Frt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3539	3539	5054	5054	5054	5054	5054	5054	5054	5054	5054	5054
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3539	3539	5054	5054	5054	5054	5054	5054	5054	5054	5054	5054
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)	0	1442	0	0	2159	91	0	0	875	0	0	205
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	39
Lane Group Flow (vph)	0	1442	0	0	2250	0	0	0	855	0	0	166
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases	8	2	4									
Permitted Phases												
Actuated Green, G (s)	23.4	23.4	49.4	49.4	49.4	49.4	18.0	18.0	18.0	18.0	18.0	18.0
Effective Green, g (s)	23.4	23.4	49.4	49.4	49.4	49.4	18.0	18.0	18.0	18.0	18.0	18.0
Actuated g/c Ratio	0.47	0.47	1.00	1.00	1.00	1.00	0.36	0.36	0.36	0.36	0.36	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1676	1676	5054	5054	5054	5054	1015	1015	1015	587	587	587
v/s Ratio Prot	c0.41	c0.41	0.45	0.45	0.45	0.45	c0.31	c0.31	c0.31	0.10	0.10	0.10
v/c Ratio	0.86	0.86	0.45	0.45	0.45	0.45	0.84	0.84	0.84	0.28	0.28	0.28
Uniform Delay, d1	11.5	11.5	0.0	0.0	0.0	0.0	14.4	14.4	14.4	11.1	11.1	11.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.8	4.8	0.1	0.1	0.1	0.1	6.4	6.4	6.4	0.3	0.3	0.3
Delay (s)	16.3	16.3	0.1	0.1	0.1	0.1	20.8	20.8	20.8	11.4	11.4	11.4
Level of Service	B	B	A	A	A	A	C	C	C	B	B	B
Approach Delay (s)	16.3	16.3	0.1	0.1	0.1	0.1	20.8	20.8	20.8	11.4	11.4	11.4
Approach LOS	B	B	A	A	A	A	C	C	C	B	B	B
Intersection Summary												
HCM 2000 Control Delay			9.3							A		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			49.4							8.0		
Intersection Capacity Utilization			71.5%							C		
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Station
7: Balboa EB Ramps & Garnet Ave

Balboa Station
8: Garnet Ave & Moraga Ave

Horizon Year with Preferred LU
 Timing Plan: PM Peak Period

Horizon Year with Preferred LU
 Timing Plan: PM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↔↔	↔		↔↔		↔	
Traffic Volume (veh/h)	1272	860	0	1470	0	337	
Future Volume (Veh/h)	1272	860	0	1470	0	337	
Sign Control	Free	Free		Free	Stop		
Grade	0%	0%		0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	1383	935	0	1598	0	366	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)	None						
Median type							
Median storage (veh)							
Upstream signal (ft)	442			634			
pX, platoon unblocked		0.99		0.69		0.99	
VC, conflicting volume		1383		2182		692	
VC1, stage 1 conf vol							
VC2, stage 2 conf vol							
VCu, unblocked vol		1359		1724		657	
IC, single (s)		4.1		6.8		6.9	
IC, 2 stage (s)		2.2		3.5		3.3	
p0 queue free %		100		100		9	
CM capacity (veh/h)		495		55		401	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	
Volume Total	692	692	935	799	799	366	
Volume Left	0	0	0	0	0	0	
Volume Right	0	0	935	0	0	366	
cSH	1700	1700	1700	1700	1700	401	
Volume to Capacity	0.41	0.41	0.55	0.47	0.47	0.91	
Queue Length 95th (ft)	0	0	0	0	0	243	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	57.9	
Lane LOS						F	
Approach Delay (s)	0.0			0.0		57.9	
Approach LOS						F	
Intersection Summary							
Average Delay			5.0				
Intersection Capacity Utilization			62.7%			ICU Level of Service	B
Analysis Period (min)			15				

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Group Flow (vph)	372	1371	1285	93	102	313	
v/c Ratio	0.72	0.55	0.77	0.12	0.43	0.70	
Control Delay	37.6	6.5	19.5	3.4	32.7	15.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.6	6.5	19.5	3.4	32.7	15.2	
Queue Length 50th (ft)	76	111	213	0	40	16	
Queue Length 95th (ft)	#146	216	347	24	81	86	
Internal Link Dist (ft)	554	3203			501		
Turn Bay Length (ft)	215			250	155		
Base Capacity (vph)	518	2476	1671	796	804	867	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.72	0.55	0.77	0.12	0.13	0.36	
Intersection Summary							
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						

Balboa Station
8: Garnet Ave & Moraga Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	342	1261	1182	86	94	288
Future Volume (vph)	342	1261	1182	86	94	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	6.5	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Flt	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)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	372	1371	1285	93	102	313
RTOR Reduction (vph)	0	0	0	49	0	234
Lane Group Flow (vph)	372	1371	1285	44	102	79
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	10.3	47.8	32.3	32.3	9.2	9.2
Effective Green, g (s)	10.3	47.8	32.3	32.3	9.2	9.2
Actuated g/C Ratio	0.15	0.70	0.47	0.47	0.13	0.13
Clearance Time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Vehicle Extension (s)	2.0	4.8	3.9	3.9	2.0	2.0
Lane Grp Cap (vph)	517	2476	1673	748	238	213
v/s Ratio Prot	c0.11	0.39	c0.36		c0.06	
v/s Ratio Perm				0.03		0.05
v/c Ratio	0.72	0.55	0.77	0.06	0.43	0.37
Uniform Delay, d1	27.6	5.0	14.9	9.8	27.1	26.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.0	0.4	2.3	0.0	0.5	0.4
Delay (s)	31.6	5.5	17.2	9.8	27.6	27.3
Level of Service	C	A	B	A	C	C
Approach Delay (s)		11.0	16.7		27.4	
Approach LOS		B	B		C	
Intersection Summary						
HCM 2000 Control Delay			15.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			68.3		Sum of lost time (s)	16.5
Intersection Capacity Utilization			62.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
9: Clairemont Dr & Garnet Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	382	1145	585	1211	78	426
Future Volume (vph)	382	1145	585	1211	78	426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	6.5	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Flt	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)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	372	1371	1285	93	102	313
RTOR Reduction (vph)	0	0	0	49	0	234
Lane Group Flow (vph)	372	1371	1285	44	102	79
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	10.3	47.8	32.3	32.3	9.2	9.2
Effective Green, g (s)	10.3	47.8	32.3	32.3	9.2	9.2
Actuated g/C Ratio	0.15	0.70	0.47	0.47	0.13	0.13
Clearance Time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Vehicle Extension (s)	2.0	4.8	3.9	3.9	2.0	2.0
Lane Grp Cap (vph)	517	2476	1673	748	238	213
v/s Ratio Prot	c0.11	0.39	c0.36		c0.06	
v/s Ratio Perm				0.03		0.05
v/c Ratio	0.72	0.55	0.77	0.06	0.43	0.37
Uniform Delay, d1	27.6	5.0	14.9	9.8	27.1	26.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.0	0.4	2.3	0.0	0.5	0.4
Delay (s)	31.6	5.5	17.2	9.8	27.6	27.3
Level of Service	C	A	B	A	C	C
Approach Delay (s)		11.0	16.7		27.4	
Approach LOS		B	B		C	
Intersection Summary						
HCM 2000 Control Delay			15.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			68.3		Sum of lost time (s)	16.5
Intersection Capacity Utilization			62.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

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

Balboa Station
9: Clairemont Dr. & Garnet Ave

Balboa Station
10: Olney St & Balboa Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	HH	4P	4P	HH	4P	4P	HH	4P	4P	HH	4P	4P
Traffic Volume (vph)	351	1004	50	538	954	160	72	392	435	346	605	253
Future Volume (vph)	351	1004	50	538	954	160	72	392	435	346	605	253
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	6.4	6.4	4.4	5.3	4.4	4.4	4.4	5.3	5.3
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.95
Flt	1.00	0.99	1.00	0.98	1.00	1.00	0.95	1.00	0.85	1.00	0.96	0.96
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3514	3433	3463	3463	1770	3539	1583	1770	3383	3383	3383
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3514	3433	3463	3463	1770	3539	1583	1770	3383	3383	3383
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)	382	1091	54	585	1037	174	78	426	473	376	658	275
RTOR Reduction (vph)	0	2	0	0	9	0	0	0	60	0	33	0
Lane Group Flow (vph)	382	1143	0	585	1202	0	78	426	413	376	900	0
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	NA
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	16.2	46.1		22.6	51.8		9.0	23.5	46.1	28.7	43.2	
Effective Green, g (s)	16.2	46.1		22.6	51.8		9.0	23.5	46.1	28.7	43.2	
Actuated g/C Ratio	0.12	0.33		0.16	0.37		0.06	0.17	0.33	0.20	0.31	
Clearance Time (s)	4.4	5.7		4.4	6.4		4.4	5.3	4.4	4.4	5.3	
Vehicle Extension (s)	2.0	3.5		2.0	3.0		2.0	2.4	2.0	2.0	2.6	
Lane Grp Cap (vph)	395	1151		551	1274		113	591	518	361	1038	
v/s Ratio Prot	0.11	c0.33		c0.17	0.35		0.04	0.12	0.13	c0.21	c0.27	
v/s Ratio Perm									0.13			
v/c Ratio	0.97	0.99		1.06	0.94		0.69	0.72	0.80	1.04	0.87	
Uniform Delay, d1	62.0	47.1		59.0	43.0		64.5	55.5	43.1	56.0	46.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	36.1	24.7		55.8	13.8		13.6	4.0	7.8	58.6	7.7	
Delay (s)	98.1	71.9		114.8	56.9		78.1	59.5	50.9	114.6	53.8	
Level of Service	F	E		F	E		E	E	D	F	D	
Approach Delay (s)		78.4			75.7			56.8			71.2	
Approach LOS		E			E			E			E	
Intersection Summary												
HCM 2000 Control Delay												E
HCM 2000 Volume to Capacity ratio												1.02
Actuated Cycle Length (s)												20.5
Intersection Capacity Utilization												F
Analysis Period (min)												15
c Critical Lane Group												

Balboa Station
10: Olney St & Balboa Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	3	4	4	1	1	1	4	4	4	1	4	4
Traffic Volume (vph)	33	353	40	140	524	24	20	340	46	19	207	39
Future Volume (vph)	33	353	40	140	524	24	20	340	46	19	207	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	5.0		4.9		4.9		4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00		1.00		1.00	
Flt	1.00	0.98		1.00	0.99		0.98		0.98		0.98	
Flt Protected	0.95	1.00		0.95	1.00		1.00		1.00		1.00	
Satd. Flow (prot)	1770	3486		1770	3516		1830		1819		1819	
Flt Permitted	0.95	1.00		0.95	1.00		0.97		0.96		0.96	
Satd. Flow (perm)	1770	3486		1770	3516		1786		1752		1752	
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)	36	384	43	152	570	26	22	370	50	21	225	42
RTOR Reduction (vph)	0	12	0	0	4	0	0	8	0	0	11	0
Lane Group Flow (vph)	36	415	0	152	592	0	0	434	0	0	277	0
Turn Type	Prot	NA	NA	Prot	NA	NA	Perm	NA	Perm	NA	NA	NA
Protected Phases	5	2		1	6		8		4		4	
Permitted Phases							8					
Actuated Green, G (s)	1.8	16.3		4.8	19.4			16.5			16.5	
Effective Green, g (s)	1.8	16.3		4.8	19.4			16.5			16.5	
Actuated g/C Ratio	0.03	0.31		0.09	0.37			0.32			0.32	
Clearance Time (s)	4.4	5.1		4.4	5.0		4.9		4.9		4.9	
Vehicle Extension (s)	2.0	2.8		2.0	2.5		2.0		2.0		2.0	
Lane Grp Cap (vph)	61	1092		163	1311		566		555		555	
v/s Ratio Prot	0.02	0.12		c0.09	c0.17		c0.24		0.16		0.16	
v/s Ratio Perm							0.77		0.50		0.50	
v/c Ratio	0.59	0.38		0.93	0.45							
Uniform Delay, d1	24.7	13.9		23.4	12.3		16.0		14.4		14.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00		1.00	
Incremental Delay, d2	9.8	0.2		50.2	0.2		5.6		0.3		0.3	
Delay (s)	34.5	14.1		73.7	12.5		21.6		14.7		14.7	
Level of Service	C	B		E	B		C		B		B	
Approach Delay (s)		15.7			24.9		21.6		14.7		14.7	
Approach LOS		B			C		C		B		B	
Intersection Summary												
HCM 2000 Control Delay			20.4			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			52.0			Sum of lost time (s)			14.4			
Intersection Capacity Utilization			56.9%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Station
11: Olney St & Grand Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	45	1073		146	1486		351		393		393	
v/c Ratio	0.54	0.66		0.79	0.80		0.64		0.99		0.99	
Control Delay	84.6	31.8		86.1	26.0		40.4		85.5		85.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0		14.5		14.5	
Total Delay	84.6	31.8		86.1	26.0		40.4		100.0		100.0	
Queue Length 50th (ft)	39	396		133	314		234		324		324	
Queue Length 95th (ft)	#87	495		#221	416		331		#509		#509	
Internal Link Dist (ft)		276			1076		315		328			
Turn Bay Length (ft)	50			50								
Base Capacity (vph)	90	1620		206	1849		613		445		445	
Starvation Cap Reductn	0	0		0	0		0		48		48	
Spillback Cap Reductn	0	0		0	0		0		0		0	
Storage Cap Reductn	0	0		0	0		0		0		0	
Reduced v/c Ratio	0.50	0.66		0.71	0.80		0.57		0.99		0.99	
Intersection Summary												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Balboa Station

11: Olney St & Grand Ave

Horizon Year with Preferred LU

Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Traffic Volume (vph)	41	930	57	134	1151	216	30	174	119	94	213	54
Future Volume (vph)	41	930	57	134	1151	216	30	174	119	94	213	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.4	4.4	4.9	4.9	4.9	4.9	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	1.00	1.00	1.00	1.00
Flt	1.00	0.99	1.00	0.98	1.00	0.95	1.00	0.95	1.00	0.98	1.00	0.98
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	0.99
Satd. Flow (prot)	1770	3509	1770	3455	1770	3455	1770	3455	1770	3455	1770	3455
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.92	0.92	0.92	0.92	0.66	0.66	0.66
Satd. Flow (perm)	1770	3509	1770	3455	1770	3455	1633	1633	1633	1205	1205	1205
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)	45	1011	62	146	1251	235	33	189	129	102	232	59
RTOR Reduction (vph)	0	3	0	0	10	0	0	17	0	0	5	0
Lane Group Flow (vph)	45	1070	0	146	1476	0	0	334	0	0	388	0
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8			4		4
Permitted Phases							8			4		
Actuated Green, G (s)	5.5	61.8		14.0	70.5		43.8			43.8		43.8
Effective Green, g (s)	5.5	61.8		14.0	70.5		43.8			43.8		43.8
Actuated g/C Ratio	0.04	0.46		0.10	0.53		0.33			0.33		0.33
Clearance Time (s)	4.4	5.1		4.4	4.9		4.9			4.9		4.9
Vehicle Extension (s)	2.0	5.4		2.0	5.5		2.0			2.0		2.0
Lane Grp Cap (vph)	72	1618		184	1817		533			393		393
v/s Ratio Prot	0.03	0.30		c0.08	c0.43		0.20			c0.32		c0.32
v/s Ratio Perm				0.79	0.81		0.63			0.99		0.99
Uniform Delay, d1	63.2	28.0		58.6	26.3		38.2			44.8		44.8
Progression Factor	1.00	1.00		1.07	0.83		1.00			1.00		1.00
Incremental Delay, d2	11.5	2.1		15.9	3.3		1.7			41.7		41.7
Delay (s)	74.8	30.1		78.8	25.1		39.8			86.5		86.5
Level of Service	E	C		E	C		D			F		F
Approach Delay (s)	31.9			29.9			39.8			86.5		
Approach LOS	C			C			D			F		
Intersection Summary												
HCM 2000 Control Delay			37.9			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			134.0			Sum of lost time (s)			14.4			
Intersection Capacity Utilization			94.6%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Station

12: Grand Ave & Culver St

Horizon Year with Preferred LU

Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	22	1265	1676	116
v/c Ratio	0.27	0.43	0.61	0.67
Control Delay	71.5	2.1	6.7	71.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	71.5	2.1	6.7	71.0
Queue Length 50th (ft)	20	63	316	89
Queue Length 95th (ft)	m30	84	485	149
Internal Link Dist (ft)		1076	211	186
Turn Bay Length (ft)	55			
Base Capacity (vph)	146	2945	2748	344
Starvation Cap Reductn	0	0	6	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.15	0.43	0.61	0.34
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Station
12: Grand Ave & Culver St

Horizon Year with Preferred LU
 Timing Plan: PM Peak Period

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	20	1164	0	1471	71	79	28
Future Volume (vph)	20	1164	0	1471	71	79	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.96	0.96
Fit	1.00	1.00	0.99	1.00	0.97	0.96	0.96
Fit Protected	0.95	1.00	1.00	0.96	0.96	0.96	0.96
Satd. Flow (prot)	1770	3539	3515	1733	1733	1733	1733
Fit Permitted	0.95	1.00	1.00	0.96	0.96	0.96	0.96
Satd. Flow (perm)	1770	3539	3515	1733	1733	1733	1733
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	1265	0	1599	77	86	30
RTOR Reduction (vph)	0	0	0	2	0	11	0
Lane Group Flow (vph)	22	1265	0	1674	0	105	0
Turn Type	Prot	NA	Prot	NA	Prot	Prot	Prot
Protected Phases	5	2	1	6		4	
Permitted Phases							
Actuated Green, G (s)	4.3	111.5		103.0		12.5	
Effective Green, g (s)	4.3	111.5		103.0		12.5	
Actuated g/C Ratio	0.03	0.83		0.77		0.09	
Clearance Time (s)	4.4	5.1		4.9		4.9	
Vehicle Extension (s)	2.0	4.2		4.1		2.0	
Lane Grp Cap (vph)	56	2944		2701		161	
v/s Ratio Prot	0.01	cd.36		cd.48		cd.06	
v/s Ratio Perm							
v/c Ratio	0.39	0.43		0.62		0.65	
Uniform Delay, d1	63.6	2.9		6.8		58.7	
Progression Factor	1.07	0.53		0.77		1.00	
Incremental Delay, d2	1.3	0.3		0.9		7.0	
Delay (s)	69.3	1.9		6.2		65.7	
Level of Service	E	A		A		E	
Approach Delay (s)		3.0		6.2		65.7	
Approach LOS		A		A		E	
Intersection Summary							
HCM 2000 Control Delay			7.1		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.62				
Actuated Cycle Length (s)			134.0		Sum of lost time (s)		14.4
Intersection Capacity Utilization			57.2%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

Balboa Station
13: Lee St & Grand Ave

Horizon Year with Preferred LU
 Timing Plan: PM Peak Period

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1342	104	1677	50
v/c Ratio	0.50	0.63	0.53	0.45
Control Delay	3.7	74.4	2.6	43.8
Queue Delay	0.1	0.0	0.1	0.2
Total Delay	3.8	74.4	2.7	44.0
Queue Length 50th (ft)	126	88	121	17
Queue Length 95th (ft)	152	147	195	59
Internal Link Dist (ft)	211		1401	337
Turn Bay Length (ft)		400		
Base Capacity (vph)	2699	176	3173	424
Starvation Cap Reductn	276	0	0	0
Spillback Cap Reductn	0	0	340	114
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.59	0.59	0.16
Intersection Summary				

Balboa Station
13: Lee St & Grand Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (vph)	1200	35	96	1543	18	28
Future Volume (vph)	1200	35	96	1543	18	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.4	4.9		
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Flt	1.00	1.00	1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3524		1770	3539	1678	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3524		1770	3539	1678	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1304	38	104	1677	20	30
RTOR Reduction (vph)	1	0	0	0	29	0
Lane Group Flow (vph)	1341	0	104	1677	21	0
Turn Type	NA	Prot	Prot	NA	Prot	
Protected Phases	2		1	6	8	
Permitted Phases						
Actuated Green, G (s)	101.6		12.6	118.1	5.6	
Effective Green, g (s)	101.6		12.6	118.1	5.6	
Actuated g/C Ratio	0.76		0.09	0.88	0.04	
Clearance Time (s)	4.9		4.4	5.4	4.9	
Vehicle Extension (s)	4.0		2.0	4.4	2.0	
Lane Grp Cap (vph)	2671		166	3119	70	
v/s Ratio Prot	0.38		0.06	0.47	0.01	
v/s Ratio Perm						
v/c Ratio	0.50		0.63	0.54	0.30	
Uniform Delay, d1	6.3		58.4	1.8	62.3	
Progression Factor	0.44		1.00	1.00	1.00	
Incremental Delay, d2	0.6		5.2	0.7	0.9	
Delay (s)	3.4		63.7	2.5	63.2	
Level of Service	A		E	A	E	
Approach Delay (s)	3.4		6.0	63.2		
Approach LOS	A		A	E		
Intersection Summary						
HCM 2000 Control Delay			5.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.54			
Actuated Cycle Length (s)			134.0		Sum of lost time (s)	14.2
Intersection Capacity Utilization			54.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
14: Grand Ave & Figueroa Blvd

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBT
Lane Group Flow (vph)	125	1237	1723
v/c Ratio	0.74	0.35	0.58
Control Delay	98.4	0.3	20.0
Queue Delay	0.0	0.0	3.9
Total Delay	98.4	0.3	23.8
Queue Length 50th (ft)	138	0	5
Queue Length 95th (ft)	208	0	910
Internal Link Dist (ft)		605	773
Turn Bay Length (ft)	90		
Base Capacity (vph)	249	3539	2976
Starvation Cap Reductn	0	0	1146
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.50	0.35	0.94
Intersection Summary			

Balboa Station
14: Grand Ave & Figueroa Blvd

Balboa Station
15: Grand Ave & Mission Bay Dr

Horizon Year with Preferred LU
Timing Plan: PM Peak Period







Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↱	↰	↱	↰	↱
Traffic Volume (vph)	115	1138	1515	70	0	0
Future Volume (vph)	115	1138	1515	70	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.3	5.3			
Lane Util. Factor	1.00	0.95	0.95			
Flt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	3539	3516			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1770	3539	3516			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	1237	1647	76	0	0
RTOR Reduction (vph)	0	0	1	0	0	0
Lane Group Flow (vph)	125	1237	1722	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	16.4	170.0	143.9			
Effective Green, g (s)	16.4	170.0	143.9			
Actuated g/C Ratio	0.10	1.00	0.85			
Clearance Time (s)	4.4	5.3	5.3			
Vehicle Extension (s)	2.0	4.4	4.4			
Lane Grp Cap (vph)	170	3539	2976			
v/s Ratio Prot	0.07	0.35	0.49			
v/s Ratio Perm						
v/c Ratio	0.74	0.35	0.58			
Uniform Delay, d1	74.7	0.0	3.9			
Progression Factor	1.00	1.00	4.48			
Incremental Delay, d2	13.2	0.3	0.6			
Delay (s)	87.9	0.3	18.2			
Level of Service	F	A	B			
Approach Delay (s)		8.3	18.2	0.0		
Approach LOS		A	B	A		
Intersection Summary						
HCM 2000 Control Delay			13.8	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			170.0	Sum of lost time (s)		12.7
Intersection Capacity Utilization			58.6%	ICU Level of Service		B
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	93	1141	1438	1251	1065	253
v/c Ratio	0.74	0.53	0.81	0.71	0.92	0.16
Control Delay	108.7	21.1	42.0	17.7	65.0	0.2
Queue Delay	0.0	0.2	3.7	0.5	47.9	0.0
Total Delay	108.7	21.3	45.7	18.2	112.9	0.2
Queue Length 50th (ft)	103	384	718	271	623	0
Queue Length 95th (ft)	#180	462	964	290	697	0
Internal Link Dist (ft)		773	536		492	
Turn Bay Length (ft)		225				150
Base Capacity (vph)	141	2143	1784	1767	1233	1583
Starvation Cap Reductn	0	293	259	171	289	0
Spillback Cap Reductn	0	56	56	136	0	181
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.62	0.94	0.78	1.13	0.18
Intersection Summary						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						

Balboa Station
15: Grand Ave & Mission Bay Dr

Horizon Year with Preferred LU
 Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	86	1050	1323	1151	980	233
Future Volume (vph)	86	1050	1323	1151	980	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	5.7	5.7	4.9	4.0
Lane Util. Factor	1.00	0.95	0.95	0.88	0.97	1.00
Flt	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	2787	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	2787	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	1141	1438	1251	1065	253
RTOR Reduction (vph)	0	0	0	362	0	0
Lane Group Flow (vph)	93	1141	1438	889	1065	253
Turn Type	Prot	NA	NA	Prot	Prot	Free
Protected Phases	5	2	6	6	4	
Permitted Phases						Free
Actuated Green, G (s)	12.0	103.0	85.8	85.8	57.2	170.0
Effective Green, g (s)	12.0	103.0	85.8	85.8	57.2	170.0
Actuated g/C Ratio	0.07	0.61	0.50	0.50	0.34	1.00
Clearance Time (s)	4.4	4.9	5.7	5.7	4.9	
Vehicle Extension (s)	2.0	3.6	4.6	4.6	3.6	
Lane Grp Cap (vph)	124	2144	1786	1406	1155	1583
v/s Ratio Prot	c0.05	0.32	c0.41	0.32	c0.31	
v/s Ratio Perm						0.16
v/c Ratio	0.75	0.53	0.81	0.63	0.92	0.16
Uniform Delay, d1	77.5	19.5	35.1	30.6	54.3	0.0
Progression Factor	1.00	1.00	1.06	1.24	0.97	1.00
Incremental Delay, d2	19.2	0.9	3.3	1.8	11.3	0.2
Delay (s)	96.7	20.4	40.4	39.8	64.1	0.2
Level of Service	F	C	D	D	E	A
Approach Delay (s)		26.1	40.1		51.8	
Approach LOS		C	D		D	
Intersection Summary						
HCM 2000 Control Delay			39.8		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.84			
Actuated Cycle Length (s)			170.0		Sum of lost time (s)	15.0
Intersection Capacity Utilization			81.8%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year with Preferred LU
 Timing Plan: PM Peak Period

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	518	358	1161	1386	707
v/c Ratio	0.99	0.70	0.44	0.96	0.88
Control Delay	68.8	31.2	3.9	42.1	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	31.2	3.9	42.1	29.4
Queue Length 50th (ft)	122	214	86	370	228
Queue Length 95th (ft)	#226	251	283	#525	#465
Internal Link Dist (ft)	261		749	743	
Turn Bay Length (ft)	270	205			70
Base Capacity (vph)	525	508	2664	1440	800
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.99	0.70	0.44	0.96	0.88
Intersection Summary					
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.					

Balboa Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W	W	W	W	W	W
Traffic Volume (vph)	322	155	329	1068	1275	650
Future Volume (vph)	322	155	329	1068	1275	650
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	1.00	0.95	0.95	1.00
Flt	0.95	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.97	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3326	1770	3539	3539	3539	1583
Flt Permitted	0.97	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3326	1770	3539	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	350	168	358	1161	1386	707
RTOR Reduction (vph)	72	0	0	0	0	156
Lane Group Flow (vph)	446	0	358	1161	1386	551
Turn Type	Prot	Prot	Prot	NA	NA	Perm
Protected Phases	4	5	2	2	6	
Permitted Phases					6	
Actuated Green, G (s)	11.6	24.4	64.0	34.6	34.6	
Effective Green, g (s)	11.6	24.4	64.0	34.6	34.6	
Actuated g/C Ratio	0.14	0.29	0.75	0.41	0.41	
Clearance Time (s)	4.4	4.4	5.0	5.6	5.6	
Vehicle Extension (s)	2.0	2.0	4.0	4.8	4.8	
Lane Grp Cap (vph)	453	508	2664	1440	644	
v/s Ratio Prot	c0.13	c0.20	0.33	c0.39	0.35	
v/s Ratio Perm					0.86	
v/c Ratio	0.99	0.70	0.44	0.96	0.86	
Uniform Delay, d1	36.6	27.1	3.9	24.6	22.9	
Progression Factor	1.00	0.90	0.90	1.00	1.00	
Incremental Delay, d2	38.0	2.9	0.4	16.3	13.7	
Delay (s)	74.6	27.3	3.9	40.9	36.6	
Level of Service	E	C	A	A	D	
Approach Delay (s)	74.6		9.4	39.4		
Approach LOS	E		A	D		
Intersection Summary						
HCM 2000 Control Delay			32.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.88			
Actuated Cycle Length (s)			85.0	Sum of lost time (s)	14.4	
Intersection Capacity Utilization			79.5%	ICU Level of Service	D	
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
17: Mission Bay Dr & Damon Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	205	207	1308	246	107	1480
v/c Ratio	0.82	0.65	0.62	0.25	0.33	0.52
Control Delay	94.7	40.6	24.6	9.7	47.6	1.0
Queue Delay	0.0	0.0	31.2	0.9	0.0	0.5
Total Delay	94.7	40.6	55.8	10.6	47.6	1.5
Queue Length 50th (ft)	225	103	477	62	90	5
Queue Length 95th (ft)	307	189	617	126	m93	m50
Internal Link Dist (ft)	1218		376			749
Turn Bay Length (ft)		75		160	185	
Base Capacity (vph)	391	435	2103	988	322	2836
Starvation Cap Reductn	0	0	864	495	0	792
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.48	1.06	0.50	0.33	0.72
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Station
17: Mission Bay Dr & Damon Ave

Balboa Station
18: Mission Bay Dr & Driveway/Magnolia Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	189	190	1203	226	98	1362
Traffic Volume (vph)	189	190	1203	226	98	1362
Future Volume (vph)	189	190	1203	226	98	1362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Flt	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)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	207	1308	246	107	1480
RTOR Reduction (vph)	0	94	0	47	0	0
Lane Group Flow (vph)	205	113	1308	199	107	1480
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4		2		
Actuated Green, G (s)	24.1	24.1	101.1	101.1	31.0	136.3
Effective Green, g (s)	24.1	24.1	101.1	101.1	31.0	136.3
Actuated g/C Ratio	0.14	0.14	0.59	0.59	0.18	0.80
Clearance Time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Vehicle Extension (s)	2.0	2.0	3.8	3.8	2.0	3.5
Lane Grp Cap (vph)	250	224	2104	941	322	2837
v/s Ratio Prot	c0.12		c0.37		0.06	c0.42
v/s Ratio Perm		0.07		0.13		
v/c Ratio	0.82	0.50	0.62	0.21	0.33	0.52
Uniform Delay, d1	70.8	67.4	22.2	16.0	60.5	5.7
Progression Factor	1.00	1.00	1.00	1.00	0.76	0.12
Incremental Delay, d2	17.7	0.6	1.4	0.5	0.1	0.2
Delay (s)	88.6	68.1	23.5	16.5	46.3	0.9
Level of Service	F	E	C	B	D	A
Approach Delay (s)	78.3		22.4		4.0	
Approach LOS	E		C		A	
Intersection Summary						
HCM 2000 Control Delay			20.7		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			170.0		Sum of lost time (s)	13.8
Intersection Capacity Utilization			60.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	384	17	100	1485	33	1320
v/c Ratio	1.17	0.06	0.80	0.62	0.42	0.59
Control Delay	153.7	37.1	115.4	10.5	93.8	18.3
Queue Delay	0.0	0.0	0.0	0.2	0.0	6.4
Total Delay	153.7	37.1	115.4	10.7	93.8	24.7
Queue Length 50th (ft)	-469	8	105	268	37	421
Queue Length 95th (ft)	#691	32	m#175	576	75	485
Internal Link Dist (ft)	303	271		804		461
Turn Bay Length (ft)			65		50	
Base Capacity (vph)	329	291	136	2412	167	2224
Starvation Cap Reductn	0	0	0	266	0	848
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.17	0.06	0.74	0.69	0.20	0.96
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Station
18: Mission Bay Dr & Driveway/Magnolia Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	132	8	213	6	2	7	92	1363	3	30	962	252
Future Volume (vph)	132	8	213	6	2	7	92	1363	3	30	962	252
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	5.0		4.4	5.0	
Lane Util. Factor	1.00			1.00			1.00	0.95		1.00	0.95	
Flt Protected	0.98			0.98			0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1680			1709			1770	3538		1770	3429	
Flt Permitted	0.87			0.82			0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1489			1423			1770	3538		1770	3429	
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)	143	9	232	7	2	8	100	1482	3	33	1046	274
RTOR Reduction (vph)	0	32	0	0	6	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	352	0	0	11	0	100	1485	0	33	1306	0
Turn Type	Perm	NA	NA	Perm	NA	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	8			4		4	1	6		5		2
Permitted Phases	8			4		4		6				
Actuated Green, G (s)	34.0			34.0		34.0	12.1	115.0		6.7	109.6	
Effective Green, g (s)	34.0			34.0		34.0	12.1	115.0		6.7	109.6	
Actuated g/C Ratio	0.20			0.20		0.20	0.07	0.68		0.04	0.64	
Clearance Time (s)	4.9			4.9		4.9	4.4	5.0		4.4	5.0	
Vehicle Extension (s)	2.0			2.0		2.0	2.0	3.7		2.0	3.7	
Lane Grp Cap (vph)	297			284		284	125	2393		69	2210	
v/s Ratio Prot	c0.24			0.01		0.01	c0.06	c0.42		0.02	0.38	
v/c Ratio	1.19			0.04		0.04	0.80	0.62		0.48	0.59	
Uniform Delay, d1	68.0			54.8		54.8	77.8	15.3		79.9	17.3	
Progression Factor	1.00			1.00		1.00	1.08	0.61		1.00	1.00	
Incremental Delay, d2	112.2			0.0		0.0	22.9	1.0		1.9	1.2	
Delay (s)	180.2			54.8		54.8	107.0	10.4		81.8	18.5	
Level of Service	F			D		D	F	B		F	B	
Approach Delay (s)	180.2			54.8		54.8	16.5	16.5		20.1	20.1	
Approach LOS	F			D		D	B	B		C	C	
Intersection Summary												
HCM 2000 Control Delay	36.9						HCM 2000 Level of Service					
HCM 2000 Volume to Capacity ratio	0.77						D					
Actuated Cycle Length (s)	170.0						Sum of lost time (s)					
Intersection Capacity Utilization	79.3%						ICU Level of Service					
Analysis Period (min)	15						D					
Critical Lane Group												

Balboa Station
19: Mission Bay Dr & Driveway/Bunker Hill St

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Lane Group	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	304	1344	204	1095
v/c Ratio	0.86	0.69	0.98	0.43
Control Delay	41.1	19.4	95.0	8.7
Queue Delay	1.5	0.2	0.0	0.3
Total Delay	42.6	19.6	95.0	9.0
Queue Length 50th (ft)	81	398	137	251
Queue Length 95th (ft)	#196	578	m#244	m309
Internal Link Dist (ft)	514	492	804	804
Turn Bay Length (ft)	416	1959	208	2565
Base Capacity (vph)	0	124	0	0
Starvation Cap Reductn	30	0	0	749
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.79	0.73	0.98	0.60
Intersection Summary				
# 95th percentile volume exceeds capacity, queue may be longer.				
Queue shown is maximum after two cycles.				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Station
19: Mission Bay Dr & Driveway/Bunker Hill St

Balboa Station
20: Mission Bay Dr & Rosewood St

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	154	0	126	0	1194	42	188	1007	0
Future Volume (vph)	0	0	0	154	0	126	0	1194	42	188	1007	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9			4.9			5.0		4.4	5.0		
Lane Util. Factor	1.00			1.00			0.95		1.00	0.95		
Flt	0.94			0.97			0.99		1.00	1.00		
Flt Protected							1.00		0.95	1.00		
Satd. Flow (prot)	1703			1703			3521		1770	3539		
Flt Permitted	0.83			0.83			1.00		0.95	1.00		
Satd. Flow (perm)	1450			1450			3521		1770	3539		
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)	0	0	0	167	0	137	0	1298	46	204	1095	0
RTOR Reduction (vph)	0	0	0	123	0	0	3	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	181	0	0	1341	0	204	1095	0	0
Turn Type				Perm	NA	NA	Prot	NA	Prot	NA		
Protected Phases	4	4		4			1	6	5	2		
Permitted Phases												
Actuated Green, G (s)				13.5			47.2		10.0	61.6		
Effective Green, g (s)				13.5			47.2		10.0	61.6		
Actuated g/C Ratio				0.16			0.56		0.12	0.72		
Clearance Time (s)				4.9			5.0		4.4	5.0		
Vehicle Extension (s)				2.0			3.2		2.0	3.2		
Lane Grp Cap (vph)				230			1955		208	2564		
v/s Ratio Prot				c0.12			c0.38		c0.12	0.31		
v/c Ratio				0.79			0.69		0.98	0.43		
Uniform Delay, d1				34.4			13.6		37.4	4.7		
Progression Factor				1.00			1.26		1.22	1.61		
Incremental Delay, d2				15.1			1.4		47.3	0.4		
Delay (s)				49.4			18.4		92.9	7.9		
Level of Service				D			B		F	A		
Approach Delay (s)	0.0			49.4			18.4			21.3		
Approach LOS	A			D			B			C		
Intersection Summary												
HCM 2000 Control Delay				22.9			HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio				0.75								
Actuated Cycle Length (s)				85.0			Sum of lost time (s)		14.3			
Intersection Capacity Utilization				72.9%			ICU Level of Service		C			
Analysis Period (min)				15								
c Critical Lane Group												

Balboa Station
20: Mission Bay Dr & Rosewood St

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBT
Lane Configurations	W		4+4	2	4+4
Traffic Volume (vph)	4	25	2486	27	5
Future Volume (vph)	4	25	2486	27	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.95	1.00
Flt	0.88	1.00	1.00	1.00	1.00
Flt Protected	0.99	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1633	5077	1770	3539	1633
Flt Permitted	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1633	5077	1770	3539	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	27	2102	29	5
RTOR Reduction (vph)	26	0	1	0	0
Lane Group Flow (vph)	5	0	2730	0	5
Turn Type	Prot	NA	Prot	NA	NA
Protected Phases	8	2	1	1	6
Permitted Phases					
Actuated Green, G (s)	2.9	68.8	1.3	74.1	
Effective Green, g (s)	2.9	68.8	1.3	74.1	
Actuated g/C Ratio	0.03	0.81	0.02	0.87	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	55	4109	27	3085	
v/s Ratio Prot	0.00	0.54	0.00	0.61	
v/s Ratio Perm					
v/c Ratio	0.09	0.66	0.19	0.70	
Uniform Delay, d1	39.8	3.3	41.3	1.8	
Progression Factor	1.00	1.00	1.12	1.13	
Incremental Delay, d2	0.7	0.9	2.4	1.0	
Delay (s)	40.5	4.2	48.5	3.0	
Level of Service	D	A	D	A	
Approach Delay (s)	40.5	4.2	3.1		
Approach LOS	D	A	A		
Intersection Summary					
HCM 2000 Control Delay		3.9		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio		0.72			
Actuated Cycle Length (s)		85.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization		65.1%		ICU Level of Service	C
Analysis Period (min)		15			
c Critical Lane Group					

Balboa Station
21: Santa Fe St & Damon Ave

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	4	4
Sign Control	Stop			Stop	Stop	Stop
Traffic Volume (vph)	109	66	81	65	97	154
Future Volume (vph)	109	66	81	65	97	154
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	118	72	88	71	105	167
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	190	159	272			
Volume Left (vph)	118	88	0			
Volume Right (vph)	72	0	167			
Hadj (s)	-0.07	0.14	-0.33			
Departure Headway (s)	4.8	4.8	4.3			
Degree Utilization, x	0.25	0.21	0.32			
Capacity (veh/h)	693	706	804			
Control Delay (s)	9.4	9.1	9.3			
Approach Delay (s)	9.4	9.1	9.3			
Approach LOS	A	A	A			
Intersection Summary						
Delay			9.3			
Level of Service			A			
Intersection Capacity Utilization			42.5%			
Analysis Period (min)			15			
ICU Level of Service			A			

Balboa Station
22: Morena Blvd & Jutland Dr

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Stop	Stop	Stop	Stop	Stop
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Volume (vph)	588	10	176	259	17	317
Future Volume (vph)	588	10	176	259	17	317
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	639	11	191	282	18	345
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	639	11	191	282	133	230
Volume Left (vph)	639	0	0	0	18	0
Volume Right (vph)	0	11	0	282	0	0
Head (s)	0.53	-0.67	0.03	-0.67	0.10	0.03
Departure Headway (s)	7.3	6.1	7.1	6.4	7.3	7.2
Degree Utilization, x	1.30	0.02	0.38	0.50	0.27	0.46
Capacity (veh/h)	497	567	498	553	483	491
Control Delay (s)	171.0	8.0	13.2	14.6	11.8	15.1
Approach Delay (s)	168.3		14.0		13.9	
Approach LOS	F		B		B	
Intersection Summary						
Delay	81.5					
Level of Service	F					
Intersection Capacity Utilization	60.6%					
Analysis Period (min)	15					
	ICU Level of Service B					

Balboa Station
23: Morena Blvd & Costco Dwy

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	WBL	NBT	SBL	SBT
Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	494	752	60	970
v/c Ratio	0.53	0.53	0.26	0.63
Control Delay	13.5	6.7	21.2	10.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.5	6.7	21.2	10.1
Queue Length 50th (ft)	34	20	10	68
Queue Length 95th (ft)	90	77	45	133
Internal Link Dist (ft)	195	3170		1658
Turn Bay Length (ft)			110	
Base Capacity (vph)	2339	1758	233	2594
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.43	0.26	0.37
Intersection Summary				

Balboa Station
23: Morena Blvd & Costco Dwy

Horizon Year with Preferred LU
 Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W<W<W		W<W		W<W	W<W
Traffic Volume (vph)	378	76	320	372	55	892
Future Volume (vph)	378	76	320	372	55	892
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.5			5.5
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00
Flt	0.97	0.92	1.00	1.00	1.00	1.00
Flt Protected	0.96		1.00		0.95	1.00
Satd. Flow (prot)	3382		3254		1770	3539
Flt Permitted	0.96		1.00		0.95	1.00
Satd. Flow (perm)	3382		3254		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	411	83	348	404	60	970
RTOR Reduction (vph)	36	0	269	0	0	0
Lane Group Flow (vph)	458	0	483	0	60	970
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	9.8		13.1		1.5	19.0
Effective Green, g (s)	9.8		13.1		1.5	19.0
Actuated g/C Ratio	0.25		0.33		0.04	0.48
Clearance Time (s)	4.9		5.5		4.4	5.5
Vehicle Extension (s)	2.0		2.8		2.0	2.8
Lane Grp Cap (vph)	845		1087		67	1715
v/s Ratio Prot	0.14		0.15		0.03	0.27
v/s Ratio Perm						
v/c Ratio	0.54		0.44		0.90	0.57
Uniform Delay, d1	12.8		10.2		18.8	7.2
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.4		0.3		72.6	0.4
Delay (s)	13.1		10.5		91.4	7.6
Level of Service	B		B		F	A
Approach Delay (s)	13.1		10.5			12.4
Approach LOS	B		B			B
Intersection Summary						
HCM 2000 Control Delay			11.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			39.2		Sum of lost time (s)	14.8
Intersection Capacity Utilization			49.6%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
24: Morena Blvd & Avati Dr

Horizon Year with Preferred LU
 Timing Plan: PM Peak Period

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	200	59	713	201	73	1364
v/c Ratio	0.34	0.18	0.46	0.15	0.30	0.67
Control Delay	18.7	7.8	11.5	0.9	22.4	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	7.8	11.5	0.9	22.4	8.2
Queue Length 50th (ft)	24	0	75	0	17	97
Queue Length 95th (ft)	51	24	125	12	52	168
Internal Link Dist (ft)	317		2304			3170
Turn Bay Length (ft)		135		115	120	
Base Capacity (vph)	2186	1029	2596	1583	275	2838
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.06	0.27	0.13	0.27	0.48
Intersection Summary						

Balboa Station
24: Morena Blvd & Avati Dr

Balboa Station
25: Morena Blvd & Balboa WB Ramps

Horizon Year with Preferred LU
Timing Plan: PM Peak Period







Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↔	↔↔	↔	↔	↔↔
Traffic Volume (vph)	184	54	0	656	185	67	1255
Future Volume (vph)	184	54	0	656	185	67	1255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	5.7	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95	
Flt	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)	3433	1583	3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	200	59	0	713	201	73	1364
RTOR Reduction (vph)	0	49	0	0	84	0	0
Lane Group Flow (vph)	200	10	0	713	117	73	1364
Turn Type	Prot	Prot	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	7	1	6	7	5	2
Permitted Phases							
Actuated Green, G (s)	7.4	7.4		18.8	26.2	3.6	27.1
Effective Green, g (s)	7.4	7.4		18.8	26.2	3.6	27.1
Actuated g/C Ratio	0.16	0.16		0.42	0.58	0.08	0.60
Clearance Time (s)	4.9	4.9		6.0	4.9	4.4	5.7
Vehicle Extension (s)	2.0	2.0		5.2	2.0	2.0	5.0
Lane Grp Cap (vph)	563	259		1475	919	141	2126
v/s Ratio Prot	0.06	0.01		0.20	0.02	0.04	0.39
v/s Ratio Perm					0.05		
v/c Ratio	0.36	0.04		0.48	0.13	0.52	0.64
Uniform Delay, d1	16.7	15.9		9.6	4.3	19.9	5.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		0.6	0.0	1.3	0.9
Delay (s)	16.9	15.9		10.2	4.3	21.3	6.8
Level of Service	B	B		B	A	C	A
Approach Delay (s)	16.6			8.9			7.5
Approach LOS	B			A			A
Intersection Summary							
HCM 2000 Control Delay			8.9		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.67				
Actuated Cycle Length (s)			45.1		Sum of lost time (s)		15.3
Intersection Capacity Utilization			55.6%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	163	282	98	1363	845	1054
v/c Ratio	0.42	0.52	0.58	0.66	0.55	0.67
Control Delay	16.9	7.2	36.9	8.3	12.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	7.2	36.9	8.3	12.0	2.2
Queue Length 50th (ft)	32	6	22	88	76	0
Queue Length 95th (ft)	69	48	#82	190	145	0
Internal Link Dist (ft)	439			882	2304	
Turn Bay Length (ft)		50	200			100
Base Capacity (vph)	681	761	170	2114	1567	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.37	0.58	0.64	0.54	0.67
Intersection Summary						
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.					

Balboa Station
25: Morena Blvd & Balboa WB Ramps

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	150	259	90	1254	777	970
Future Volume (vph)	150	259	90	1254	777	970
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	282	98	1363	845	1054
RTOR Reduction (vph)	0	193	0	0	0	0
Lane Group Flow (vph)	163	89	98	1363	845	1054
Turn Type	Perm	Perm	Prot	NA	NA	Free
Protected Phases			5	2	6	
Permitted Phases	4	4				Free
Actuated Green, G (s)	9.2	9.2	3.2	25.2	18.0	42.4
Effective Green, g (s)	9.2	9.2	3.2	25.2	18.0	42.4
Actuated g/C Ratio	0.22	0.22	0.08	0.59	0.42	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	384	343	133	2103	1502	1583
v/s Ratio Prot	0.09	0.06	0.06	0.39	0.24	
v/s Ratio Perm	0.42	0.26	0.74	0.65	0.56	0.67
v/c Ratio	14.3	13.8	19.2	5.7	9.2	0.0
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.4	19.0	0.7	0.5	2.2
Delay (s)	15.1	14.2	38.2	6.4	9.7	2.2
Level of Service	B	B	D	A	A	A
Approach Delay (s)	14.5		8.5	5.6		
Approach LOS	B		A	A		
Intersection Summary						
HCM 2000 Control Delay	7.7		HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.93					
Actuated Cycle Length (s)	42.4		Sum of lost time (s)		12.0	
Intersection Capacity Utilization	49.6%		ICU Level of Service		A	
Analysis Period (min)	15					
Critical Lane Group						

Balboa Station
26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	87	34	359	576	5	896	141
v/c Ratio	0.29	0.05	0.73	0.85	0.03	0.56	0.62
Control Delay	14.4	9.7	25.1	25.4	7.4	9.6	32.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	9.7	25.1	25.4	7.4	9.6	32.4
Queue Length 50th (ft)	18	5	89	108	1	76	28
Queue Length 95th (ft)	46	19	#204	#278	5	117	#107
Internal Link Dist (ft)	105	678			1978		882
Base Bay Length (ft)					100		135
Base Capacity (vph)	343	755	554	747	211	1927	250
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.05	0.65	0.77	0.02	0.46	0.51
Intersection Summary							
# 95th percentile volume exceeds capacity, queue may be longer.							
Queue shown is maximum after two cycles.							

Balboa Station
26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

Balboa Station
27: Morena Blvd & Baker St

Horizon Year with Preferred LU
 Timing Plan: PM Peak Period

Horizon Year with Preferred LU
 Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	80	27	5	300	30	530	5	644	180	130	895	11
Traffic Volume (veh/h)	80	27	5	300	30	530	5	644	180	130	895	11
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Lane Util. Factor	1.00	0.98	1.00	0.96	1.00	0.96	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1822	1782	1583	1770	1583	1770	3423	1770	3533	1770	3533
Flt Permitted	0.45	1.00	0.72	1.00	0.21	1.00	0.21	1.00	0.24	1.00	0.24	1.00
Satd. Flow (perm)	830	1822	1343	1583	384	3423	455	3533	455	3533	455	3533
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)	87	29	5	326	33	576	5	700	196	141	973	12
RTOR Reduction (vph)	0	3	0	0	0	101	0	54	0	0	2	0
Lane Group Flow (vph)	87	31	0	0	359	475	5	842	0	141	983	0
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases	4	8	8	2	2	2	2	2	2	2	2	2
Permitted Phases	4	8	8	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	16.5	16.5	16.5	16.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
Effective Green, g (s)	16.5	16.5	16.5	16.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	305	671	494	583	174	1551	206	1600	206	1600	206	1600
v/s Ratio Prot	0.02	0.02	0.27	0.30	0.01	0.25	0.25	0.28	0.25	0.28	0.25	0.28
v/s Ratio Perm	0.10	0.29	0.73	0.81	0.03	0.54	0.68	0.61	0.54	0.68	0.61	0.61
Uniform Delay, d1	10.0	9.1	12.2	12.8	6.8	8.9	9.7	9.3	9.7	9.7	9.3	9.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	5.3	8.6	0.1	0.4	9.1	0.7	9.1	0.7	9.1	0.7
Delay (s)	10.5	9.1	17.5	21.3	6.9	9.3	18.8	10.0	18.8	10.0	18.8	10.0
Level of Service	B	A	B	C	A	A	B	A	B	A	B	A
Approach Delay (s)	10.1	19.9	19.9	19.9	9.3	9.3	11.1	11.1	11.1	11.1	11.1	11.1
Approach LOS	B	B	B	B	A	A	B	B	B	B	B	B
Intersection Summary												
HCM 2000 Control Delay	13.2											
HCM 2000 Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	44.8											
Intersection Capacity Utilization	70.8%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	↑	↑	↓	↓
Traffic Volume (veh/h)	15	28	380	22	47	840
Future Volume (Veh/h)	15	28	380	22	47	840
Sign Control	Stop	Stop	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	30	413	24	51	913
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)			None			None
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
VC, conflicting volume	972	413			437	
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	972	413			437	
IC, single (s)	6.8	6.9			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	93	95			95	
dM capacity (veh/h)	239	588			1119	
Direction, Lane #						
	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	46	413	24	51	456	456
Volume Left	16	0	0	51	0	0
Volume Right	30	0	24	0	0	0
cSH	390	1700	1700	1119	1700	1700
Volume to Capacity	0.12	0.24	0.01	0.05	0.27	0.27
Queue Length 95th (ft)	10	0	0	4	0	0
Control Delay (s)	15.5	0.0	0.0	8.4	0.0	0.0
Lane LOS	C	C	A	A	A	A
Approach Delay (s)	15.5	0.0		0.4		
Approach LOS	C					
Intersection Summary						
Average Delay	0.8					
Intersection Capacity Utilization	36.7%					
ICU Level of Service	A					
Analysis Period (min)	15					

Balboa Station
28: Morena Blvd & Gesner St

Balboa Station
28: Morena Blvd & Gesner St

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Horizon Year with Preferred LU
Timing Plan: PM Peak Period

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	134	439	50	111	985
v/c Ratio	0.34	0.26	0.06	0.30	0.44
Control Delay	9.8	10.4	4.7	17.5	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	10.4	4.7	17.5	5.5
Queue Length 50th (ft)	8	38	0	21	49
Queue Length 95th (ft)	43	76	16	61	100
Internal Link Dist (ft)	1333	298			3362
Turn Bay Length (ft)			95	95	
Base Capacity (vph)	1295	1995	914	461	2876
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.22	0.05	0.24	0.34
Intersection Summary					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑	↑	↑	↑↑
Traffic Volume (vph)	38	86	404	46	102	906
Future Volume (vph)	38	86	404	46	102	906
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		5.9	5.9	4.4	6.0
Lane Util. Factor	1.00		0.95	1.00	1.00	0.95
Frt	0.91		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1663		3539	1583	1770	3539
Flt Permitted	0.98		1.00	1.00	0.95	1.00
Satd. Flow (perm)	1663		3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	93	439	50	111	985
RTOR Reduction (vph)	81	0	0	31	0	0
Lane Group Flow (vph)	53	0	439	19	111	985
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	4.5		13.4	13.4	3.6	21.3
Effective Green, g (s)	4.5		13.4	13.4	3.6	21.3
Actuated g/c Ratio	0.12		0.37	0.37	0.10	0.59
Clearance Time (s)	4.4		5.9	5.9	4.4	6.0
Vehicle Extension (s)	2.0		4.4	4.4	2.0	4.2
Lane Grp Cap (vph)	206		1310	585	176	2082
v/s Ratio Prot	0.03		0.12		0.06	0.28
v/c Ratio Perm				0.01		
v/c Ratio	0.26		0.34	0.03	0.63	0.47
Uniform Delay, d1	14.3		8.2	7.3	15.7	4.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		0.3	0.0	5.3	0.3
Delay (s)	14.6		8.4	7.3	21.0	4.5
Level of Service	B		A	A	C	A
Approach Delay (s)	14.6		8.3		6.2	
Approach LOS	B		A		A	

Intersection Summary					
HCM 2000 Control Delay		7.4		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio		0.52			
Actuated Cycle Length (s)		36.2		Sum of lost time (s)	14.7
Intersection Capacity Utilization		41.1%		ICU Level of Service	A
Analysis Period (min)		15			
c Critical Lane Group					

Queues

29: Garnet Ave & Balboa WB Ramps

12/20/2017



Lane Group	EBT	WBT	WBR	SBR
Lane Group Flow (vph)	2317	1153	445	1152
v/c Ratio	0.46	0.59	0.50	0.75
Control Delay	0.3	21.0	3.8	19.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.3	21.0	3.8	19.1
Queue Length 50th (ft)	0	167	0	233
Queue Length 95th (ft)	0	206	52	396
Internal Link Dist (ft)	265	362		
Turn Bay Length (ft)		300		
Base Capacity (vph)	5081	2504	1005	1536
Starvation Cap Reductn	0	0	0	1
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.46	0.46	0.44	0.75
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

29: Garnet Ave & Balboa WB Ramps

12/20/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗↗↗	↗↗↗	↖↖↖	↖		↘↘↘
Traffic Volume (vph)	0	2132	1061	409	0	1060
Future Volume (vph)	0	2132	1061	409	0	1060
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	4.0	4.0		2.0
Lane Util. Factor		0.91	0.91	1.00		0.88
Frt		1.00	1.00	0.85		0.85
Flt Protected		1.00	1.00	1.00		1.00
Satd. Flow (prot)		5085	5085	1583		2787
Flt Permitted		1.00	1.00	1.00		1.00
Satd. Flow (perm)		5085	5085	1583		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2317	1153	445	0	1152
RTOR Reduction (vph)	0	0	0	274	0	27
Lane Group Flow (vph)	0	2317	1153	171	0	1125
Turn Type	NA	NA	NA	Perm		Prot
Protected Phases	1 4	8				1
Permitted Phases				8		
Actuated Green, G (s)	81.7	31.4	31.4	31.4		44.3
Effective Green, g (s)	77.7	31.4	31.4	31.4		44.3
Actuated g/C Ratio	0.95	0.38	0.38	0.38		0.54
Clearance Time (s)		4.0	4.0	4.0		2.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	4836	1954	608			1511
v/s Ratio Prot	0.46	c0.23				c0.40
v/s Ratio Perm			0.11			
v/c Ratio	0.48	0.59	0.28			0.74
Uniform Delay, d1	0.2	20.0	17.4			14.4
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.1	0.5	0.3			2.0
Delay (s)	0.3	20.5	17.6			16.4
Level of Service	A	C	B			B
Approach Delay (s)	0.3	19.7			16.4	
Approach LOS	A	B			B	
Intersection Summary						
HCM 2000 Control Delay		10.1		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.68				
Actuated Cycle Length (s)		81.7		Sum of lost time (s)		6.0
Intersection Capacity Utilization		64.2%		ICU Level of Service		C
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Station

Horizon Year with Preferred LU

Timing Plan: PM Peak Period

Arterial Level of Service: EB Garnet Ave									
Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS	
Onych St	II	30	12.1	59.9	109.0	0.09	2.0	F	
Balboa Ave	II	30	23.5	29.8	53.3	0.19	12.5	F	
Soledad Mtn Rd	II	35	27.3	8.3	35.6	0.23	23.2	C	
Bond St	II	35	21.0	0.5	21.5	0.17	28.1	B	
Mission Bay Dr	II	35	15.5	59.9	75.4	0.12	5.9	F	
I-5 Off-ramp*	II	45	24.2	10.0	12.4	36.6	23	D	
Balboa WB Ramps	II	45	7.1	1.0	8.1	0.07	29.0	B	
Miraga Ave*	II	45	22.2	6.4	4.3	26.5	20	C	
Clairmont Dr	II	45	49.7	71.9	121.6	0.62	18.4	D	
Total	II		202.6	293.6	496.2	1.92	13.9	E	

Arterial Level of Service: WB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS	
Clairmont Dr	II	45	14.7	57.0	72.6	0.13	6.7	F	
Miraga Ave	II	45	49.7	19.5	69.2	0.62	32.3	B	
Balboa WB Ramps	II	45	22.2	25.9	48.1	0.20	15.3	E	
Santa Fe St	II	45	7.1	0.3	7.4	0.07	31.8	B	
Mission Bay Dr	II	45	24.2	56.9	81.1	0.23	10.3	F	
Bond St	II	35	15.5	1.1	16.6	0.12	26.9	C	
Soledad Mtn Rd	II	35	21.0	27.7	48.7	0.17	12.4	F	
Garnet Ave	II	35	27.3	1.2	28.5	0.23	29.0	B	
Onych St	II	30	23.5	18.1	41.6	0.19	16.0	E	
Total	II		205.2	208.6	413.8	1.97	17.1	D	

Arterial Level of Service: NB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS	
Reverend St	III	35	29.6	9.9	27.4	0.29	25.9	B	
Mission Bay Dr	III	35	15.8	17.7	39.5	0.12	12.5	E	
Bunker Hill St	III	35	14.6	19.4	34.0	0.11	11.5	E	
Magnolia Ave	III	35	21.4	10.5	31.9	0.17	18.9	C	
Garnet Ave	III	35	13.8	40.4	54.2	0.10	6.8	F	
Damon Ave	III	35	11.7	24.6	36.3	0.09	8.6	F	
Bluffs Ave	III	35	20.1	3.9	24.0	0.16	23.6	C	
Total	III		121.0	120.3	241.3	0.94	14.0	E	

KHA
Arterial Level of ServiceSynchro 9 Report
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Balboa Station

Horizon Year with Preferred LU

Timing Plan: PM Peak Period

Arterial Level of Service: SB Mission Bay Dr									
Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS	
Bluffs Ave	III	35	20.0	42.1	52.1	0.16	9.0	F	
Damon Ave	III	35	20.1	1.0	21.1	0.16	26.8	B	
Garnet Ave	III	35	11.7	120.1	131.8	0.09	2.4	F	
Driveway	III	35	13.8	18.3	32.1	0.10	11.5	E	
Driveway	III	35	21.4	8.7	30.1	0.17	20.0	C	
Grand Ave	III	35	14.6	65.0	79.6	0.11	4.9	F	
Reverend St	III	35	15.8	9.8	18.6	0.12	22.6	C	
Total	III		117.4	258.0	375.4	0.89	8.6	F	




















KHA
Arterial Level of ServiceSynchro 9 Report
Page 2

APPENDIX I

MITIGATED PREFERRED FUTURE CONDITIONS ANALYSIS SUPPORTING INFORMATION

Balboa Transit Station
1: Olney St & Garnet Ave

























Horizon Year with Preferred LUMITIGATED
Timing Plan: AM Peak Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1063	108	7	679	9	115	75	17	69	131	26
Future Volume (vph)	13	1063	108	7	679	9	115	75	17	69	131	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9		4.9	4.9			4.9	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.97			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	1837		1770	3532		1770	1812			1806	
Flt Permitted	0.35	1.00		0.05	1.00		0.42	1.00			0.85	
Satd. Flow (perm)	657	1837		97	3532		781	1812			1560	
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)	14	1155	117	8	738	10	125	82	18	75	142	28
RTOR Reduction (vph)	0	3	0	0	1	0	0	7	0	0	4	0
Lane Group Flow (vph)	14	1269	0	8	747	0	125	93	0	0	241	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	77.2	77.2		77.2	77.2		19.0	19.0			19.0	
Effective Green, g (s)	77.2	77.2		77.2	77.2		19.0	19.0			19.0	
Actuated g/C Ratio	0.73	0.73		0.73	0.73		0.18	0.18			0.18	
Clearance Time (s)	4.9	4.9		4.9	4.9		4.9	4.9			4.9	
Vehicle Extension (s)	3.4	3.4		5.9	5.9		2.0	2.0			2.0	
Lane Grp Cap (vph)	478	1337		70	2572		139	324			279	
v/s Ratio Prot		c0.69			0.21			0.05				
v/s Ratio Perm	0.02			0.08			c0.16				0.15	
v/c Ratio	0.03	0.95		0.11	0.29		0.90	0.29			0.86	
Uniform Delay, d1	4.0	12.7		4.3	5.0		42.6	37.6			42.2	
Progression Factor	1.00	1.00		1.44	1.39		1.00	1.00			1.00	
Incremental Delay, d2	0.1	15.1		3.0	0.3		46.0	0.2			22.4	
Delay (s)	4.1	27.8		9.1	7.1		88.6	37.8			64.6	
Level of Service	A	C		A	A		F	D			E	
Approach Delay (s)		27.5			7.2			66.0			64.6	
Approach LOS		C			A			E			E	
Intersection Summary												
HCM 2000 Control Delay			28.5			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			106.0			Sum of lost time (s)			9.8			
Intersection Capacity Utilization			89.6%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Horizon Year with Preferred LU MITIGATED

Timing Plan: AM Peak Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	661	659	538	231	526	247	441	568	282	252	338	358
Future Volume (vph)	661	659	538	231	526	247	441	568	282	252	338	358
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	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	1863	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	1863	2787
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)	718	716	585	251	572	268	479	617	307	274	367	389
RTOR Reduction (vph)	0	0	83	0	0	65	0	0	51	0	0	41
Lane Group Flow (vph)	718	716	502	251	572	203	479	617	256	274	367	348
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	22.6	36.1	58.2	13.0	26.5	40.6	22.1	43.2	56.2	14.1	34.8	57.4
Effective Green, g (s)	22.6	36.1	58.2	13.0	26.5	40.6	22.1	43.2	56.2	14.1	34.8	57.4
Actuated g/C Ratio	0.18	0.29	0.47	0.10	0.21	0.32	0.18	0.35	0.45	0.11	0.28	0.46
Clearance Time (s)	4.4	4.9	4.4	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	620	1022	737	357	750	514	606	1223	711	387	518	1279
v/s Ratio Prot	c0.21	c0.20	0.12	0.07	0.16	0.04	c0.14	0.17	0.04	0.08	c0.20	0.05
v/s Ratio Perm			0.20			0.08			0.12			0.08
v/c Ratio	1.16	0.70	0.68	0.70	0.76	0.39	0.79	0.50	0.36	0.71	0.71	0.27
Uniform Delay, d1	51.2	39.6	26.1	54.1	46.3	32.7	49.2	32.4	22.6	53.5	40.5	20.9
Progression Factor	1.01	1.13	1.29	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	87.4	2.2	2.0	5.1	5.1	0.2	6.5	1.5	0.1	4.8	8.0	0.0
Delay (s)	139.4	47.0	35.7	59.2	51.4	32.9	55.7	33.9	22.7	58.3	48.5	20.9
Level of Service	F	D	D	E	D	C	E	C	C	E	D	C
Approach Delay (s)		76.6			48.6			38.9			40.7	
Approach LOS		E			D			D			D	

Intersection Summary

HCM 2000 Control Delay	54.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Balboa Transit Station

7: Balboa EB Ramps & Balboa Ave

Horizon Year with Preferred LU MITIGATED

Timing Plan: AM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗↗	↗		↖↖		↖
Traffic Volume (vph)	741	657	0	1312	0	210
Future Volume (vph)	741	657	0	1312	0	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0
Lane Util. Factor	0.95	1.00		0.91		1.00
Frt	1.00	0.85		1.00		0.86
Flt Protected	1.00	1.00		1.00		1.00
Satd. Flow (prot)	3539	1583		5085		1611
Flt Permitted	1.00	1.00		1.00		1.00
Satd. Flow (perm)	3539	1583		5085		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	805	714	0	1426	0	228
RTOR Reduction (vph)	0	382	0	0	0	89
Lane Group Flow (vph)	805	332	0	1426	0	139
Turn Type	NA	Perm		NA		Prot
Protected Phases	4			5 8		5
Permitted Phases		4				
Actuated Green, G (s)	17.0	17.0		36.6		11.6
Effective Green, g (s)	17.0	17.0		36.6		11.6
Actuated g/C Ratio	0.46	0.46		1.00		0.32
Clearance Time (s)	4.0	4.0				4.0
Vehicle Extension (s)	3.0	3.0				3.0
Lane Grp Cap (vph)	1643	735		5085		510
v/s Ratio Prot	c0.23			c0.28		0.09
v/s Ratio Perm		0.21				
v/c Ratio	0.49	0.45		0.28		0.27
Uniform Delay, d1	6.8	6.6		0.0		9.3
Progression Factor	1.00	1.00		1.00		1.00
Incremental Delay, d2	0.2	0.4		0.0		0.3
Delay (s)	7.0	7.1		0.0		9.6
Level of Service	A	A		A		A
Approach Delay (s)	7.1			0.0		9.6
Approach LOS	A			A		A

Intersection Summary

HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	36.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Balboa Transit Station

9: Clairemont Dr & Balboa Ave

Horizon Year with Preferred LU MITIGATED

Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗↗	↗	↖↖	↗↗	↗	↖↖	↗↗	↗	↖↖	↗↗	↗
Traffic Volume (vph)	186	752	62	434	716	124	126	406	440	210	344	285
Future Volume (vph)	186	752	62	434	716	124	126	406	440	210	344	285
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	6.4	6.4	4.4	5.3	4.4	4.4	5.3	5.3
Lane Util. Factor	0.97	0.91		0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5027		3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5027		3433	5085	1583	1770	3539	1583	3433	3539	1583
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)	202	817	67	472	778	135	137	441	478	228	374	310
RTOR Reduction (vph)	0	10	0	0	0	96	0	52	0	0	244	244
Lane Group Flow (vph)	202	874	0	472	778	39	137	441	426	228	374	66
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	8.6	17.9		11.7	20.3	20.3	8.7	15.8	27.5	5.6	12.7	12.7
Effective Green, g (s)	8.6	17.9		11.7	20.3	20.3	8.7	15.8	27.5	5.6	12.7	12.7
Actuated g/C Ratio	0.12	0.25		0.17	0.29	0.29	0.12	0.22	0.39	0.08	0.18	0.18
Clearance Time (s)	4.4	5.7		4.4	6.4	6.4	4.4	5.3	4.4	4.4	5.3	5.3
Vehicle Extension (s)	2.0	3.5		2.0	3.0	3.0	2.0	2.4	2.0	2.0	2.6	2.6
Lane Grp Cap (vph)	417	1270		567	1457	453	217	789	614	271	634	283
v/s Ratio Prot	0.06	c0.17		c0.14	c0.15		c0.08	0.12	c0.11	0.07	0.11	
v/s Ratio Perm						0.02			0.15			0.04
v/c Ratio	0.48	0.69		0.83	0.53	0.09	0.63	0.56	0.69	0.84	0.59	0.23
Uniform Delay, d1	29.0	23.9		28.6	21.3	18.5	29.5	24.4	18.1	32.2	26.7	24.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.6		9.7	0.4	0.1	4.3	0.7	2.7	19.7	1.2	0.3
Delay (s)	29.4	25.6		38.3	21.6	18.5	33.9	25.1	20.9	51.8	27.9	25.2
Level of Service	C	C		D	C	B	C	C	C	D	C	C
Approach Delay (s)	26.3			27.0			24.3			33.0		
Approach LOS	C			C			C			C		

Intersection Summary

HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	20.5
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

 **Site: 1 [AM - Future Preferred MITIGATED - Morena at Jutland - Copy]**

Roundabout
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Morena Blvd											
8	T1	279	2.0	0.501	7.6	LOS A	4.1	104.8	0.07	0.01	20.2
18	R2	425	2.0	0.501	7.6	LOS A	4.1	104.8	0.07	0.01	19.1
Approach		704	2.0	0.501	7.6	LOS A	4.1	104.8	0.07	0.01	19.5
East: Jutland Ave											
1	L2	207	2.0	0.265	7.2	LOS A	1.1	27.1	0.44	0.36	19.1
16	R2	14	2.0	0.265	7.2	LOS A	1.1	27.1	0.44	0.36	19.0
Approach		221	2.0	0.265	7.2	LOS A	1.1	27.1	0.44	0.36	19.1
North: Morena Blvd											
7	L2	4	2.0	0.203	6.1	LOS A	0.8	20.1	0.36	0.26	22.5
4	T1	178	2.0	0.203	6.1	LOS A	0.8	20.1	0.36	0.26	21.4
Approach		183	2.0	0.203	6.1	LOS A	0.8	20.1	0.36	0.26	21.5
All Vehicles		1108	2.0	0.501	7.3	LOS A	4.1	104.8	0.19	0.12	19.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.












Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Balboa Transit Station
22: Morena Blvd & Jutland Dr

Horizon Year with Preferred LU MITIGATED

Timing Plan: AM Peak Period




















						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	190	13	257	391	4	164
Future Volume (vph)	190	13	257	391	4	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	1.00	1.00	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1770	1583	1863	1583		3535
Flt Permitted	0.95	1.00	1.00	1.00		0.95
Satd. Flow (perm)	1770	1583	1863	1583		3361
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	14	279	425	4	178
RTOR Reduction (vph)	0	11	0	203	0	0
Lane Group Flow (vph)	207	3	279	222	0	182
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	7.5	7.5	17.0	17.0		17.0
Effective Green, g (s)	7.5	7.5	17.0	17.0		17.0
Actuated g/C Ratio	0.23	0.23	0.52	0.52		0.52
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	408	365	974	828		1758
v/s Ratio Prot	c0.12		c0.15			
v/s Ratio Perm		0.00		0.14		0.05
v/c Ratio	0.51	0.01	0.29	0.27		0.10
Uniform Delay, d1	10.9	9.6	4.3	4.3		3.9
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	1.0	0.0	0.2	0.2		0.0
Delay (s)	11.9	9.6	4.5	4.5		3.9
Level of Service	B	A	A	A		A
Approach Delay (s)	11.7		4.5			3.9
Approach LOS	B		A			A
Intersection Summary						
HCM 2000 Control Delay			5.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.35			
Actuated Cycle Length (s)			32.5		Sum of lost time (s)	8.0
Intersection Capacity Utilization			35.5%		ICU Level of Service	A
Analysis Period (min)			15			

c Critical Lane Group

Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year with Preferred LUMITIGATED

Timing Plan: PM Peak Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	918	128	15	1319	24	301	110	18	48	66	60
Future Volume (vph)	31	918	128	15	1319	24	301	110	18	48	66	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9		4.9	4.9			4.9	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.98			0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1829		1770	3530		1770	1823			1752	
Flt Permitted	0.11	1.00		0.11	1.00		0.63	1.00			0.89	
Satd. Flow (perm)	201	1829		201	3530		1171	1823			1573	
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)	34	998	139	16	1434	26	327	120	20	52	72	65
RTOR Reduction (vph)	0	7	0	0	2	0	0	9	0	0	21	0
Lane Group Flow (vph)	34	1130	0	16	1458	0	327	131	0	0	168	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	37.1	37.1		37.1	37.1		20.1	20.1			20.1	
Effective Green, g (s)	37.1	37.1		37.1	37.1		20.1	20.1			20.1	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.30	0.30			0.30	
Clearance Time (s)	4.9	4.9		4.9	4.9		4.9	4.9			4.9	
Vehicle Extension (s)	3.4	3.4		5.9	5.9		2.0	2.0			2.0	
Lane Grp Cap (vph)	111	1012		111	1954		351	546			471	
v/s Ratio Prot		c0.62			0.41			0.07				
v/s Ratio Perm	0.17			0.08			c0.28				0.11	
v/c Ratio	0.31	1.12		0.14	0.75		0.93	0.24			0.36	
Uniform Delay, d1	8.0	14.9		7.3	11.4		22.8	17.7			18.4	
Progression Factor	1.00	1.00		0.94	1.02		1.00	1.00			1.00	
Incremental Delay, d2	7.0	66.0		2.3	2.2		30.6	0.1			0.2	
Delay (s)	15.0	80.9		9.1	13.8		53.4	17.8			18.6	
Level of Service	B	F		A	B		D	B			B	
Approach Delay (s)		79.0			13.8			42.7			18.6	
Approach LOS		E			B			D			B	
Intersection Summary												
HCM 2000 Control Delay			41.3			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			67.0			Sum of lost time (s)			9.8			
Intersection Capacity Utilization			94.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Station
5: Mission Bay Dr & Garnet Ave

Horizon Year with Preferred LU MITIGATED
Timing Plan: PM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	445	630	443	331	678	357	653	507	354	277	481	731
Future Volume (vph)	445	630	443	331	678	357	653	507	354	277	481	731
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	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	1863	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	1863	2787
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)	484	685	482	360	737	388	710	551	385	301	523	795
RTOR Reduction (vph)	0	0	32	0	0	80	0	0	46	0	0	49
Lane Group Flow (vph)	484	685	450	360	737	308	710	551	339	301	523	746
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	21.7	37.1	63.7	16.6	32.0	48.2	26.6	46.5	63.1	16.2	35.7	57.4
Effective Green, g (s)	21.7	37.1	63.7	16.6	32.0	48.2	26.6	46.5	63.1	16.2	35.7	57.4
Actuated g/C Ratio	0.16	0.27	0.47	0.12	0.24	0.36	0.20	0.34	0.47	0.12	0.26	0.43
Clearance Time (s)	4.4	4.9	4.4	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	551	972	746	422	838	565	676	1218	739	411	492	1184
v/s Ratio Prot	c0.14	0.19	0.12	0.10	c0.21	0.07	c0.21	0.16	0.06	0.09	c0.28	0.10
v/s Ratio Perm			0.17			0.13			0.16			0.17
v/c Ratio	0.88	0.70	0.60	0.85	0.88	0.54	1.05	0.45	0.46	0.73	1.06	0.63
Uniform Delay, d1	55.4	44.0	26.3	58.0	49.6	34.6	54.2	34.4	24.4	57.3	49.6	30.5
Progression Factor	0.84	0.95	1.24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.9	4.1	0.9	14.8	12.7	0.6	48.6	0.5	0.2	5.7	58.3	0.8
Delay (s)	60.3	45.8	33.5	72.8	62.3	35.2	102.8	34.8	24.5	63.0	108.0	31.2
Level of Service	E	D	C	E	E	D	F	C	C	E	F	C
Approach Delay (s)		46.5			57.8			61.7		61.9		
Approach LOS		D			E			E		E		

Intersection Summary

HCM 2000 Control Delay	56.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Balboa Station
7: Balboa EB Ramps & Garnet Ave/Balboa Ave

Horizon Year with Preferred LU MITIGATED
Timing Plan: PM Peak Period

	EBT	EBR	WBL	WBT	NBL	NBR
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	1272	860	0	1470	0	337
Future Volume (vph)	1272	860	0	1470	0	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0
Lane Util. Factor	0.95	1.00		0.91		1.00
Frt	1.00	0.85		1.00		0.86
Flt Protected	1.00	1.00		1.00		1.00
Satd. Flow (prot)	3539	1583		5085		1611
Flt Permitted	1.00	1.00		1.00		1.00
Satd. Flow (perm)	3539	1583		5085		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1383	935	0	1598	0	366
RTOR Reduction (vph)	0	430	0	0	0	25
Lane Group Flow (vph)	1383	505	0	1598	0	341
Turn Type	NA	Perm		NA		Prot
Protected Phases	4			5 8		5
Permitted Phases		4				
Actuated Green, G (s)	28.9	28.9		53.5		16.6
Effective Green, g (s)	28.9	28.9		53.5		16.6
Actuated g/C Ratio	0.54	0.54		1.00		0.31
Clearance Time (s)	4.0	4.0				4.0
Vehicle Extension (s)	3.0	3.0				3.0
Lane Grp Cap (vph)	1911	855		5085		499
v/s Ratio Prot	c0.39			0.31		c0.21
v/s Ratio Perm		0.32				
v/c Ratio	0.72	0.59		0.31		0.68
Uniform Delay, d1	9.3	8.3		0.0		16.2
Progression Factor	1.00	1.00		1.00		1.00
Incremental Delay, d2	1.4	1.1		0.0		3.9
Delay (s)	10.7	9.4		0.0		20.0
Level of Service	B	A		A		C
Approach Delay (s)	10.2			0.0	20.0	
Approach LOS	B			A	C	

Intersection Summary

HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	53.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Balboa Station
9: Clairemont Dr & Balboa Ave

Horizon Year with Preferred LU MITIGATED
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	W	W	W	W	W	W	W	W	W	W	W	W
Traffic Volume (vph)	351	1004	50	538	954	160	72	392	435	346	605	253
Future Volume (vph)	351	1004	50	538	954	160	72	392	435	346	605	253
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	6.4	6.4	4.4	5.3	4.4	4.4	5.3	5.3
Lane Util. Factor	0.97	0.91	0.97	0.91	1.00	1.00	0.95	1.00	0.95	1.00	0.97	0.95
Flt	1.00	0.99	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5049	3433	5085	1583	1770	3539	1583	3433	3539	1583	3433
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5049	3433	5085	1583	1770	3539	1583	3433	3539	1583	3433
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)	382	1091	54	585	1037	174	78	426	473	376	658	275
RTOR Reduction (vph)	0	5	0	0	0	123	0	0	46	0	0	158
Lane Group Flow (vph)	382	1140	0	585	1037	51	78	426	427	376	658	117
Turn Type	Prot	NA	NA	Prot	NA	Perm	Prot	NA	pm-ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases							6		8			4
Actuated Green, G (s)	13.9	25.7		16.8	27.9	27.9	6.9	21.5	38.3	10.8	25.4	25.4
Effective Green, g (s)	13.9	25.7		16.8	27.9	27.9	6.9	21.5	38.3	10.8	25.4	25.4
Actuated g/C Ratio	0.15	0.27		0.18	0.29	0.29	0.07	0.23	0.40	0.11	0.27	0.27
Clearance Time (s)	4.4	5.7		4.4	6.4	6.4	4.4	5.3	4.4	4.4	5.3	5.3
Vehicle Extension (s)	2.0	3.5		2.0	3.0	3.0	2.0	2.4	2.0	2.0	2.6	2.6
Lane Grp Cap (vph)	504	1371		609	1499	466	129	804	640	391	950	425
v/s Ratio Prot	0.11	c0.23		c0.17	c0.20	0.03	0.04	0.12	0.12	c0.11	c0.19	
v/s Ratio Perm				0.96	0.69	0.11	0.60	0.53	0.67	0.96	0.69	0.07
v/c Ratio	0.76	0.83		0.38	0.29	0.11	0.23	0.23	0.23	0.11	0.23	0.23
Uniform Delay, d1	38.7	32.4		38.6	29.5	24.3	42.5	32.1	23.0	41.7	31.1	27.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	4.6		26.7	1.4	0.1	5.4	0.4	2.0	35.2	2.1	0.3
Delay (s)	44.5	37.0		65.3	30.9	24.4	47.9	32.6	25.0	76.9	33.2	27.6
Level of Service	D	D		E	C	C	D	C	C	E	C	C
Approach Delay (s)	38.9			41.5			30.1			44.6		
Approach LOS	D			D			C			D		
Intersection Summary												
HCM 2000 Control Delay	39.5											
HCM 2000 Volume to Capacity ratio	0.85											
Actuated Cycle Length (s)	94.6											
Intersection Capacity Utilization	73.1%											
Analysis Period (min)	15											
c Critical Lane Group												

Balboa Station
22: Morena Blvd & Jutland Dr

Horizon Year with Preferred LU MITIGATED
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	W	W	W	W
Traffic Volume (vph)	588	10	176	259	17	317
Future Volume (vph)	588	10	176	259	17	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Flt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1863	1583	3530	3530
Flt Permitted	0.95	1.00	1.00	1.00	1.00	0.94
Satd. Flow (perm)	1770	1583	1863	1583	3530	3530
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	639	11	191	282	18	345
RTOR Reduction (vph)	0	6	0	201	0	0
Lane Group Flow (vph)	639	5	191	81	0	363
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2		6	
Permitted Phases				2		6
Actuated Green, G (s)	17.7	17.7	10.4	10.4	10.4	10.4
Effective Green, g (s)	17.7	17.7	10.4	10.4	10.4	10.4
Actuated g/C Ratio	0.49	0.49	0.29	0.29	0.29	0.29
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	867	776	536	456	955	955
v/s Ratio Prot	c0.36		0.10			c0.11
v/s Ratio Perm		0.00		0.05		0.38
v/c Ratio	0.74	0.01	0.36	0.18	0.38	0.38
Uniform Delay, d1	7.3	4.7	10.2	9.6	10.3	10.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	0.0	0.4	0.2	0.3	0.3
Delay (s)	10.6	4.7	10.6	9.8	10.5	10.5
Level of Service	B	A	B	A	B	B
Approach Delay (s)	10.5		10.1		10.5	
Approach LOS	B		B		B	
Intersection Summary						
HCM 2000 Control Delay	10.4					
HCM 2000 Volume to Capacity ratio	0.60					
Actuated Cycle Length (s)	36.1					
Intersection Capacity Utilization	60.6%					
Analysis Period (min)	15					
c Critical Lane Group						

MOVEMENT SUMMARY



Site: 1 [PM - Future Preferred MITIGATED - Morena at Jutland - Copy - Copy]

Roundabout
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Morena Blvd											
8	T1	191	2.0	0.341	5.6	LOS A	2.1	54.2	0.12	0.03	21.5
18	R2	282	2.0	0.341	5.6	LOS A	2.1	54.2	0.12	0.03	20.2
Approach		473	2.0	0.341	5.6	LOS A	2.1	54.2	0.12	0.03	20.7
East: Jutland Ave											
1	L2	639	2.0	0.713	16.7	LOS C	6.6	167.4	0.68	0.59	15.3
16	R2	11	2.0	0.713	16.7	LOS C	6.6	167.4	0.68	0.59	15.9
Approach		650	2.0	0.713	16.7	LOS C	6.6	167.4	0.68	0.59	15.3
North: Morena Blvd											
7	L2	18	2.0	0.629	19.4	LOS C	3.7	94.5	0.76	0.90	16.8
4	T1	345	2.0	0.629	19.4	LOS C	3.7	94.5	0.76	0.90	15.2
Approach		363	2.0	0.629	19.4	LOS C	3.7	94.5	0.76	0.90	15.3
All Vehicles		1486	2.0	0.713	13.8	LOS B	6.6	167.4	0.52	0.49	16.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX J

REDUCED FUTURE CONDITIONS ANALYSIS SUPPORTING INFORMATION

Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

	EBL	EBT	WBL	WBT	NBT	SBT	
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	
Lane Group Flow (vph)	49	1198	3	765	111	279	
v/c Ratio	0.11	0.92	0.04	0.31	0.42	0.88	
Control Delay	6.8	28.1	10.7	8.9	39.6	66.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.8	28.1	10.7	8.9	39.6	66.0	
Queue Length 50th (ft)	10	653	1	115	62	168	
Queue Length 95th (ft)	25	#1073	m2	m147	115	#295	
Internal Link Dist (ft)	374		899	244	450		
Turn Bay Length (ft)	50		50				
Base Capacity (vph)	444	1298	70	2474	304	359	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.11	0.92	0.04	0.31	0.37	0.78	
Intersection Summary							
# 95th percentile volume exceeds capacity, queue may be longer.							
Queue shown is maximum after two cycles.							
m Volume for 95th percentile queue is metered by upstream signal.							

Balboa Transit Station
1: Olney St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBT
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBT
Lane Configurations	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBT
Traffic Volume (vph)	45	1056	46	3	689	15	47	49	6
Future Volume (vph)	45	1056	46	3	689	15	47	49	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99	1.00	1.00	1.00	0.99	1.00	0.96	0.96
Flt Protected	0.95	1.00	0.95	1.00	0.98	0.98	0.98	0.98	0.98
Satd. Flow (prot)	1770	1851	1770	3528	1805	1805	1749	1749	1749
Flt Permitted	0.34	1.00	0.05	1.00	0.69	0.69	0.81	0.81	0.81
Satd. Flow (perm)	635	1851	101	3528	1276	1276	1452	1452	1452
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	1148	50	3	749	16	51	53	7
RTOR Reduction (vph)	0	1	0	0	1	0	2	0	0
Lane Group Flow (vph)	49	1197	0	3	764	0	109	0	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases	2		6		8		4		4
Permitted Phases	2		6		8		4		4
Actuated Green, G (s)	74.3	74.3	74.3	74.3	21.9	21.9	21.9	21.9	21.9
Effective Green, g (s)	74.3	74.3	74.3	74.3	21.9	21.9	21.9	21.9	21.9
Actuated g/c Ratio	0.70	0.70	0.70	0.70	0.21	0.21	0.21	0.21	0.21
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Vehicle Extension (s)	3.4	3.4	5.9	5.9	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	445	1297	70	2472	263	263	299	299	299
v/s Ratio Prot	0.08	0.03	0.03	0.22	0.09	0.09	0.18	0.18	0.18
v/c Ratio	0.11	0.92	0.04	0.31	0.41	0.41	0.88	0.88	0.88
Uniform Delay, d1	5.1	13.4	4.9	6.1	36.5	36.5	40.8	40.8	40.8
Progression Factor	1.00	1.00	1.47	1.34	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	12.3	1.0	0.3	0.4	0.4	24.0	24.0	24.0
Delay (s)	5.6	25.7	8.2	8.4	36.9	36.9	64.8	64.8	64.8
Level of Service	A	C	A	A	D	D	E	E	E
Approach Delay (s)	24.9		8.4		36.9		64.8		64.8
Approach LOS	C		A		D		E		E
Intersection Summary									
HCM 2000 Control Delay	24.8		HCM 2000 Level of Service		C				
HCM 2000 Volume to Capacity ratio	0.91								
Actuated Cycle Length (s)	106.0		Sum of lost time (s)		9.8				
Intersection Capacity Utilization	84.0%		ICU Level of Service		E				
Analysis Period (min)	15								
c Critical Lane Group									

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

	EBT	WBT	SBL	SBR
Lane Group				
Lane Group Flow (vph)	562	750	393	1018
v/c Ratio	1.38	0.53	0.27	0.68
Control Delay	207.7	7.3	0.5	12.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	207.7	7.3	0.5	12.6
Queue Length 50th (ft)	-128	41	0	198
Queue Length 95th (ft)	#212	80	0	m231
Internal Link Dist (ft)	936	284		899
Turn Bay Length (ft)				
Base Capacity (vph)	407	1422	1441	1496
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.38	0.53	0.27	0.68
Intersection Summary				
~ Volume exceeds capacity, queue is theoretically infinite.				
Queue shown is maximum after two cycles.				
# 95th percentile volume exceeds capacity, queue may be longer.				
Queue shown is maximum after two cycles.				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
2: Balboa Ave & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Movement						
Lane Configurations		44	44	44	44	44
Traffic Volume (vph)	51	466	328	723	937	0
Future Volume (vph)	51	466	328	723	937	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	4.9		
Lane Util. Factor	0.95	0.91	0.91	0.97		
Frt	1.00	0.92	0.85	1.00		
Flt Protected	1.00	1.00	1.00	0.95		
Satd. Flow (prot)	3522	3124	1441	3433		
Flt Permitted	0.81	1.00	1.00	0.95		
Satd. Flow (perm)	2879	3124	1441	3433		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	507	357	786	1018	0
RTOR Reduction (vph)	0	0	245	0	0	0
Lane Group Flow (vph)	0	562	505	393	1018	0
Turn Type	NA	NA	Free	Free	Prot	4
Protected Phases						
Permitted Phases						
Actuated Green, G (s)	20.0	20.0	53.0	23.1		
Effective Green, g (s)	20.0	20.0	53.0	23.1		
Actuated g/C Ratio	0.38	0.38	1.00	0.44		
Clearance Time (s)	5.0	5.0		4.9		
Vehicle Extension (s)	6.1	6.1		5.2		
Lane Grp Cap (vph)	1086	1178	1441	1496		
v/s Ratio Prot		0.16		c0.30		
v/c Ratio		0.52	0.43	0.27	0.68	
Uniform Delay, d1	12.8	12.3	0.0	12.0		
Progression Factor	1.00	1.00	1.00	0.95		
Incremental Delay, d2	1.1	0.7	0.5	1.0		
Delay (s)	13.9	13.0	0.5	12.4		
Level of Service	B	B	A	B		
Approach Delay (s)	13.9	8.7		12.4		
Approach LOS	B	A		B		
Intersection Summary						
HCM 2000 Control Delay		11.2		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.60				
Actuated Cycle Length (s)		53.0		Sum of lost time (s)		9.9
Intersection Capacity Utilization		70.3%		ICU Level of Service		C
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station
3: Garnet Ave & Soledad Mtn Rd

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group						
Lane Group Flow (vph)	132	1591	900	552	521	60
v/c Ratio	0.45	0.62	0.42	0.42	0.79	0.17
Control Delay	59.8	10.8	7.5	3.1	57.0	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	10.8	7.5	3.1	57.0	10.5
Queue Length 50th (ft)	53	309	78	59	207	0
Queue Length 95th (ft)	86	441	110	87	256	35
Internal Link Dist (ft)		770	806		594	
Turn Bay Length (ft)	200			200	225	225
Base Capacity (vph)	291	2550	2142	1324	1032	352
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.62	0.42	0.42	0.50	0.17
Intersection Summary						

Balboa Transit Station
3: Garnet Ave & Soledad Mtn Rd

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Movement						
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	121	1464	828	508	479	55
Future Volume (vph)	121	1464	828	508	479	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	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)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	1591	900	552	521	60
RTOR Reduction (vph)	0	0	0	0	0	48
Lane Group Flow (vph)	132	1591	900	552	521	12
Turn Type	Prot	NA	NA	pm-ov	Prot	custom
Protected Phases	5	2	6	7	7	4
Permitted Phases		2		6		7
Actuated Green, G (s)	10.6	90.1	75.7	99.7	24.0	24.0
Effective Green, g (s)	10.6	90.1	75.7	99.7	24.0	24.0
Actuated g/c Ratio	0.08	0.72	0.61	0.80	0.19	0.19
Clearance Time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Vehicle Extension (s)	2.0	5.6	8.0	2.0	2.0	3.0
Lane Grp Cap (vph)	291	2550	2143	1330	659	303
v/s Ratio Prot	0.04	c0.45	0.25	0.08	c0.15	0.01
v/c Ratio Perm				0.27		
v/c Ratio	0.45	0.62	0.42	0.42	0.79	0.04
Uniform Delay, d1	54.4	8.9	13.0	3.8	48.1	41.1
Progression Factor	1.00	1.00	0.51	0.82	1.00	1.00
Incremental Delay, d2	0.4	1.2	0.6	0.1	6.0	0.1
Delay (s)	54.9	10.0	7.1	3.2	54.1	41.2
Level of Service	D	B	A	A	D	D
Approach Delay (s)		13.5	5.6		52.8	
Approach LOS		B	A		D	
Intersection Summary						
HCM 2000 Control Delay			16.5		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.71			
Actuated Cycle Length (s)			125.0		Sum of lost time (s)	18.7
Intersection Capacity Utilization			63.2%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
4: Bond St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	2021	1520	38									
v/c Ratio	0.57	0.43	0.02									
Control Delay	0.6	0.9	0.0									
Queue Delay	0.0	0.0	0.0									
Total Delay	0.6	0.9	0.0									
Queue Length 50th (ft)	0	7	0									
Queue Length 95th (ft)	0	38	0									
Internal Link Dist (ft)	806	574										
Turn Bay Length (ft)												
Base Capacity (vph)	3529	3539	1611									
Starvation Cap Reductn	0	0	0									
Spillback Cap Reductn	0	0	0									
Storage Cap Reductn	0	0	0									
Reduced v/c Ratio	0.57	0.43	0.02									
Intersection Summary												

Balboa Transit Station
4: Bond St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1824	35	0	1398	0	0	0	35	0	0	0
Future Volume (vph)	0	1824	35	0	1398	0	0	0	35	0	0	0
Ideal Flow (vphph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3529	3529	3529	3529	3529	3529	3529	3529	3529	3529	3529	3529
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3529	3529	3529	3529	3529	3529	3529	3529	3529	3529	3529	3529
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)	0	1983	38	0	1520	0	0	0	38	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2021	0	0	1520	0	0	0	38	0	0	0
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases	2	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0
Effective Green, g (s)	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0
Actuated g/c Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Vehicle Extension (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Lane Grp Cap (vph)	3529	3529	3529	3529	3529	3529	3529	3529	3529	3529	3529	3529
v/s Ratio Prot	c0.57	c0.57	c0.57	c0.57	c0.57	c0.57	c0.57	c0.57	c0.57	c0.57	c0.57	c0.57
v/c Ratio	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
Uniform Delay, d1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Delay (s)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
Approach Delay (s)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Approach LOS	A	A	A	A	A	A	A	A	A	A	A	A
Intersection Summary												
HCM 2000 Control Delay			0.4									A
HCM 2000 Volume to Capacity ratio			0.61									A
Actuated Cycle Length (s)			125.0									7.9
Intersection Capacity Utilization			72.2%									C
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Timing Plan: AM Peak Period

Horizon Year with Reduced LU

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	752	713	579	233	574	263	478	599	286	272	338	411
v/c Ratio	1.14	0.79	0.69	0.83	0.73	0.42	0.84	0.52	0.33	0.72	0.72	0.29
Control Delay	124.4	53.0	26.4	74.3	50.5	23.3	65.0	37.6	15.5	64.5	51.0	15.2
Queue Delay	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
Total Delay	124.4	53.0	26.6	74.3	50.5	23.3	65.0	37.6	15.5	64.5	53.0	15.2
Queue Length 50th (ft)	-369	275	234	183	228	120	195	207	101	110	263	85
Queue Length 95th (ft)	#496	339	486	270	277	176	#337	290	175	155	377	123
Internal Link Dist (ft)	574			1151			461				376	
Turn Bay Length (ft)	565		120	410		325	265		100	200		265
Base Capacity (vph)	659	945	837	334	934	656	570	1153	901	447	497	1434
Starvation Cap Reductn	0	0	25	0	0	0	0	0	0	0	0	51
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.75	0.71	0.70	0.61	0.40	0.84	0.52	0.32	0.61	0.80	0.29

Intersection Summary
- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Timing Plan: AM Peak Period

Horizon Year with Reduced LU

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	692	656	533	214	528	242	440	551	263	250	329	378
Future Volume (vph)	692	656	533	214	528	242	440	551	263	250	329	378
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	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.3	4.4
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
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)	752	713	579	233	574	263	478	599	286	272	338	411
RTOR Reduction (vph)	0	0	116	0	0	39	0	0	28	0	0	40
Lane Group Flow (vph)	752	713	463	233	574	224	478	599	258	272	358	371
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8		4			6				2
Actuated Green, G (s)	24.0	32.0	52.8	19.9	27.9	41.7	20.8	40.7	60.6	13.8	33.3	57.3
Effective Green, g (s)	24.0	32.0	52.8	19.9	27.9	41.7	20.8	40.7	60.6	13.8	33.3	57.3
Actuated g/c Ratio	0.19	0.26	0.42	0.16	0.22	0.33	0.17	0.33	0.48	0.11	0.27	0.46
Clearance Time (s)	4.4	4.9	4.4	4.4	4.4	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	659	905	668	281	789	528	571	1152	767	379	496	1277
v/s Ratio Prot	c0.22	c0.20	0.12	0.13	0.16	0.05	c0.14	0.17	0.05	0.08	c0.19	0.06
v/s Ratio Perm			0.18		0.09				0.11			0.08
v/c Ratio	1.14	0.79	0.69	0.83	0.73	0.42	0.84	0.52	0.34	0.72	0.72	0.29
Uniform Delay, d1	50.5	43.3	29.5	50.9	45.0	32.3	50.5	34.2	19.8	53.7	41.6	21.1
Progression Factor	1.02	1.08	1.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	78.5	4.2	2.1	17.2	3.7	0.2	9.9	1.7	0.1	5.3	8.8	0.0
Delay (s)	129.8	51.0	39.1	68.1	48.8	32.5	60.4	35.9	19.9	59.0	50.4	21.2
Level of Service	F	D	D	E	D	C	E	D	B	E	D	C
Approach Delay (s)					49.0			41.1			41.1	
Approach LOS		E			D			D			D	

Intersection Summary

HCM 2000 Control Delay	55.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Balboa Transit Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

	EBT	WBT	NBR	SBR	
Lane Group					
Lane Group Flow (vph)	1289	2062	227	80	
v/c Ratio	0.80	0.41	0.22	0.12	
Control Delay	15.2	0.3	8.7	3.3	
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	15.2	0.3	8.7	3.3	
Queue Length 50th (ft)	133	0	17	0	
Queue Length 95th (ft)	200	0	37	17	
Internal Link Dist (ft)	1151	265			
Turn Bay Length (ft)					
Base Capacity (vph)	1689	5014	1041	643	
Starvation Cap Reductn	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	
Storage Cap Reductn	0	0	0	0	
Reduced v/c Ratio	0.76	0.41	0.22	0.12	
Intersection Summary					

Balboa Transit Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↔			↔				↔			↔
Traffic Volume (vph)	0	1186	0	0	1722	175	0	0	209	0	0	74
Future Volume (vph)	0	1186	0	0	1722	175	0	0	209	0	0	74
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			4.0
Lane Util. Factor		0.95			0.91				0.88			1.00
Frt		1.00			0.99				0.85			0.86
Flt Protected		1.00			1.00				1.00			1.00
Satd. Flow (prot)		3539			5015				2787			1611
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3539			5015				2787			1611
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)	0	1289	0	0	1872	190	0	0	227	0	0	80
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	29	0	0	51
Lane Group Flow (vph)	0	1289	0	0	2062	0	0	0	198	0	0	29
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases		8			2 4				2			6
Permitted Phases												
Actuated Green, G (s)		20.0			44.0				16.0			16.0
Effective Green, g (s)		20.0			44.0				16.0			16.0
Actuated g/c Ratio		0.45			1.00				0.36			0.36
Clearance Time (s)		4.0			4.0				4.0			4.0
Vehicle Extension (s)		3.0			3.0				3.0			3.0
Lane Grp Cap (vph)		1608			5015				1013			585
v/s Ratio Prot		c0.36			c0.41				0.07			0.02
v/c Ratio		0.80			0.41				0.20			0.05
Uniform Delay, d1		10.3			0.0				9.6			9.1
Progression Factor		1.00			1.00				1.00			1.00
Incremental Delay, d2		3.0			0.1				0.1			0.0
Delay (s)		13.3			0.1				9.7			9.1
Level of Service		B			A				A			A
Approach Delay (s)		13.3			0.1			9.7				9.1
Approach LOS		B			A			A				A
Intersection Summary												
HCM 2000 Control Delay					5.5							A
HCM 2000 Volume to Capacity ratio					0.67							
Actuated Cycle Length (s)					44.0				Sum of lost time (s)			8.0
Intersection Capacity Utilization					48.4%				ICU Level of Service			A
Analysis Period (min)					15							
c Critical Lane Group												

Balboa Transit Station
7: Balboa EB Ramps & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔↔	↔	↔	↔↔	↔	↔
Traffic Volume (veh/h)	738	657	0	1299	0	210
Future Volume (Veh/h)	738	657	0	1299	0	210
Sign Control	Free	Free	Free	Stop	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	802	714	0	1412	0	228
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	442			634		
pX, platoon unblocked						
VC, conflicting volume			802		1508	401
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol			802		925	401
IC, single (s)			4.1		6.8	6.9
IC, 2 stage (s)			2.2		3.5	3.3
pQ queue free %			100		100	62
IF (s)			817		193	599
CM capacity (veh/h)						
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	401	401	714	706	706	228
Volume Left	0	0	0	0	0	0
Volume Right	0	0	714	0	0	228
cSH	1700	1700	1700	1700	1700	599
Volume to Capacity	0.24	0.24	0.42	0.42	0.42	0.38
Queue Length 95th (ft)	0	0	0	0	0	44
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.7
Lane LOS						B
Approach Delay (s)	0.0			0.0		14.7
Approach LOS						B
Intersection Summary						
Average Delay				1.1		
Intersection Capacity Utilization				44.0%		A
Analysis Period (min)				15		

Balboa Transit Station
8: Garnet Ave & Moraga Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBL	WBT	SBL	SBR
Lane Group	EBL	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	336	980	1134	84	102	278
v/c Ratio	0.59	0.41	0.76	0.12	0.41	0.60
Control Delay	29.8	5.2	19.1	4.0	30.9	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.8	5.2	19.1	4.0	30.9	10.1
Queue Length 50th (ft)	59	67	178	1	35	0
Queue Length 95th (ft)	112	114	269	23	83	61
Internal Link Dist (ft)	554	3203				
Turn Bay Length (ft)	215		200		155	
Base Capacity (vph)	602	2797	1870	873	909	948
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.35	0.61	0.10	0.11	0.29
Intersection Summary						

Balboa Transit Station
8: Garnet Ave & Moraga Ave

Balboa Transit Station
9: Claremont Dr & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	309	902	1043	77	94	256
Future Volume (vph)	309	902	1043	77	94	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	6.5	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Flt	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)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	336	980	1134	84	102	278
RTOR Reduction (vph)	0	0	0	45	0	239
Lane Group Flow (vph)	336	980	1134	39	102	39
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	10.1	41.1	25.8	25.8	8.6	8.6
Effective Green, g (s)	10.1	41.1	25.8	25.8	8.6	8.6
Actuated g/C Ratio	0.17	0.67	0.42	0.42	0.14	0.14
Clearance Time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Vehicle Extension (s)	2.0	4.8	3.9	3.9	2.0	2.0
Lane Grp Cap (vph)	568	2384	1496	669	249	223
v/s Ratio Prot	c0.10	0.28	c0.32		c0.06	
v/s Ratio Perm				0.02		0.02
v/c Ratio	0.59	0.41	0.76	0.06	0.41	0.18
Uniform Delay, d1	23.5	4.5	14.9	10.4	23.9	23.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.2	2.4	0.0	0.4	0.1
Delay (s)	24.6	4.7	17.3	10.5	24.3	23.2
Level of Service	C	A	B	B	C	C
Approach Delay (s)		9.8	16.9		23.5	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay			14.5		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.65			
Actuated Cycle Length (s)			61.0		Sum of lost time (s)	16.5
Intersection Capacity Utilization			57.2%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	203	877	468	906	136	439	474	228	681
v/c Ratio	0.71	0.85	0.93	0.74	0.64	0.59	0.68	0.95	0.77
Control Delay	58.9	40.8	68.1	31.5	54.8	36.7	24.2	90.5	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	40.8	68.1	31.5	54.8	36.7	24.2	90.5	31.4
Queue Length 50th (ft)	62	250	146	236	79	127	196	139	151
Queue Length 95th (ft)	#136	#411	#293	371	152	177	310	#337	230
Internal Link Dist (ft)		3203		630		1350			860
Turn Bay Length (ft)	240		220		200		100	120	
Base Capacity (vph)	289	1177	504	1361	305	1261	700	240	1182
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.75	0.93	0.67	0.45	0.35	0.68	0.95	0.58
Intersection Summary									
# 95th percentile volume exceeds capacity, queue may be longer.									
Queue shown is maximum after two cycles.									

Balboa Transit Station
9: Clairemont Dr & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔
Traffic Volume (vph)	187	746	61	431	710	123	125	404	436	210	341
Future Volume (vph)	187	746	61	431	710	123	125	404	436	210	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	4.4	6.4	6.4	4.4	5.3	4.4	4.4	4.4	5.3
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00	0.95	1.00	1.00	1.00	0.95
Flt	1.00	0.99	1.00	0.98	1.00	0.98	1.00	1.00	0.85	1.00	0.93
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	3499	3433	3461	3433	3461	1770	3539	1583	1770	3298
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3499	3433	3461	3433	3461	1770	3539	1583	1770	3298
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
Adj. Flow (vph)	203	811	66	468	712	134	136	439	474	228	371
RTOR Reduction (vph)	0	6	0	0	12	0	0	0	49	0	146
Lane Group Flow (vph)	203	871	0	468	894	0	136	439	425	228	535
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2		1	6		3	8	1	7	4
Permitted Phases									8		
Actuated Green, G (s)	7.8	27.5		13.8	32.8		11.4	19.7	33.5	12.8	21.1
Effective Green, g (s)	7.8	27.5		13.8	32.8		11.4	19.7	33.5	12.8	21.1
Actuated g/C Ratio	0.08	0.29		0.15	0.35		0.12	0.21	0.36	0.14	0.23
Clearance Time (s)	4.4	5.7		4.4	6.4		4.4	5.3	4.4	4.4	5.3
Vehicle Extension (s)	2.0	3.5		2.0	3.0		2.0	2.4	2.0	2.0	2.6
Lane Grp Cap (vph)	286	1028		506	1212		215	744	566	242	743
v/s Ratio Prot	0.06	c0.25		c0.14	0.26		0.08	0.12	0.11	c0.13	c0.16
v/s Ratio Perm									0.16		
v/c Ratio	0.71	0.85		0.92	0.74		0.63	0.59	0.75	0.94	0.72
Uniform Delay, d1	41.8	31.1		39.4	26.6		39.1	33.3	26.4	40.0	33.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	6.8		22.5	2.4		4.4	1.0	4.9	41.6	3.3
Delay (s)	48.3	37.9		61.9	29.0		43.5	34.3	31.3	81.6	36.8
Level of Service	D	D		E	C		D	C	C	F	D
Approach Delay (s)		39.8			40.2			34.2			48.0
Approach LOS		D			D			C			D
Intersection Summary											
HCM 2000 Control Delay			40.3			HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.87								
Actuated Cycle Length (s)			93.6			Sum of lost time (s)			20.5		
Intersection Capacity Utilization			76.9%			ICU Level of Service			D		
Analysis Period (min)			15								
c Critical Lane Group											

Balboa Transit Station
10: Olney St & Balboa Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	63	586	50	199	329	287
v/c Ratio	0.24	0.46	0.23	0.19	0.61	0.53
Control Delay	21.9	12.8	24.0	12.9	17.0	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	12.8	24.0	12.9	17.0	16.7
Queue Length 50th (ft)	14	41	11	18	59	57
Queue Length 95th (ft)	50	125	44	46	139	129
Internal Link Dist (ft)		1172		936	328	244
Turn Bay Length (ft)		150		150		
Base Capacity (vph)	321	1916	220	1707	1367	1420
Starvation Cap Reductn	0	0	0	0	0	14
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.31	0.23	0.12	0.24	0.20
Intersection Summary						

Balboa Transit Station
10: Olney St & Balboa Ave

Balboa Transit Station
11: Olney St & Grand Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	58	520	19	46	165	18	18	192	92	12	237	15
Future Volume (vph)	58	520	19	46	165	18	18	192	92	12	237	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	5.0		4.9	4.9			4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Flt	1.00	0.99		1.00	0.98		0.96	0.96			0.99	
Flt Protected	0.95	1.00		0.95	1.00		1.00	1.00			1.00	
Satd. Flow (prot)	1770	3520		1770	3486		1781	1845			1845	
Flt Permitted	0.95	1.00		0.95	1.00		0.97	0.98			0.98	
Satd. Flow (perm)	1770	3520		1770	3486		1730	1807			1807	
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)	63	565	21	50	179	20	20	209	100	13	258	16
RTOR Reduction (vph)	0	3	0	0	11	0	0	29	0	0	4	0
Lane Group Flow (vph)	63	583	0	50	188	0	0	300	0	0	283	0
Turn Type	Prot	NA	NA	Prot	NA	Perm	NA	Perm	NA	Perm	NA	NA
Protected Phases	5	2		1	6		8			4		4
Permitted Phases							8					
Actuated Green, G (s)	3.2	14.6		1.4	12.9		11.9			4		11.9
Effective Green, g (s)	3.2	14.6		1.4	12.9		11.9			4		11.9
Actuated g/C Ratio	0.08	0.35		0.03	0.30		0.28			0.28		0.28
Clearance Time (s)	4.4	5.1		4.4	5.0		4.9			4.9		4.9
Vehicle Extension (s)	2.0	2.8		2.0	2.5		2.0			2.0		2.0
Lane Grp Cap (vph)	133	1214		58	1063		486			508		508
v/s Ratio Prot	c0.04	c0.17		0.03	0.05		c0.17			0.16		0.16
v/s Ratio Perm				0.86	0.18		0.62			0.56		0.56
Uniform Delay, d1	18.7	10.9		20.4	10.8		13.2			13.0		13.0
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00		1.00
Incremental Delay, d2	1.0	0.3		68.8	0.1		1.6			0.8		0.8
Delay (s)	19.7	11.1		89.2	10.9		14.9			13.7		13.7
Level of Service	B	B		F	B		B			B		B
Approach Delay (s)		12.0			26.6		14.9			13.7		13.7
Approach LOS		B			C		B			B		B
Intersection Summary												
HCM 2000 Control Delay			15.3			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			42.3			Sum of lost time (s)				14.4		
Intersection Capacity Utilization			52.8%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	30	1386		50	580		646			322		322
v/c Ratio	0.32	0.97		0.70	0.40		0.84			1.06		1.06
Control Delay	57.5	49.6		96.6	23.5		33.7			99.2		99.2
Queue Delay	0.0	0.0		0.0	0.0		0.0			0.0		0.0
Total Delay	57.5	49.6		96.6	23.5		33.7			99.2		99.2
Queue Length 50th (ft)	20	~498		35	108		330			~240		~240
Queue Length 95th (ft)	51	#660		m#99	206		#547			#417		#417
Internal Link Dist (ft)		276			1076		315			328		328
Turn Bay Length (ft)	50			50								
Base Capacity (vph)	101	1430		71	1447		772			304		304
Starvation Cap Reductn	0	0		0	0		0			0		0
Spillback Cap Reductn	0	0		0	0		0			0		0
Storage Cap Reductn	0	0		0	0		0			0		0
Reduced v/c Ratio	0.30	0.97		0.70	0.40		0.84			1.06		1.06
Intersection Summary												
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
m Volume for 95th percentile queue is metered by upstream signal.												

Balboa Transit Station
11: Olney St & Grand Ave

Balboa Transit Station
12: Grand Ave & Culver St

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (vph)	28	1250	25	46	481	52	34	189	372	167	114	15
Future Volume (vph)	28	1250	25	46	481	52	34	189	372	167	114	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	4.9		4.9					4.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00					1.00
Flt	1.00	1.00		1.00	0.99		0.92					0.99
Flt Protected	0.95	1.00		0.95	1.00		1.00					0.97
Satd. Flow (prot)	1770	3529		1770	3487		1701					1799
Flt Permitted	0.95	1.00		0.95	1.00		0.96					0.38
Satd. Flow (perm)	1770	3529		1770	3487		1645					698
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)	30	1359	27	50	523	57	37	205	404	182	124	16
RTOR Reduction (vph)	0	1	0	0	7	0	0	57	0	0	2	0
Lane Group Flow (vph)	30	1385	0	50	573	0	0	589	0	0	320	0
Turn Type	Prot	NA	NA	Prot	NA	NA	Perm	NA	Perm	Perm	NA	NA
Protected Phases	5	2		1	6		8			4		4
Permitted Phases												
Actuated Green, G (s)	3.7	42.1		3.4	42.0		8			4		46.1
Effective Green, g (s)	3.7	42.1		3.4	42.0		46.1			46.1		46.1
Actuated g/C Ratio	0.03	0.40		0.03	0.40		0.43			0.43		0.43
Clearance Time (s)	4.4	5.1		4.4	4.9		4.9			4.9		4.9
Vehicle Extension (s)	2.0	5.4		2.0	5.5		2.0			2.0		2.0
Lane Grp Cap (vph)	61	1401		56	1381		715			303		303
v/s Ratio Prot	0.02	c0.39		c0.03	0.16		0.36			c0.46		c0.46
v/s Ratio Perm							0.82			1.06		1.06
v/c Ratio	0.49	0.99		0.89	0.41		0.26			29.9		29.9
Uniform Delay, d1	50.2	31.7		51.1	23.1		26.4			29.9		29.9
Progression Factor	1.00	1.00		1.02	1.01		1.00			1.00		1.00
Incremental Delay, d2	2.3	21.4		78.7	0.9		7.3			67.5		67.5
Delay (s)	52.5	53.2		131.1	24.2		33.7			97.5		97.5
Level of Service	D	D		F	C		C			F		F
Approach Delay (s)	53.1			32.7			33.7			97.5		97.5
Approach LOS	D			C			C			F		F
Intersection Summary												
HCM 2000 Control Delay			49.4			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			106.0			Sum of lost time (s)			14.4			
Intersection Capacity Utilization			101.3%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	70	1772	677	239
v/c Ratio	0.50	0.68	0.31	0.77
Control Delay	51.8	4.8	9.5	56.0
Queue Delay	0.0	0.5	0.3	0.0
Total Delay	51.8	5.3	9.8	56.0
Queue Length 50th (ft)	48	153	108	149
Queue Length 95th (ft)	m49	m181	182	218
Internal Link Dist (ft)		1076	211	186
Turn Bay Length (ft)	55			
Base Capacity (vph)	187	2596	2185	434
Starvation Cap Reductn	0	0	792	0
Spillback Cap Reductn	0	377	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.80	0.49	0.55
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
12: Grand Ave & Culver St

Balboa Transit Station
13: Lee St & Grand Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBU	WBT	SBL	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	64	1630	0	503	120	172
Future Volume (vph)	64	1630	0	503	120	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	0.97
Flt	1.00	1.00	0.97	1.00	0.96	0.96
Flt Protected	0.95	1.00	1.00	0.96	0.96	0.96
Satd. Flow (prot)	1770	3539	3437	1740	1740	1740
Flt Permitted	0.95	1.00	1.00	0.96	0.96	0.96
Satd. Flow (perm)	1770	3539	3437	1740	1740	1740
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	1772	0	547	130	187
RTOR Reduction (vph)	0	0	0	15	0	10
Lane Group Flow (vph)	70	1772	0	662	0	229
Turn Type	Prot	NA	Prot	NA	Prot	Prot
Protected Phases	5	2	1	6	4	4
Permitted Phases						
Actuated Green, G (s)	7.5	77.8		66.1	18.2	18.2
Effective Green, g (s)	7.5	77.8		66.1	18.2	18.2
Actuated g/C Ratio	0.07	0.73		0.62	0.17	0.17
Clearance Time (s)	4.4	5.1		4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.2		4.1	2.0	2.0
Lane Grp Cap (vph)	125	2597		2143	298	298
v/s Ratio Prot	0.04	cd.50		0.19	cd.13	cd.13
v/s Ratio Perm						
v/c Ratio	0.56	0.68		0.31	0.77	0.77
Uniform Delay, d1	47.7	7.5		9.3	41.9	41.9
Progression Factor	1.04	0.50		0.91	1.00	1.00
Incremental Delay, d2	1.1	0.5		0.4	10.2	10.2
Delay (s)	50.6	4.3		8.9	52.1	52.1
Level of Service	D	A		A	D	D
Approach Delay (s)		6.0		8.9	52.1	52.1
Approach LOS		A		A	D	D
Intersection Summary						
HCM 2000 Control Delay			10.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			106.0		Sum of lost time (s)	14.4
Intersection Capacity Utilization			72.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1917	140	679	107
v/c Ratio	0.82	0.66	0.23	0.60
Control Delay	12.0	59.0	2.5	41.1
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	12.1	59.0	2.5	41.1
Queue Length 50th (ft)	340	92	38	40
Queue Length 95th (ft)	#800	149	70	92
Internal Link Dist (ft)	211		1401	337
Turn Bay Length (ft)		400		
Base Capacity (vph)	2347	274	2909	545
Starvation Cap Reductn	28	0	0	0
Spillback Cap Reductn	0	0	17	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.83	0.51	0.23	0.20
Intersection Summary				
# 95th percentile volume exceeds capacity, queue may be longer.				
Queue shown is maximum after two cycles.				

Balboa Transit Station
13: Lee St & Grand Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (vph)	1718	46	129	625	51	48
Future Volume (vph)	1718	46	129	625	51	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.4	4.9		
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	
Flt	1.00	1.00	1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3525		1770	3539	1697	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3525		1770	3539	1697	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1867	50	140	679	55	52
RTOR Reduction (vph)	1	0	0	0	42	0
Lane Group Flow (vph)	1916	0	140	679	65	0
Turn Type	NA	Prot	Prot	NA	Prot	
Protected Phases	2	1	6	8		
Permitted Phases						
Actuated Green, G (s)	70.5	12.7	87.1	8.6		
Effective Green, g (s)	70.5	12.7	87.1	8.6		
Actuated g/C Ratio	0.67	0.12	0.82	0.08		
Clearance Time (s)	4.9	4.4	5.4	4.9		
Vehicle Extension (s)	4.0	2.0	4.4	2.0		
Lane Grp Cap (vph)	2344	212	2907	137		
v/s Ratio Prot	0.54	0.08	0.19	0.04		
v/s Ratio Perm						
v/c Ratio	0.82	0.66	0.23	0.47		
Uniform Delay, d1	13.0	44.6	2.1	46.5		
Progression Factor	0.60	1.00	1.00	1.00		
Incremental Delay, d2	2.5	5.9	0.2	0.9		
Delay (s)	10.2	50.4	2.3	47.5		
Level of Service	B	D	A	D		
Approach Delay (s)	10.2		10.5	47.5		
Approach LOS	B		B	D		
Intersection Summary						
HCM 2000 Control Delay		11.7		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.76				
Actuated Cycle Length (s)		106.0		Sum of lost time (s)		14.2
Intersection Capacity Utilization		73.7%		ICU Level of Service		D
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Lane Group	EBL	EBT	WBT
Lane Group Flow (vph)	130	1864	775
v/c Ratio	0.72	0.53	0.27
Control Delay	86.2	0.6	1.0
Queue Delay	0.0	0.0	0.0
Total Delay	86.2	0.6	1.0
Queue Length 50th (ft)	125	0	14
Queue Length 95th (ft)	192	0	21
Internal Link Dist (ft)		605	773
Turn Bay Length (ft)	90		
Base Capacity (vph)	259	3539	2922
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.50	0.53	0.27
Intersection Summary			

Balboa Transit Station
14: Grand Ave & Figueroa Blvd

Balboa Transit Station
15: Grand Ave & Mission Bay Dr

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	120	1715	669	44	0	0
Future Volume (vph)	120	1715	669	44	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.3	5.3			
Lane Util. Factor	1.00	0.95	0.95			
Flt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	3539	3506			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1770	3539	3506			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	1864	727	48	0	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	130	1864	774	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	15.4	150.0	124.9			
Effective Green, g (s)	15.4	150.0	124.9			
Actuated g/C Ratio	0.10	1.00	0.83			
Clearance Time (s)	4.4	5.3	5.3			
Vehicle Extension (s)	2.0	4.4	4.4			
Lane Grp Cap (vph)	181	3539	2919			
v/s Ratio Prot	0.07	0.53	0.22			
v/s Ratio Perm						
v/c Ratio	0.72	0.53	0.27			
Uniform Delay, d1	65.2	0.0	2.7			
Progression Factor	1.00	1.00	0.28			
Incremental Delay, d2	10.7	0.6	0.2			
Delay (s)	75.9	0.6	1.0			
Level of Service	E	A	A			
Approach Delay (s)	5.5	1.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
HCM 2000 Control Delay			4.2	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			150.0	Sum of lost time (s)		12.7
Intersection Capacity Utilization			51.8%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	298	1643	536	958	899	99
v/c Ratio	0.83	0.83	0.55	0.66	0.85	0.06
Control Delay	46.9	17.4	30.8	8.7	38.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	1.0	0.0
Total Delay	46.9	17.4	30.8	8.7	39.6	0.1
Queue Length 50th (ft)	130	313	117	0	296	0
Queue Length 95th (ft)	#186	363	197	180	353	0
Internal Link Dist (ft)		773	535		495	
Turn Bay Length (ft)		225				150
Base Capacity (vph)	391	1991	970	1459	1103	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	59	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.83	0.55	0.66	0.86	0.06
Intersection Summary						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						

Balboa Transit Station
15: Grand Ave & Mission Bay Dr

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	274	1512	493	881	827	91
Future Volume (vph)	274	1512	493	881	827	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	4.9	5.7	5.7	4.9	4.0
Lane Util. Factor	1.00	0.95	0.95	0.88	0.97	1.00
Flt	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	2787	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	2787	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	298	1643	536	958	899	99
RTOR Reduction (vph)	0	0	0	695	0	0
Lane Group Flow (vph)	298	1643	536	263	899	99
Turn Type	Prot	NA	NA	Prot	Prot	Free
Protected Phases	5	2	6	6	4	
Permitted Phases						Free
Actuated Green, G (s)	15.1	42.2	20.6	20.6	23.0	75.0
Effective Green, g (s)	15.1	42.2	20.6	20.6	23.0	75.0
Actuated g/C Ratio	0.20	0.56	0.27	0.27	0.31	1.00
Clearance Time (s)	5.7	4.9	5.7	5.7	4.9	
Vehicle Extension (s)	2.0	3.6	2.0	2.0	3.6	
Lane Grp Cap (vph)	356	1991	972	765	1052	1583
v/s Ratio Prot	0.17	d0.46	0.15	0.09	d0.26	
v/s Ratio Perm						0.06
v/c Ratio	0.84	0.83	0.55	0.34	0.85	0.06
Uniform Delay, d1	28.8	13.4	23.3	21.8	24.4	0.0
Progression Factor	1.00	1.00	1.17	3.23	1.23	1.00
Incremental Delay, d2	13.3	3.6	2.2	1.2	6.9	0.1
Delay (s)	42.1	17.0	29.3	71.5	37.0	0.1
Level of Service	D	B	C	E	D	A
Approach Delay (s)		20.8	56.4		33.3	
Approach LOS		C	E		C	
Intersection Summary						
HCM 2000 Control Delay			35.6		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			75.0		Sum of lost time (s)	16.3
Intersection Capacity Utilization			73.6%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	892	112	1485	841	261
v/c Ratio	0.85	0.61	0.73	0.56	0.34
Control Delay	32.1	40.6	21.2	19.7	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	40.6	21.2	19.7	8.2
Queue Length 50th (ft)	189	58	526	165	29
Queue Length 95th (ft)	247	116	635	234	84
Internal Link Dist (ft)	261		749	743	
Turn Bay Length (ft)	270	205			70
Base Capacity (vph)	1177	204	2022	1509	770
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.55	0.73	0.56	0.34
Intersection Summary					

Balboa Transit Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W	W	W	W	W	W
Traffic Volume (vph)	690	131	103	1366	774	240
Future Volume (vph)	690	131	103	1366	774	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.6	5.6	5.6
Lane Util. Factor	0.97	1.00	0.95	0.95	1.00	1.00
Flt	0.98	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.96	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3385	1770	3539	3539	1583	1583
Flt Permitted	0.96	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3385	1770	3539	3539	1583	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	750	142	112	1485	841	261
RTOR Reduction (vph)	23	0	0	0	0	97
Lane Group Flow (vph)	869	0	112	1485	841	164
Turn Type	Prot	Prot	Prot	NA	NA	Perm
Protected Phases	4	5	2	6		
Permitted Phases					6	
Actuated Green, G (s)	22.7	6.8	42.9	31.1	31.1	
Effective Green, g (s)	22.7	6.8	42.9	31.1	31.1	
Actuated g/C Ratio	0.30	0.09	0.57	0.41	0.41	
Clearance Time (s)	4.4	4.4	5.0	5.6	5.6	
Vehicle Extension (s)	2.0	2.0	4.0	4.8	4.8	
Lane Grp Cap (vph)	1024	160	2024	1467	656	
v/s Ratio Prot	0.26	0.06	0.42	0.24		
v/s Ratio Perm					0.10	
v/c Ratio	0.85	0.70	0.73	0.57	0.25	
Uniform Delay, d1	24.5	33.1	11.8	16.9	14.3	
Progression Factor	1.00	0.91	1.54	1.00	1.00	
Incremental Delay, d2	6.4	8.3	1.9	1.6	0.9	
Delay (s)	31.0	38.4	20.2	18.5	15.2	
Level of Service	C	D	C	B	B	
Approach Delay (s)	31.0		21.5	17.7		
Approach LOS	C		C	B		
Intersection Summary						
HCM 2000 Control Delay		22.7		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio		0.84				
Actuated Cycle Length (s)		75.0		Sum of lost time (s)		14.4
Intersection Capacity Utilization		69.4%		ICU Level of Service		C
Analysis Period (min)		15				
c Critical Lane Group						







Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	92	64	1559	137	80	854
v/c Ratio	0.64	0.34	0.63	0.12	0.36	0.28
Control Delay	86.0	18.5	13.9	4.3	74.9	4.0
Queue Delay	0.0	0.0	12.7	0.0	0.0	0.0
Total Delay	86.0	18.5	26.7	4.3	74.9	4.0
Queue Length 50th (ft)	89	0	397	19	81	175
Queue Length 95th (ft)	146	46	521	46	m135	230
Internal Link Dist (ft)	1203		376			749
Turn Bay Length (ft)		75		160	185	
Base Capacity (vph)	361	373	2477	1129	224	3024
Starvation Cap Reductn	0	0	922	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.17	1.00	0.12	0.36	0.28
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Transit Station
17: Mission Bay Dr & Damon Ave

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	85	59	1434	126	74	786
Future Volume (vph)	85	59	1434	126	74	786
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Flt	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)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	64	1559	137	80	854
RTOR Reduction (vph)	0	59	0	21	0	0
Lane Group Flow (vph)	92	5	1559	116	80	854
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4		2		
Actuated Green, G (s)	12.2	12.2	105.0	105.0	19.0	128.2
Effective Green, g (s)	12.2	12.2	105.0	105.0	19.0	128.2
Actuated g/C Ratio	0.08	0.08	0.70	0.70	0.13	0.85
Clearance Time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Vehicle Extension (s)	2.0	2.0	3.8	3.8	2.0	3.5
Lane Grp Cap (vph)	143	128	2477	1108	224	3024
v/s Ratio Prot	c0.05		c0.44		c0.05	0.24
v/s Ratio Perm		0.00		0.07		
v/c Ratio	0.64	0.04	0.63	0.10	0.36	0.28
Uniform Delay, d1	66.8	63.5	12.1	7.3	59.9	2.1
Progression Factor	1.00	1.00	1.00	1.00	1.18	1.68
Incremental Delay, d2	7.2	0.0	1.2	0.2	0.3	0.2
Delay (s)	74.0	63.6	13.3	7.5	70.8	3.7
Level of Service	E	E	B	A	E	A
Approach Delay (s)	69.7		12.8		9.4	
Approach LOS	E		B		A	
Intersection Summary						
HCM 2000 Control Delay	14.9			HCM 2000 Level of Service		
HCM 2000 Volume to Capacity ratio	0.59			B		
Actuated Cycle Length (s)	150.0			Sum of lost time (s)		
Intersection Capacity Utilization	59.9%			ICU Level of Service		
Analysis Period (min)	15			B		
Critical Lane Group						

Lane Group		EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)		348	16	58	1232	37	1086
v/c Ratio		1.05	0.05	0.58	0.53	0.44	0.48
Control Delay		114.7	36.9	104.5	10.8	84.3	14.7
Queue Delay		0.0	0.0	0.0	0.0	0.0	1.2
Total Delay		114.7	36.9	104.5	10.8	84.3	15.9
Queue Length 50th (ft)		-348	9	58	332	36	281
Queue Length 95th (ft)		#554	30	m105	464	75	339
Internal Link Dist (ft)		303	271		804		461
Turn Bay Length (ft)				65		50	
Base Capacity (vph)		331	315	119	2316	107	2257
Starvation Cap Reductn		0	0	0	0	0	879
Spillback Cap Reductn		0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0
Reduced v/c Ratio		1.05	0.05	0.49	0.53	0.35	0.79
Intersection Summary							
- Volume exceeds capacity, queue is theoretically infinite.							
Queue shown is maximum after two cycles.							
# 95th percentile volume exceeds capacity, queue may be longer.							
Queue shown is maximum after two cycles.							
m Volume for 95th percentile queue is metered by upstream signal.							

Balboa Transit Station
18: Mission Bay Dr & Magnolia Ave

Balboa Transit Station
19: Mission Bay Dr & Bunker Hill St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↔		↔	↔		↖	↖↖		↗	↗	↗		
Traffic Volume (vph)	160	9	151	8	2	5	53	1126	7	34	882	117		
Future Volume (vph)	160	9	151	8	2	5	53	1126	7	34	882	117		
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	5.0		4.4	5.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95			
Flt Protected	0.98			0.96			0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1702			1735			1770	3536		1770	3477			
Flt Permitted	0.83			0.82			0.95	1.00	1.00	0.95	1.00			
Satd. Flow (perm)	1454			1460			1770	3536		1770	3477			
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)	174	10	164	9	2	5	58	1224	8	37	959	127		
RTOR Reduction (vph)	0	21	0	0	4	0	0	0	0	0	6	0		
Lane Group Flow (vph)	0	327	0	0	12	0	58	1232	0	37	1080	0		
Turn Type	Perm	NA	NA	Perm	NA	NA	Prot	NA	NA	Prot	NA	NA		
Protected Phases	8			4			1	6		5	2			
Permitted Phases	8			4			6			6.3	96.3			
Actuated Green, G (s)	32.0			32.0			7.4	97.4		6.3	96.3			
Effective Green, g (s)	32.0			32.0			7.4	97.4		6.3	96.3			
Actuated g/C Ratio	0.21			0.21			0.05	0.65		0.04	0.64			
Clearance Time (s)	4.9			4.9			4.4	5.0		4.4	5.0			
Vehicle Extension (s)	2.0			2.0			2.0	3.7		2.0	3.7			
Lane Grp Cap (vph)	310			311			87	2296		74	2232			
v/s Ratio Prot	c0.22			0.01			c0.03	c0.35		0.02	0.31			
v/c Ratio Perm	1.05			0.04			0.67	0.54		0.50	0.48			
Uniform Delay, d1	59.0			46.8			70.1	14.2		70.3	13.9			
Progression Factor	1.00			1.00			1.23	0.70		1.00	1.00			
Incremental Delay, d2	66.0			0.0			12.1	0.8		1.9	0.8			
Delay (s)	125.0			46.8			98.5	10.6		72.2	14.7			
Level of Service	F			D			F	B		E	B			
Approach Delay (s)	125.0			46.8			14.6			16.6				
Approach LOS	F			D			B			B				
Intersection Summary														
HCM 2000 Control Delay													C	
HCM 2000 Volume to Capacity ratio	29.4			HCM 2000 Level of Service									C	
Actuated Cycle Length (s)	0.67			HCM 2000 Volume to Capacity ratio									14.3	
Intersection Capacity Utilization	150.0			Sum of lost time (s)									C	
Analysis Period (min)	69.0%			ICU Level of Service									C	
c Critical Lane Group	15			Critical Lane Group										

Balboa Transit Station
19: Mission Bay Dr & Bunker Hill St

Balboa Transit Station
20: Mission Bay Dr & Rosewood St

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations											
Traffic Volume (vph)	0	0	0	44	0	78	0	1058	104	239	827
Future Volume (vph)	0	0	0	44	0	78	0	1058	104	239	827
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9			4.9			5.0		4.4	5.0	
Lane Util. Factor	1.00			1.00			0.95		1.00	0.95	
Flt	0.91			0.99			1.00		1.00	1.00	
Flt Protected	0.98			0.98			1.00		0.95	1.00	
Satd. Flow (prot)	1672			1672			3492		1770	3539	
Flt Permitted	0.88			1.00			1.00		0.95	1.00	
Satd. Flow (perm)	1498			1498			3492		1770	3539	
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
Adj. Flow (vph)	0	0	0	48	0	85	0	1150	113	260	899
RTOR Reduction (vph)	0	0	0	0	0	0	0	7	0	0	0
Lane Group Flow (vph)	0	0	0	0	8	0	0	1256	0	260	899
Turn Type				Perm	NA	NA	Prot	NA	Prot	Prot	NA
Protected Phases	4			4			1	6		5	2
Permitted Phases				4							
Actuated Green, G (s)	4.4			4.4			46.3		10.0	60.7	
Effective Green, g (s)	4.4			4.4			46.3		10.0	60.7	
Actuated g/C Ratio	0.06			0.06			0.62		0.13	0.81	
Clearance Time (s)	4.9			4.9			5.0		4.4	5.0	
Vehicle Extension (s)	2.0			2.0			3.2		2.0	3.2	
Lane Grp Cap (vph)				87			2155		236	2864	
v/s Ratio Prot				c0.01			c0.36		c0.15	0.25	
v/c Ratio				0.09			0.58		1.10	0.31	
Uniform Delay, d1				33.4			8.6		32.5	1.8	
Progression Factor				1.00			1.48		0.93	1.26	
Incremental Delay, d2				0.2			0.8		83.9	0.2	
Delay (s)				33.6			13.6		114.2	2.5	
Level of Service				C			B		F	A	
Approach Delay (s)	0.0			33.6			13.6			27.6	
Approach LOS	A			C			B			C	
Intersection Summary											
HCM 2000 Control Delay			21.0			HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.63								
Actuated Cycle Length (s)			75.0			Sum of lost time (s)			14.3		
Intersection Capacity Utilization			64.9%			ICU Level of Service			C		
Analysis Period (min)			15								
c Critical Lane Group											

Lane Group	WBL	NBT	SBL	SBR
Lane Group Flow (vph)	13	1488	10	2568
v/c Ratio	0.09	0.31	0.07	0.76
Control Delay	20.5	1.9	36.6	2.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.5	1.9	36.6	2.9
Queue Length 50th (ft)	1	0	5	2
Queue Length 95th (ft)	17	133	m5	443
Internal Link Dist (ft)	221	960		535
Turn Bay Length (ft)			60	
Base Capacity (vph)	357	4728	142	3397
Starvation Cap Reductn	0	0	0	24
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.31	0.07	0.76
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Transit Station
20: Mission Bay Dr & Rosewood St

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		4+4		4	4+4
Traffic Volume (vph)	2	10	1357	12	9	2363
Future Volume (vph)	2	10	1357	12	9	2363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.95
Flt	0.89	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.99		1.00	0.95	1.00	
Satd. Flow (prot)	1637		5079	1770	3539	
Flt Permitted	0.99		1.00	0.95	1.00	
Satd. Flow (perm)	1637		5079	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	11	1475	13	10	2568
RTOR Reduction (vph)	11	0	1	0	0	0
Lane Group Flow (vph)	2	0	1487	0	10	2568
Turn Type	Prot		NA	Prot	NA	
Protected Phases	8		2	1	6	
Permitted Phases						
Actuated Green, G (s)	1.4		60.2	1.4	65.6	
Effective Green, g (s)	1.4		60.2	1.4	65.6	
Actuated g/C Ratio	0.02		0.80	0.02	0.87	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	30		4076	33	3095	
v/s Ratio Prot	0.00		0.29	0.01	0.73	
v/s Ratio Perm						
v/c Ratio	0.07		0.36	0.30	0.83	
Uniform Delay, d1	36.2		2.1	36.3	2.1	
Progression Factor	1.00		1.00	1.14	1.02	
Incremental Delay, d2	1.0		0.3	2.9	1.6	
Delay (s)	37.2		2.3	44.3	3.7	
Level of Service	D		A	D	A	
Approach Delay (s)	37.2		2.3		3.9	
Approach LOS	D		A		A	
Intersection Summary						
HCM 2000 Control Delay			3.4		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			75.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			75.3%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						







Balboa Transit Station
21: Santa Fe St & Damon Ave

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	4	4
Sign Control	Stop			Stop	Stop	Stop
Traffic Volume (vph)	128	36	21	134	47	87
Future Volume (vph)	128	36	21	134	47	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	139	39	23	146	51	95
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	178	169	146			
Volume Left (vph)	139	23	0			
Volume Right (vph)	39	0	95			
Head (s)	0.06	0.06	-0.36			
Departure Headway (s)	4.7	4.6	4.2			
Degree Utilization, x	0.23	0.21	0.17			
Capacity (veh/h)	722	752	810			
Control Delay (s)	9.1	8.8	8.0			
Approach Delay (s)	9.1	8.8	8.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.7			
Level of Service			A			
Intersection Capacity Utilization			35.3%			
Analysis Period (min)			15			
ICU Level of Service						
A						

Balboa Transit Station
22: Morena Blvd & Jutland Dr

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Volume (vph)	190	13	257	391	4	163
Future Volume (vph)	190	13	257	391	4	163
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	207	14	279	425	4	177
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	207	14	279	425	63	118
Volume Left (vph)	207	0	0	0	4	0
Volume Right (vph)	0	14	0	425	0	0
Head (s)	0.53	-0.67	0.03	-0.67	0.07	0.03
Departure Headway (s)	7.0	5.8	5.6	4.9	6.2	6.2
Degree Utilization, x	0.40	0.02	0.43	0.58	0.11	0.20
Capacity (veh/h)	486	574	628	721	551	556
Control Delay (s)	13.4	7.7	11.6	13.1	8.7	9.5
Approach Delay (s)	13.0		12.5		9.2	
Approach LOS	B		B		A	
Intersection Summary						
Delay	12.1					
Level of Service	B					
Intersection Capacity Utilization	35.5%					
Analysis Period (min)	15					
	ICU Level of Service					
	A					

Balboa Transit Station
23: Morena Blvd & Costco Dwy

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	WBL	NBT	SBL	SBT
Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	169	842	46	312
v/c Ratio	0.24	0.45	0.17	0.14
Control Delay	10.8	8.5	18.4	4.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.8	8.5	18.4	4.2
Queue Length 50th (ft)	7	39	7	12
Queue Length 95th (ft)	31	123	33	26
Internal Link Dist (ft)	195	3170	110	1658
Turn Bay Length (ft)	2561	2105	265	2855
Base Capacity (vph)	0	0	0	0
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.07	0.40	0.17	0.11
Intersection Summary				

Balboa Transit Station
23: Morena Blvd & Costco Dwy

Horizon Year with Reduced LU
 Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W<T>	W<T>	W<T>	W<T>	W<T>	W<T>
Traffic Volume (vph)	99	56	653	121	42	287
Future Volume (vph)	99	56	653	121	42	287
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.5	5.5	5.5	5.5
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00
Flt	0.95	0.98	1.00	1.00	1.00	1.00
Flt Protected	0.97	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3312	3456	1770	3539	1770	3539
Flt Permitted	0.97	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3312	3456	1770	3539	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	61	710	132	46	312
RTOR Reduction (vph)	53	0	21	0	0	0
Lane Group Flow (vph)	116	0	821	0	46	312
Turn Type	Prot	NA	NA	Prot	NA	NA
Protected Phases	8	2		1	6	
Permitted Phases						
Actuated Green, G (s)	4.5	14.5	1.2	20.1		
Effective Green, g (s)	4.5	14.5	1.2	20.1		
Actuated g/C Ratio	0.13	0.41	0.03	0.57		
Clearance Time (s)	4.9	5.5	4.4	5.5		
Vehicle Extension (s)	2.0	2.8	2.0	2.8		
Lane Grp Cap (vph)	425	1431	60	2032		
v/s Ratio Prot	c0.03	c0.24	c0.03	0.09		
v/s Ratio Perm						
v/c Ratio	0.27	0.57	0.77	0.15		
Uniform Delay, d1	13.8	7.9	16.8	3.5		
Progression Factor	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.1	0.5	40.0	0.0		
Delay (s)	13.9	8.4	56.7	3.5		
Level of Service	B	A	E	A		
Approach Delay (s)	13.9	8.4		10.3		
Approach LOS	B	A		B		
Intersection Summary						
HCM 2000 Control Delay		9.6		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio		0.52				
Actuated Cycle Length (s)		35.0		Sum of lost time (s)		14.8
Intersection Capacity Utilization		42.2%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station
24: Morena Blvd & Avati Dr

Horizon Year with Reduced LU
 Timing Plan: AM Peak Period

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	250	40	868	129	23	383
v/c Ratio	0.34	0.11	0.52	0.08	0.12	0.22
Control Delay	15.4	7.4	9.2	0.4	20.9	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	7.4	9.2	0.4	20.9	5.5
Queue Length 50th (ft)	19	0	50	0	4	18
Queue Length 95th (ft)	62	20	147	7	25	39
Internal Link Dist (ft)	317		2205			3170
Turn Bay Length (ft)		135		115	120	
Base Capacity (vph)	2691	1251	3222	1573	195	3184
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.27	0.08	0.12	0.12
Intersection Summary						

Balboa Transit Station
24: Morena Blvd & Avati Dr

Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↔	↔↔	↔	↔	↔↔
Traffic Volume (vph)	230	37	0	799	119	21	352
Future Volume (vph)	230	37	0	799	119	21	352
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)	-10%			-3%			0%
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	5.7	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95	
Flt	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3605	1662	3592	1607	1770	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3605	1662	3592	1607	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	40	0	868	129	23	383
RTOR Reduction (vph)	0	32	0	0	50	0	0
Lane Group Flow (vph)	250	8	0	868	79	23	383
Turn Type	Prot	Prot	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	7	1	6	7	5	2
Permitted Phases				6			5
Actuated Green, G (s)	7.8	7.8		17.5	25.3	0.6	22.8
Effective Green, g (s)	7.8	7.8		17.5	25.3	0.6	22.8
Actuated g/C Ratio	0.19	0.19		0.42	0.61	0.01	0.55
Clearance Time (s)	4.9	4.9		6.0	4.9	4.4	5.7
Vehicle Extension (s)	2.0	2.0		5.2	2.0	2.0	5.0
Lane Grp Cap (vph)	682	314		1525	986	25	1958
v/s Ratio Prot	c0.07	0.00		c0.24	0.02	c0.01	0.11
v/s Ratio Perm				0.03			
v/c Ratio	0.37	0.02		0.57	0.08	0.92	0.20
Uniform Delay, d1	14.5	13.6		9.0	3.2	20.3	4.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		0.8	0.0	142.7	0.1
Delay (s)	14.7	13.6		9.8	3.2	163.0	4.7
Level of Service	B	B		A	A	F	A
Approach Delay (s)	14.5			9.0		13.7	
Approach LOS	B			A		B	
Intersection Summary							
HCM 2000 Control Delay			11.1		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.52				
Actuated Cycle Length (s)			41.2		Sum of lost time (s)		15.3
Intersection Capacity Utilization			37.7%		ICU Level of Service		A
Analysis Period (min)			15				
c. Critical Lane Group							

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	98	164	304	1564	222	446
v/c Ratio	0.30	0.39	0.60	0.61	0.20	0.28
Control Delay	21.3	7.2	21.3	6.0	13.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	7.2	21.3	6.0	13.9	0.4
Queue Length 50th (ft)	26	0	76	104	24	0
Queue Length 95th (ft)	62	40	153	194	51	0
Internal Link Dist (ft)	463			933	2205	
Turn Bay Length (ft)		50	200			100
Base Capacity (vph)	675	705	675	2770	1350	1583
Saturation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.23	0.45	0.56	0.16	0.28
Intersection Summary						

Balboa Transit Station
25: Morena Blvd & Balboa WB Ramps

Balboa Transit Station
26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↱	↱
Traffic Volume (vph)	90	151	280	1439	204	410
Future Volume (vph)	90	151	280	1439	204	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	164	304	1564	222	446
RTOR Reduction (vph)	0	141	0	0	0	0
Lane Group Flow (vph)	98	23	304	1564	222	446
Turn Type	Perm	Perm	Prot	NA	NA	Free
Protected Phases			5	2	6	
Permitted Phases	4	4				Free
Actuated Green, G (s)	6.4	6.4	12.9	31.5	14.6	45.9
Effective Green, g (s)	6.4	6.4	12.9	31.5	14.6	45.9
Actuated g/C Ratio	0.14	0.14	0.28	0.69	0.32	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	246	220	497	2428	1125	1583
v/s Ratio Prot	0.06	0.01	0.17	0.44	0.06	0.28
v/s Ratio Perm	0.40	0.10	0.61	0.64	0.20	0.28
v/c Ratio	0.40	0.10	0.61	0.64	0.20	0.28
Uniform Delay, d1	18.0	17.2	14.3	4.0	11.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.2	2.2	0.6	0.1	0.4
Delay (s)	19.1	17.5	16.6	4.6	11.5	0.4
Level of Service	B	B	B	A	B	A
Approach Delay (s)	18.1		6.6	4.1		
Approach LOS	B		A	A		
Intersection Summary						
HCM 2000 Control Delay			7.1	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			45.9	Sum of lost time (s)		12.0
Intersection Capacity Utilization			51.4%	ICU Level of Service		A
Analysis Period (min)			15			
Critical Lane Group						

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	12	236	478	10	1217	54	331
v/c Ratio	0.16	0.06	0.59	0.72	0.08	0.74	0.44	0.18
Control Delay	30.8	28.4	30.2	12.9	33.9	20.0	45.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	28.4	30.2	12.9	33.9	20.0	45.5	9.7
Queue Length 50th (ft)	13	4	92	29	4	245	23	34
Queue Length 95th (ft)	37	19	165	129	19	# 390	#73	74
Internal Link Dist (ft)	96		647		1978		933	
Turn Bay Length (ft)					100		135	
Base Capacity (vph)	496	516	506	730	124	1714	124	1866
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.02	0.47	0.65	0.08	0.71	0.44	0.18
Intersection Summary								
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.								

Balboa Transit Station
26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

Horizon Year with Reduced LU
 Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	29	10	1	140	77	440	9	970	150	50	258	47
Future Volume (vph)	29	10	1	140	77	440	9	970	150	50	258	47
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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.98
Flt	1.00	0.99	1.00	0.97	1.00	0.85	1.00	0.98	1.00	0.98	1.00	0.98
Flt Protected	0.95	1.00	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1839	1805	1583	1770	3468	1770	3468	1770	3457	1770	3457
Flt Permitted	0.95	1.00	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1839	1805	1583	1770	3468	1770	3468	1770	3457	1770	3457
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)	32	11	1	152	84	478	10	1054	163	54	280	51
RTOR Reduction (vph)	0	1	0	0	0	316	0	13	0	0	15	0
Lane Group Flow (vph)	32	11	0	0	236	162	10	1204	0	54	316	0
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA	Prot	NA	NA
Protected Phases	4	4	8	8	8	5	2	1	6	1	6	6
Permitted Phases	3.9	3.9	13.5	13.5	0.7	30.1	2.0	31.4	2.0	31.4	2.0	31.4
Actuated Green, G (s)	3.9	3.9	13.5	13.5	0.7	30.1	2.0	31.4	2.0	31.4	2.0	31.4
Effective Green, g (s)	0.06	0.06	0.21	0.21	0.01	0.46	0.03	0.48	0.03	0.48	0.03	0.48
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	105	109	372	326	18	1593	54	1657	54	1657	54	1657
Lane Grp Cap (vph)	c0.02	0.01	0.13	0.01	c0.35	c0.03	0.09	0.09	0.03	0.09	0.03	0.09
v/s Ratio Prot	0.30	0.10	0.63	0.50	0.56	0.76	1.00	0.19	1.00	0.19	1.00	0.19
v/c Ratio	29.5	29.1	23.7	23.0	32.2	14.7	31.8	9.8	31.8	9.8	31.8	9.8
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.6	0.4	3.5	1.2	32.3	2.1	122.5	0.1	122.5	0.1	122.5	0.1
Incremental Delay, d2	31.1	29.6	27.3	24.2	64.5	16.8	154.2	9.8	154.2	9.8	154.2	9.8
Delay (s)	C	C	C	C	E	B	F	A	F	A	F	A
Level of Service	C	C	C	C	E	B	F	A	F	A	F	A
Approach Delay (s)	30.7	25.2	17.1	17.1	17.1	17.1	30.1	30.1	17.1	17.1	30.1	30.1
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM 2000 Control Delay	21.9											
HCM 2000 Volume to Capacity ratio	0.70											
Actuated Cycle Length (s)	65.5											
Sum of lost time (s)	16.0											
Intersection Capacity Utilization	72.2%											
ICU Level of Service	C											
Analysis Period (min)	15											
c Critical Lane Group												

Balboa Transit Station
27: Morena Blvd & Baker St

Horizon Year with Reduced LU
 Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗
Traffic Volume (veh/h)	27	35	783	22	21	290
Future Volume (Veh/h)	27	35	783	22	21	290
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	38	851	24	23	315
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pK, platoon unblocked						
VC, conflicting volume	1054	851			875	
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	1054	851			875	
IC, single (s)	6.8	6.9			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	86	87			97	
d0 capacity (veh/h)	214	303			767	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	67	851	24	23	158	158
Volume Left	29	0	0	23	0	0
Volume Right	38	0	24	0	0	0
cSH	257	1700	1700	767	1700	1700
Volume to Capacity	0.26	0.50	0.01	0.03	0.09	0.09
Queue Length 95th (ft)	25	0	0	2	0	0
Control Delay (s)	23.9	0.0	0.0	9.8	0.0	0.0
Lane LOS	C	C	A	A	C	C
Approach Delay (s)	23.9	0.0		0.7		
Approach LOS	C					
Intersection Summary						
Average Delay	1.4					
Intersection Capacity Utilization	51.5%					
ICU Level of Service	A					
Analysis Period (min)	15					

Balboa Transit Station
28: Morena Blvd & Gesner St

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	WBL	NBT	NBR	SBL	SBT
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	89	950	46	51	372
v/c Ratio	0.23	0.39	0.04	0.18	0.14
Control Delay	10.9	7.1	4.0	20.0	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	7.1	4.0	20.0	3.2
Queue Length 50th (ft)	6	46	1	9	14
Queue Length 95th (ft)	38	146	14	39	31
Internal Link Dist (ft)	1333	298	95	95	3361
Turn Bay Length (ft)	1317	2458	1110	277	2885
Base Capacity (vph)	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.39	0.04	0.18	0.13
Intersection Summary					

Balboa Transit Station
28: Morena Blvd & Gesner St

Horizon Year with Reduced LU
Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↕↕	↗	↖	↕↕
Traffic Volume (vph)	33	49	874	42	47	342
Future Volume (vph)	33	49	874	42	47	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4		5.9	5.9	4.4	6.0
Lane Util. Factor	1.00		0.95	1.00	1.00	0.95
Flt	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)	1679		3539	1583	1770	3539
Flt Permitted	0.98		1.00	1.00	0.95	1.00
Satd. Flow (perm)	1679		3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	53	950	46	51	372
RTOR Reduction (vph)	49	0	0	19	0	0
Lane Group Flow (vph)	40	0	950	27	51	372
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Actuated Green, G (s)	3.0		17.1	17.1	1.1	22.5
Effective Green, g (s)	3.0		17.1	17.1	1.1	22.5
Actuated g/C Ratio	0.08		0.48	0.48	0.03	0.63
Clearance Time (s)	4.4		5.9	5.9	4.4	6.0
Vehicle Extension (s)	2.0		4.4	4.4	2.0	4.2
Lane Grp Cap (vph)	140		1685	754	54	2218
v/s Ratio Prot	c0.02		c0.27		c0.03	0.11
v/s Ratio Perm				0.02		
v/c Ratio	0.29		0.56	0.04	0.94	0.17
Uniform Delay, d1	15.4		6.7	5.0	17.4	2.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.6	0.0	100.6	0.1
Delay (s)	15.9		7.3	5.0	118.0	2.8
Level of Service	B		A	A	F	A
Approach Delay (s)	15.9		7.2		16.7	
Approach LOS	B		A		B	
Intersection Summary						
HCM 2000 Control Delay			10.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.54			
Actuated Cycle Length (s)			35.9		Sum of lost time (s)	14.7
Intersection Capacity Utilization			44.6%		ICU Level of Service	A
Analysis Period (min)			15			
Critical Lane Group						

Queues

29: Garnet Ave & Balboa WB Ramps

12/20/2017



Lane Group	EBT	WBT	WBR	SBR
Lane Group Flow (vph)	1516	1150	262	750
v/c Ratio	0.30	0.54	0.32	0.70
Control Delay	0.2	9.2	2.5	15.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.2	9.2	2.5	15.0
Queue Length 50th (ft)	0	60	0	72
Queue Length 95th (ft)	0	87	26	#136
Internal Link Dist (ft)	265	362		
Turn Bay Length (ft)		300		
Base Capacity (vph)	5049	2408	887	1065
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.48	0.30	0.70

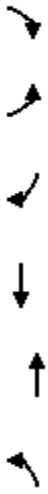
Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

29: Garnet Ave & Balboa WB Ramps

12/20/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗↗↗	↗↗↗	↖↖↖	↖		↘↘↘
Traffic Volume (vph)	0	1395	1058	241	0	690
Future Volume (vph)	0	1395	1058	241	0	690
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	0.91	0.91	0.91	1.00		0.88
Frt	1.00	1.00	1.00	0.85		0.85
Flt Protected	1.00	1.00	1.00	1.00		1.00
Satd. Flow (prot)	5085	5085	5085	1583		2787
Flt Permitted	1.00	1.00	1.00	1.00		1.00
Satd. Flow (perm)	5085	5085	5085	1583		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1516	1150	262	0	750
RTOR Reduction (vph)	0	0	0	152	0	38
Lane Group Flow (vph)	0	1516	1150	110	0	712
Turn Type	NA	NA	NA	Perm		Prot
Protected Phases	1 4	8				1
Permitted Phases				8		
Actuated Green, G (s)	38.2	16.1	16.1	16.1		14.1
Effective Green, g (s)	38.2	16.1	16.1	16.1		14.1
Actuated g/C Ratio	1.00	0.42	0.42	0.42		0.37
Clearance Time (s)		4.0	4.0	4.0		4.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	5085	2143	667			1028
v/s Ratio Prot	0.30	c0.23				c0.26
v/s Ratio Perm			0.07			
v/c Ratio	0.30	0.54	0.17			0.69
Uniform Delay, d1	0.0	8.3	6.9			10.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.0	0.3	0.1			2.0
Delay (s)	0.0	8.5	7.0			12.2
Level of Service	A	A	A	A		B
Approach Delay (s)	0.0	8.2			12.2	
Approach LOS	A	A			B	
Intersection Summary						
HCM 2000 Control Delay		5.7			HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio		0.61				
Actuated Cycle Length (s)		38.2			Sum of lost time (s)	8.0
Intersection Capacity Utilization		51.2%			ICU Level of Service	A
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Transit Station

Horizon Year with Reduced LU

Timing Plan: AM Peak Period

Arterial Level of Service: EB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Obispo St	II	30	42.1	29.1	40.2	0.00	7.7	F
Balboa Ave	II	30	23.5	12.6	36.1	0.19	18.5	D
Soledad Mtn Rd	II	35	27.4	10.8	38.2	0.23	21.7	D
Bond St	II	35	21.0	0.6	21.6	0.17	28.0	C
Mission Bay Dr	II	35	15.5	53.0	68.5	0.12	6.5	F
I-5 Off-ramp	II	45	24.2	45.4	110.0	34.2	21.3	D
Balboa WB Ramps	II	45	7.1	0.4	7.5	0.07	31.4	B
Miraga Ave*	II	45	22.2	64.4	3.4	27.4	25.6	C
Claremont Dr	II	45	49.7	40.8	90.5	0.62	24.7	C
Total	II		202.7	166.7	369.4	1.92	18.7	D

*Reduction of signal delay for transit queue jump lane

Arterial Level of Service: WB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Claremont Dr	II	45	14.7	34.5	49.2	0.43	48.5	F
Miraga Ave	II	45	49.7	19.1	68.8	0.62	32.5	B
Balboa WB Ramps	II	45	22.2	12.7	34.9	0.20	21.0	D
Santa Fe St	II	45	7.1	0.3	7.4	0.07	31.8	B
Mission Bay Dr	II	45	24.2	50.5	74.7	0.23	11.2	F
Bond St	II	35	15.5	0.9	16.4	0.12	27.2	C
Soledad Mtn Rd	II	35	21.0	7.5	28.5	0.17	21.2	D
Garnet Ave	II	35	27.4	0.5	27.9	0.23	29.7	B
Obispo St	II	30	23.5	8.9	32.4	0.19	20.6	D
Total	II		205.3	131.9	337.2	1.97	21.0	D

Arterial Level of Service: NB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Reewood St	III	35	29.6	1.9	25.5	0.20	27.8	D
Mission Bay Dr	III	35	15.7	0.7	24.4	0.12	17.2	D
Bunker Hill St	III	35	14.7	13.5	28.2	0.11	13.9	E
Magnolia Ave	III	35	21.4	10.8	32.2	0.17	18.7	C
Garnet Ave	III	35	13.8	37.6	51.4	0.10	7.2	F
Damon Ave	III	35	11.7	13.9	25.6	0.09	12.1	E
Bluffs Ave	III	35	20.1	21.2	41.3	0.16	13.7	E
Total	III		121.0	107.6	228.6	0.94	14.7	D

Balboa Transit Station

Horizon Year with Reduced LU

Timing Plan: AM Peak Period

Arterial Level of Service: SB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bluffs Ave	III	35	20.0	10.7	30.7	0.16	14.1	D
Damon Ave	III	35	20.1	4.0	24.1	0.16	23.5	C
Garnet Ave	III	35	11.7	51.0	62.7	0.09	5.0	F
Magnolia Ave	III	35	13.8	14.7	28.5	0.10	12.9	E
Bunker Hill St	III	35	21.4	2.6	24.0	0.17	25.1	B
Grand Ave	III	35	14.7	38.7	53.4	0.11	7.3	F
Reewood St	III	35	15.7	0.9	18.6	0.12	22.5	C
Total	III		117.4	133.6	251.0	0.89	12.8	E

Balboa Station
1: Olney St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	88	1069	8	1522	238	216
v/c Ratio	0.75	0.95	0.07	0.71	0.83	0.56
Control Delay	58.1	33.5	12.3	15.1	46.5	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	33.5	12.3	15.1	46.5	24.1
Queue Length 50th (ft)	24	368	2	244	90	66
Queue Length 95th (ft)	#113	#724	m4	363	#163	117
Internal Link Dist (ft)	374	899	244	450		
Turn Bay Length (ft)	50	117	111	2154	371	493
Base Capacity (vph)	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.95	0.07	0.71	0.64	0.44
Intersection Summary						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Station
1: Olney St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

	EBL	EBT	WBL	WBT	NBT	SBT	SBT
Movement	EBL	EBT	WBL	WBT	NBT	SBT	SBT
Lane Configurations	EBL	EBT	WBL	WBT	NBT	SBT	SBT
Traffic Volume (vph)	81	919	64	7	1370	30	143
Future Volume (vph)	81	919	64	7	1370	30	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt	1.00	0.99	1.00	1.00	1.00	1.00	0.92
Flt Protected	0.95	1.00	0.95	1.00	0.97	0.97	0.99
Satd. Flow (prot)	1770	1844	1770	3528	1797	1797	1693
Flt Permitted	0.10	1.00	0.10	1.00	0.63	0.63	0.88
Satd. Flow (perm)	192	1844	182	3528	1176	1176	1510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	999	70	8	1489	33	155
RTOR Reduction (vph)	0	3	0	0	2	0	2
Lane Group Flow (vph)	88	1066	0	8	1520	0	236
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases	2		6		8		4
Permitted Phases	2		6		8		4
Actuated Green, G (s)	40.9	40.9	40.9	40.9	16.3		16.3
Effective Green, g (s)	40.9	40.9	40.9	40.9	16.3		16.3
Actuated g/c Ratio	0.61	0.61	0.61	0.61	0.24		0.24
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9		4.9
Vehicle Extension (s)	3.4	3.4	5.9	5.9	2.0		2.0
Lane Grp Cap (vph)	117	1125	111	2153	286		367
v/s Ratio Prot	c0.58		0.43		c0.20		0.13
v/c Ratio	0.75	0.95	0.07	0.71	0.83		0.53
Uniform Delay, d1	9.4	12.1	5.3	8.9	24.0		22.1
Progression Factor	1.00	1.00	1.40	1.30	1.00		1.00
Incremental Delay, d2	35.4	16.8	1.1	1.7	16.7		0.8
Delay (s)	44.8	28.9	8.5	13.3	40.7		22.8
Level of Service	D	C	A	B	D		C
Approach Delay (s)	30.1		13.3		40.7		22.8
Approach LOS	C		B		D		C
Intersection Summary							
HCM 2000 Control Delay	22.2		HCM 2000 Level of Service		C		
HCM 2000 Volume to Capacity ratio	0.91						
Actuated Cycle Length (s)	67.0		Sum of lost time (s)		9.8		
Intersection Capacity Utilization	100.2%		ICU Level of Service		G		
Analysis Period (min)	15						
c Critical Lane Group							

Balboa Station
2: Balboa Ave & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

	EBT	WBT	SBL	SBR
Lane Group				
Lane Group Flow (vph)	420	1274	714	1021
v/c Ratio	0.23	0.65	0.50	0.90
Control Delay	9.1	6.3	1.2	29.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.1	6.3	1.2	29.6
Queue Length 50th (ft)	45	67	0	231
Queue Length 95th (ft)	68	128	0	m248
Internal Link Dist (ft)	936	329		899
Turn Bay Length (ft)				
Base Capacity (vph)	1853	1967	1441	1138
Starvation Cap Reductin	0	0	0	0
Spillback Cap Reductin	0	0	0	0
Storage Cap Reductin	0	0	0	0
Reduced v/c Ratio	0.23	0.65	0.50	0.90
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Station
2: Balboa Ave & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

	EBL	EBT	WBT	WBR	SBL	SBR
Movement						
Lane Configurations		←	←	←	←	←
Traffic Volume (vph)	0	386	514	1315	798	142
Future Volume (vph)	0	386	514	1315	798	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	4.9		
Lane Util. Factor	0.95	0.91	0.91	0.97		
Frt	1.00	0.92	0.85	0.98		
Flt Protected	1.00	1.00	1.00	0.96		
Satd. Flow (prot)	3539	3105	1441	3388		
Flt Permitted	1.00	1.00	1.00	0.96		
Satd. Flow (perm)	3539	3105	1441	3388		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	420	559	1429	867	154
RTOR Reduction (vph)	0	0	340	0	22	0
Lane Group Flow (vph)	0	420	934	714	999	0
Turn Type	NA	NA	Free	Free	Prot	Prot
Protected Phases	2	2			4	
Permitted Phases			Free			
Actuated Green, G (s)		35.1	35.1	67.0	22.0	
Effective Green, g (s)		35.1	35.1	67.0	22.0	
Actuated g/C Ratio		0.52	0.52	1.00	0.33	
Clearance Time (s)		5.0	5.0	4.9		
Vehicle Extension (s)		6.1	6.1	5.2		
Lane Grp Cap (vph)	1854	1626	1441	1112		
v/s Ratio Prot	0.12	c0.30		c0.29		
v/c Ratio		0.23	0.57	0.50	0.90	
Uniform Delay, d1		8.6	10.9	0.0	21.4	
Progression Factor		1.00	1.00	1.00	1.13	
Incremental Delay, d2		0.3	1.5	1.2	4.5	
Delay (s)		8.9	12.3	1.2	28.6	
Level of Service		A	B	A	C	
Approach Delay (s)		8.9	8.3	28.6		
Approach LOS		A	A	C		
Intersection Summary						
HCM 2000 Control Delay			14.5		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			67.0		Sum of lost time (s)	9.9
Intersection Capacity Utilization			63.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group						
Lane Group Flow (vph)	95	1260	1854	549	492	1118
v/c Ratio	0.58	0.48	0.78	0.39	0.81	0.34
Control Delay	81.7	8.3	27.7	3.4	67.7	19.4
Queue Delay	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	81.7	8.3	28.1	3.4	67.7	19.4
Queue Length 50th (ft)	46	221	825	129	231	27
Queue Length 95th (ft)	78	311	943	138	282	82
Internal Link Dist (ft)		724	806		594	
Turn Bay Length (ft)	200			200	225	225
Base Capacity (vph)	165	2643	2380	1399	890	350
Starvation Cap Reductn	0	0	139	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.48	0.83	0.39	0.55	0.34
Intersection Summary						

	EBL	EBT	WBT	WBR	SBL	SBR
Movement						
Lane Configurations	87	1159	1706	505	453	109
Traffic Volume (vph)	87	1159	1706	505	453	109
Future Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.4	5.5	4.9	5.4	5.4	5.4
Total Lost time (s)	0.97	0.95	0.95	1.00	0.97	1.00
Lane Util. Factor	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)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	1260	1854	549	492	118
RTOR Reduction (vph)	0	0	0	0	0	69
Lane Group Flow (vph)	95	1260	1854	549	492	49
Turn Type	Prot	NA	NA	pm-ov	Prot	custom
Protected Phases	5	2	6	7	7	4
Permitted Phases		2		6		7
Actuated Green, G (s)	7.0	108.3	97.5	123.3	25.8	25.8
Effective Green, g (s)	7.0	108.3	97.5	123.3	25.8	25.8
Actuated g/c Ratio	0.05	0.75	0.67	0.85	0.18	0.18
Clearance Time (s)	4.4	5.5	4.9	5.4	5.4	5.4
Vehicle Extension (s)	2.0	5.6	8.0	2.0	2.0	3.0
Lane Grp Cap (vph)	165	2643	2379	1405	610	281
v/s Ratio Prot	c0.03	0.36	c0.52	0.07	c0.14	0.03
v/c Ratio Perm			0.28			
v/c Ratio	0.58	0.48	0.78	0.39	0.81	0.17
Uniform Delay, d1	67.5	7.2	16.3	2.4	57.2	50.6
Progression Factor	1.00	1.00	1.46	1.76	1.00	1.00
Incremental Delay, d2	3.0	0.6	2.1	0.1	7.3	0.3
Delay (s)	70.5	7.8	26.0	4.3	64.5	50.9
Level of Service	E	A	C	A	E	D
Approach Delay (s)		12.2	21.1		61.8	
Approach LOS		B	C		E	
Intersection Summary						
HCM 2000 Control Delay			24.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			145.0		Sum of lost time (s)	18.7
Intersection Capacity Utilization			68.7%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
4: Bond St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

	EBT	WBT	NBR
Lane Group	1733	2245	47
Lane Group Flow (vph)	0.49	0.63	0.03
v/c Ratio	0.5	1.0	0.0
Control Delay	0.0	0.1	0.0
Queue Delay	0.0	0.1	0.0
Total Delay	0.5	1.1	0.0
Queue Length 50th (ft)	0	15	0
Queue Length 95th (ft)	0	m20	0
Internal Link Dist (ft)	806	574	
Turn Bay Length (ft)			
Base Capacity (vph)	3511	3539	1611
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	239	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.68	0.03
Intersection Summary			
m Volume for 95th percentile queue is metered by upstream signal.			

Balboa Station
4: Bond St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		4B			4A							
Traffic Volume (vph)	0	1514	80	0	2065	0	0	0	43	0	0	0
Future Volume (vph)	0	1514	80	0	2065	0	0	0	43	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9				4.9			
Lane Util. Factor		0.95			0.95				1.00			
Frt		0.99			1.00				0.86			
Flt Protected		1.00			1.00				1.00			
Satd. Flow (prot)		3513			3539				1611			
Flt Permitted		1.00			1.00				1.00			
Satd. Flow (perm)		3513			3539				1611			
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)	0	1646	87	0	2245	0	0	0	47	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1733	0	0	2245	0	0	0	47	0	0	0
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases		2			6							
Permitted Phases									2			6
Actuated Green, G (s)		145.0			145.0				145.0			145.0
Effective Green, g (s)		145.0			145.0				145.0			145.0
Actuated g/c Ratio		1.00			1.00				1.00			1.00
Clearance Time (s)		4.9			4.9				4.9			4.9
Vehicle Extension (s)		7.3			7.3				7.3			7.3
Lane Grp Cap (vph)		3513			3539				1611			
v/s Ratio Prot		0.49			c0.63				0.03			0.03
v/c Ratio		0.49			0.63				0.03			0.03
Uniform Delay, d1		0.0			0.0				0.0			0.0
Progression Factor		1.00			1.00				1.00			1.00
Incremental Delay, d2		0.4			0.5				0.5			0.0
Delay (s)		0.4			0.5				0.0			0.0
Level of Service		A			A				A			A
Approach Delay (s)		0.4			0.5				0.0			0.0
Approach LOS		A			A				A			A
Intersection Summary												
HCM 2000 Control Delay			0.5		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			145.0		Sum of lost time (s)				7.9			
Intersection Capacity Utilization			65.1%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Station
5: Mission Bay Dr & Garnet Ave

Timing Plan: PM Peak Period

Horizon Year with Reduced LU

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	510	684	482	335	737	384	703	537	361	296	508	829
v/c Ratio	0.93	0.82	0.62	1.02	0.80	0.55	1.07	0.45	0.40	0.74	1.07	0.64
Control Delay	73.6	59.7	33.9	111.5	57.4	27.7	109.3	40.0	18.0	73.5	110.8	29.8
Queue Delay	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.0	0.0	13.8	2.8
Total Delay	73.6	59.7	34.4	111.5	57.4	27.7	109.3	40.0	19.0	73.5	124.6	32.6
Queue Length 50th (ft)	239	336	335	~333	345	215	~377	209	163	141	~528	303
Queue Length 95th (ft)	#344	410	461	#533	424	303	#503	278	257	186	#756	382
Internal Link Dist (ft)	574			1151				461			376	
Turn Bay Length (ft)	565	120	410	325	265			100	200		265	
Base Capacity (vph)	558	832	775	329	927	755	658	1183	898	523	476	1312
Starvation Cap Reductn	0	0	67	0	0	0	0	0	310	0	73	355
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.82	0.68	1.02	0.80	0.51	1.07	0.45	0.61	0.57	1.26	0.87

Intersection Summary
- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Balboa Station
5: Mission Bay Dr & Garnet Ave

Timing Plan: PM Peak Period

Horizon Year with Reduced LU

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	469	629	443	308	678	353	647	494	332	272	467	763
Future Volume (vph)	469	629	443	308	678	353	647	494	332	272	467	763
Ideal Flow (vphph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.4	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	1863	2787
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)	510	684	482	335	737	384	703	537	361	296	508	829
RTOR Reduction (vph)	0	0	49	0	0	52	0	0	23	0	0	47
Lane Group Flow (vph)	510	684	433	335	737	332	703	537	338	296	508	782
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8		4		4		6		2	
Actuated Green, G (s)	23.1	34.1	61.9	27.0	38.0	54.8	27.8	48.5	75.5	16.8	37.1	60.2
Effective Green, g (s)	23.1	34.1	61.9	27.0	38.0	54.8	27.8	48.5	75.5	16.8	37.1	60.2
Actuated g/c Ratio	0.16	0.24	0.43	0.19	0.26	0.38	0.19	0.33	0.52	0.12	0.26	0.42
Clearance Time (s)	4.4	4.9	4.4	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	546	832	675	329	927	598	658	1183	824	397	476	1157
v/s Ratio Prot	0.15	0.19	0.12	c0.19	c0.21	0.06	c0.20	0.15	0.08	0.09	c0.27	0.11
v/s Ratio Perm			0.15			0.15			0.14		0.17	
v/c Ratio	0.93	0.82	0.64	1.02	0.80	0.55	1.07	0.45	0.41	0.75	1.07	0.68
Uniform Delay, d1	60.2	52.6	32.8	59.0	49.9	35.5	58.6	37.9	21.2	62.0	54.0	34.5
Progression Factor	0.84	0.98	1.26	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.2	8.1	1.4	54.3	7.0	0.6	54.8	0.5	0.1	6.5	60.3	1.2
Delay (s)	71.6	59.4	42.8	113.3	56.9	36.1	113.4	38.3	21.3	68.6	114.3	35.7
Level of Service	E	E	D	F	E	D	F	D	C	E	F	D
Approach Delay (s)	58.3			64.4			67.5			66.1		E
Approach LOS	E			E			E			E		E

Intersection Summary

HCM 2000 Control Delay	64.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Balboa Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

	EBT	WBT	NBR	SBR	
Lane Group	EBT	WBT	NBR	SBR	
Lane Group Flow (vph)	1423	2208	890	203	
v/c Ratio	0.85	0.44	0.86	0.32	
Control Delay	18.2	0.3	25.1	9.7	
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	18.2	0.3	25.1	9.7	
Queue Length 50th (ft)	174	0	127	27	
Queue Length 95th (ft)	#271	0	#238	66	
Internal Link Dist (ft)	1151	265			
Turn Bay Length (ft)					
Base Capacity (vph)	1724	5044	1040	629	
Starvation Cap Reductn	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	
Storage Cap Reductn	0	0	0	0	
Reduced v/c Ratio	0.83	0.44	0.86	0.32	
Intersection Summary					
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.					

Balboa Station
6: I-5 Off-ramp/Santa Fe St & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔↔				↔↔			↔
Traffic Volume (vph)	0	1309	0	0	1948	84	0	0	819	0	0	187
Future Volume (vph)	0	1309	0	0	1948	84	0	0	819	0	0	187
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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.91	0.91	0.91	0.99	0.86	0.85	0.85	0.86	0.85	0.85	0.86
Frt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539
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)	0	1423	0	0	2117	91	0	0	890	0	0	203
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	22	0	0	41
Lane Group Flow (vph)	0	1423	0	0	2208	0	0	0	868	0	0	162
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	Prot	Prot	Prot	Perm
Protected Phases		8			2 4				2			6
Permitted Phases												
Actuated Green, G (s)		23.3			49.3				18.0			18.0
Effective Green, g (s)		23.3			49.3				18.0			18.0
Actuated g/c Ratio		0.47			1.00				0.37			0.37
Clearance Time (s)		4.0			4.0				4.0			4.0
Vehicle Extension (s)		3.0			3.0				3.0			3.0
Lane Grp Cap (vph)		1672			5054				1017			588
v/s Ratio Prot		c0.40			0.44				c0.31			0.10
v/c Ratio		0.85			0.44				0.85			0.28
Uniform Delay, d1		11.5			0.0				14.4			11.0
Progression Factor		1.00			1.00				1.00			1.00
Incremental Delay, d2		4.4			0.1				7.1			0.3
Delay (s)		15.9			0.1				21.5			11.3
Level of Service		B			A				C			B
Approach Delay (s)		15.9			0.1				21.5			11.3
Approach LOS		B			A				C			B
Intersection Summary												
HCM 2000 Control Delay					9.3							A
HCM 2000 Volume to Capacity ratio					0.85							
Actuated Cycle Length (s)					49.3							8.0
Intersection Capacity Utilization					71.5%							C
Analysis Period (min)					15							
c Critical Lane Group												

Balboa Station
7: Balboa EB Ramps & Garnet Ave

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔↔	↔		↔↔		↔
Traffic Volume (veh/h)	1268	860	0	1457	0	337
Future Volume (Veh/h)	1268	860	0	1457	0	337
Sign Control	Free	Free	Stop	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1378	935	0	1584	0	366
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)	None			None		
Median type						
Median storage (veh)						
Upstream signal (ft)	442			634		
pX, platoon unblocked						
VC, conflicting volume		1378			2170	689
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		1378			1797	689
IC, single (s)		4.1			6.8	6.9
IC, 2 stage (s)		2.2			3.5	3.3
pQ queue free %		100			100	6
IF (s)		493			49	388
CM capacity (veh/h)						
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	689	689	935	792	792	366
Volume Left	0	0	0	0	0	0
Volume Right	0	0	935	0	0	366
cSH	1700	1700	1700	1700	1700	388
Volume to Capacity	0.41	0.41	0.55	0.47	0.47	0.94
Queue Length 95th (ft)	0	0	0	0	0	260
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	65.5
Lane LOS						F
Approach Delay (s)	0.0			0.0		65.5
Approach LOS						F
Intersection Summary						
Average Delay	5.6					
Intersection Capacity Utilization	62.6%					
Analysis Period (min)	15					
	ICU Level of Service B					

Balboa Station
8: Garnet Ave & Moraga Ave

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔↔	↔		↔↔		↔
Traffic Volume (veh/h)	1268	860	0	1457	0	337
Future Volume (Veh/h)	1268	860	0	1457	0	337
Sign Control	Free	Free	Stop	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1378	935	0	1584	0	366
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)	None			None		
Median type						
Median storage (veh)						
Upstream signal (ft)	442			634		
pX, platoon unblocked						
VC, conflicting volume		1378			2170	689
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		1378			1797	689
IC, single (s)		4.1			6.8	6.9
IC, 2 stage (s)		2.2			3.5	3.3
pQ queue free %		100			100	6
IF (s)		493			49	388
CM capacity (veh/h)						
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	689	689	935	792	792	366
Volume Left	0	0	0	0	0	0
Volume Right	0	0	935	0	0	366
cSH	1700	1700	1700	1700	1700	388
Volume to Capacity	0.41	0.41	0.55	0.47	0.47	0.94
Queue Length 95th (ft)	0	0	0	0	0	260
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	65.5
Lane LOS						F
Approach Delay (s)	0.0			0.0		65.5
Approach LOS						F
Intersection Summary						
Average Delay	5.6					
Intersection Capacity Utilization	62.6%					
Analysis Period (min)	15					
	ICU Level of Service B					

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

Balboa Station
8: Garnet Ave & Moraga Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	340	1251	1170	86	96	287
Future Volume (vph)	340	1251	1170	86	96	287
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	6.5	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Flt	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)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	370	1360	1272	93	104	312
RTOR Reduction (vph)	0	0	0	49	0	234
Lane Group Flow (vph)	370	1360	1272	44	104	78
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	10.3	47.5	32.0	32.0	9.2	9.2
Effective Green, g (s)	10.3	47.5	32.0	32.0	9.2	9.2
Actuated g/C Ratio	0.15	0.70	0.47	0.47	0.14	0.14
Clearance Time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Vehicle Extension (s)	2.0	4.8	3.9	3.9	2.0	2.0
Lane Grp Cap (vph)	519	2472	1665	744	239	214
v/s Ratio Prot	c0.11	0.38	c0.36		c0.06	
v/s Ratio Perm				0.03		0.05
v/c Ratio	0.71	0.55	0.76	0.06	0.44	0.36
Uniform Delay, d1	27.4	5.0	14.9	9.8	27.0	26.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	0.4	2.3	0.0	0.5	0.4
Delay (s)	31.3	5.4	17.1	9.8	27.5	27.1
Level of Service	C	A	B	A	C	C
Approach Delay (s)		11.0	16.6		27.2	
Approach LOS		B	B		C	
Intersection Summary						
HCM 2000 Control Delay			15.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.69			
Actuated Cycle Length (s)			68.0		Sum of lost time (s)	16.5
Intersection Capacity Utilization			61.6%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
9: Clairemont Dr & Garnet Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (vph)	382	1136	579	1203	77	425
Future Volume (vph)	382	1136	579	1203	77	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	6.5	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Flt	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)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	370	1360	1272	93	104	312
RTOR Reduction (vph)	0	0	0	49	0	234
Lane Group Flow (vph)	370	1360	1272	44	104	78
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	10.3	47.5	32.0	32.0	9.2	9.2
Effective Green, g (s)	10.3	47.5	32.0	32.0	9.2	9.2
Actuated g/C Ratio	0.15	0.70	0.47	0.47	0.14	0.14
Clearance Time (s)	4.4	5.7	6.5	6.5	5.6	5.6
Vehicle Extension (s)	2.0	4.8	3.9	3.9	2.0	2.0
Lane Grp Cap (vph)	519	2472	1665	744	239	214
v/s Ratio Prot	c0.11	0.38	c0.36		c0.06	
v/s Ratio Perm				0.03		0.05
v/c Ratio	0.71	0.55	0.76	0.06	0.44	0.36
Uniform Delay, d1	27.4	5.0	14.9	9.8	27.0	26.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	0.4	2.3	0.0	0.5	0.4
Delay (s)	31.3	5.4	17.1	9.8	27.5	27.1
Level of Service	C	A	B	A	C	C
Approach Delay (s)		11.0	16.6		27.2	
Approach LOS		B	B		C	
Intersection Summary						
HCM 2000 Control Delay			15.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.69			
Actuated Cycle Length (s)			68.0		Sum of lost time (s)	16.5
Intersection Capacity Utilization			61.6%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

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

Balboa Station
9: Clairemont Dr & Garnet Ave

Balboa Station
10: Olney St & Balboa Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	HH	HB	HB	HH	HB	HB	HH	HB	HB	HH	HB	HB
Traffic Volume (vph)	351	996	49	533	947	160	71	391	429	346	602	253
Future Volume (vph)	351	996	49	533	947	160	71	391	429	346	602	253
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	4.4	6.4	6.4	4.4	5.3	4.4	4.4	5.3	5.3
Lane Util. Factor	0.97	0.95	0.97	0.97	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.95
Flt	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.85	1.00	0.96	1.00	0.96
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3514	3433	3462	3462	1770	3539	1583	1770	3382	1770	3382
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3514	3433	3462	3462	1770	3539	1583	1770	3382	1770	3382
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)	382	1083	53	579	1029	174	77	425	466	376	654	275
RTOR Reduction (vph)	0	2	0	0	9	0	0	0	60	0	33	0
Lane Group Flow (vph)	382	1134	0	579	1194	0	77	425	406	376	896	0
Turn Type	Prot	NA	Prot	Prot	NA	Prot	Prot	NA	pm+ov	Prot	NA	NA
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	16.2	46.1		22.6	51.8		8.9	23.4	46.0	28.7	43.2	
Effective Green, g (s)	16.2	46.1		22.6	51.8		8.9	23.4	46.0	28.7	43.2	
Actuated g/C Ratio	0.12	0.33		0.16	0.37		0.06	0.17	0.33	0.20	0.31	
Clearance Time (s)	4.4	5.7		4.4	6.4		4.4	5.3	4.4	4.4	5.3	
Vehicle Extension (s)	2.0	3.5		2.0	3.0		2.0	2.4	2.0	2.0	2.6	
Lane Grp Cap (vph)	395	1152		551	1275		112	588	517	361	1039	
v/s Ratio Prot	0.11	c0.32		c0.17	0.34		0.04	0.12	0.13	c0.21	c0.27	
v/s Ratio Perm									0.13			
v/c Ratio	0.97	0.98		1.05	0.94		0.69	0.72	0.79	1.04	0.86	
Uniform Delay, d1	61.9	46.9		59.0	42.8		64.5	55.5	42.8	55.9	45.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	36.1	22.7		52.4	12.8		13.1	4.0	7.1	58.6	7.5	
Delay (s)	98.1	69.5		111.4	55.6		77.6	59.6	50.0	114.5	53.4	
Level of Service	F	E		F	E		E	E	D	F	D	
Approach Delay (s)		76.7			73.7			56.4			71.0	
Approach LOS		E			E			E			E	
Intersection Summary												
HCM 2000 Control Delay												E
HCM 2000 Volume to Capacity ratio			70.9			HCM 2000 Level of Service						E
			1.01									
Actuated Cycle Length (s)			140.6			Sum of lost time (s)				20.5		
Intersection Capacity Utilization			90.8%			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 Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	39	425	151	39	425	151	597	443	290	597	443	290
v/c Ratio	0.20	0.46	0.89	0.44	0.44	0.44	0.73	0.73	0.48	0.73	0.73	0.48
Control Delay	27.5	17.3	79.1	15.3	15.3	15.3	21.7	21.7	15.3	21.7	21.7	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	17.3	79.1	15.3	15.3	15.3	21.7	21.7	15.3	21.7	21.7	15.3
Queue Length 50th (ft)	10	50	41	53	53	53	93	93	53	93	93	53
Queue Length 95th (ft)	42	106	#182	157	157	157	216	216	132	216	216	132
Internal Link Dist (ft)	150	1172	150	150	150	150	936	328	244	936	328	244
Turn Bay Length (ft)	211	1469	170	1413	1163	1141						
Base Capacity (vph)	0	0	0	0	0	0	9	61				
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.29	0.89	0.42	0.38	0.27						
Intersection Summary												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Balboa Station
10: Olney St & Balboa Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (vph)	36	351	40	139	525	24	20	341	46	20	209	38
Future Volume (vph)	36	351	40	139	525	24	20	341	46	20	209	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	5.0		4.9				4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00				1.00	
Flt	1.00	0.98		1.00	0.99		0.98				0.98	
Flt Protected	0.95	1.00		0.95	1.00		1.00				1.00	
Satd. Flow (prot)	1770	3486		1770	3516		1830				1820	
Flt Permitted	0.95	1.00		0.95	1.00		0.97				0.96	
Satd. Flow (perm)	1770	3486		1770	3516		1787				1750	
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)	39	382	43	151	571	26	22	371	50	22	227	41
RTOR Reduction (vph)	0	12	0	0	4	0	0	8	0	0	10	0
Lane Group Flow (vph)	39	413	0	151	593	0	0	435	0	0	280	0
Turn Type	Prot	NA	NA	Prot	NA	NA	Perm	NA	NA	Perm	NA	NA
Protected Phases	5	2		1	6		8			4		4
Permitted Phases							8					
Actuated Green, G (s)	1.9	16.4		4.8	19.4						16.8	
Effective Green, g (s)	1.9	16.4		4.8	19.4						16.8	
Actuated g/C Ratio	0.04	0.31		0.09	0.37						0.32	
Clearance Time (s)	4.4	5.1		4.4	5.0		4.9				4.9	
Vehicle Extension (s)	2.0	2.8		2.0	2.5		2.0				2.0	
Lane Grp Cap (vph)	64	1091		162	1301		572				561	
v/s Ratio Prot	0.02	0.12		c0.09	c0.17						0.16	
v/s Ratio Perm							c0.24				0.50	
v/c Ratio	0.61	0.38		0.93	0.46		0.76				0.50	
Uniform Delay, d1	24.9	14.0		23.6	12.5		16.0				14.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00				1.00	
Incremental Delay, d2	10.8	0.2		50.3	0.2		5.3				0.3	
Delay (s)	35.6	14.2		74.0	12.7		21.3				14.7	
Level of Service	D	B		E	B		C				B	
Approach Delay (s)		16.0			25.1		21.3				14.7	
Approach LOS		B			C		C				B	
Intersection Summary												
HCM 2000 Control Delay			20.5			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			52.4			Sum of lost time (s)			14.4			
Intersection Capacity Utilization			56.7%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Balboa Station
11: Olney St & Grand Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (vph)	41	1076	153	1497	355	390						
v/c Ratio	0.49	0.67	0.81	0.81	0.64	0.99						
Control Delay	82.3	32.4	88.0	31.7	40.0	86.8						
Queue Delay	0.0	0.0	0.0	0.0	0.0	14.4						
Total Delay	82.3	32.4	88.0	31.7	40.0	101.2						
Queue Length 50th (ft)	35	405	130	594	235	322						
Queue Length 95th (ft)	76	498	#233	722	333	#509						
Internal Link Dist (ft)		276		1076	315	328						
Turn Bay Length (ft)	50		50									
Base Capacity (vph)	89	1602	208	1846	618	437						
Starvation Cap Reductn	0	0	0	0	0	44						
Spillback Cap Reductn	0	0	0	0	0	0						
Storage Cap Reductn	0	0	0	0	0	0						
Reduced v/c Ratio	0.46	0.67	0.74	0.81	0.57	0.99						
Intersection Summary												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Balboa Station

11: Olney St & Grand Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (vph)	38	934	56	141	1155	223	29	171	126	97	212	51
Future Volume (vph)	38	934	56	141	1155	223	29	171	126	97	212	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.4	4.4	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	0.99	1.00	1.00	0.98	1.00	0.95	1.00	0.95	1.00	0.98	1.00
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00
Satd. Flow (prot)	1770	3509	1770	1770	3453	1770	1758	1758	1758	1803	1803	1803
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00	0.93	0.93	0.93	0.65	0.65	0.65
Satd. Flow (perm)	1770	3509	1770	1770	3453	1770	1640	1640	1640	1183	1183	1183
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)	41	1015	61	153	1255	242	32	186	137	105	230	55
RTOR Reduction (vph)	0	3	0	0	11	0	0	18	0	0	5	0
Lane Group Flow (vph)	41	1073	0	153	1486	0	0	337	0	0	385	0
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8			4		4
Permitted Phases							8			4		4
Actuated Green, G (s)	5.4	61.1		14.4	70.3			44.1			44.1	
Effective Green, g (s)	5.4	61.1		14.4	70.3			44.1			44.1	
Actuated g/C Ratio	0.04	0.46		0.11	0.52			0.33			0.33	
Clearance Time (s)	4.4	5.1		4.4	4.9			4.9			4.9	
Vehicle Extension (s)	2.0	5.4		2.0	5.5			2.0			2.0	
Lane Grp Cap (vph)	71	1599		190	1811			539			389	
v/s Ratio Prot	0.02	0.31		c0.09	c0.43			0.21			c0.33	
v/s Ratio Perm								0.63			0.99	
Uniform Delay, d1	63.2	28.6		58.4	26.6			38.0			44.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	6.9	2.3		20.3	4.3			1.6			42.9	
Delay (s)	70.1	30.8		78.8	30.9			39.6			87.7	
Level of Service	E	C		E	C			D			F	
Approach Delay (s)	32.3			35.3				39.6			87.7	
Approach LOS	C			D				D			F	
Intersection Summary												
HCM 2000 Control Delay				40.6			HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio				0.90								
Actuated Cycle Length (s)				134.0			Sum of lost time (s)				14.4	
Intersection Capacity Utilization				96.2%			ICU Level of Service				F	
Analysis Period (min)				15								
c Critical Lane Group												

Balboa Station

12: Grand Ave & Culver St

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	23	1280	1694	116
v/c Ratio	0.23	0.45	0.63	0.62
Control Delay	52.8	4.0	8.7	53.0
Queue Delay	0.0	0.0	20.2	0.0
Total Delay	52.8	4.0	28.9	53.0
Queue Length 50th (ft)	15	107	172	66
Queue Length 95th (ft)	41	177	465	119
Internal Link Dist (ft)		1076	211	186
Turn Bay Length (ft)	55			
Base Capacity (vph)	185	2851	2685	435
Starvation Cap Reductn	0	0	1039	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.12	0.45	1.03	0.27
Intersection Summary				

Balboa Station
12: Grand Ave & Culver St

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	21	1178	0	1489	70	79	28
Future Volume (vph)	21	1178	0	1489	70	79	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.97	0.97
Fit	1.00	1.00	0.99	1.00	0.96	0.96	0.96
Fit Protected	0.95	1.00	1.00	1.00	0.96	0.96	0.96
Satd. Flow (prot)	1770	3539	3515	3515	1733	1733	1733
Fit Permitted	0.95	1.00	1.00	1.00	0.96	0.96	0.96
Satd. Flow (perm)	1770	3539	3515	3515	1733	1733	1733
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	1280	0	1618	76	86	30
RTOR Reduction (vph)	0	0	0	2	0	14	0
Lane Group Flow (vph)	23	1280	0	1692	0	102	0
Turn Type	Prot	NA	Prot	NA	Prot	Prot	Prot
Protected Phases	5	2	1	6		4	
Permitted Phases							
Actuated Green, G (s)	2.9	85.4		78.3		10.6	
Effective Green, g (s)	2.9	85.4		78.3		10.6	
Actuated g/C Ratio	0.03	0.81		0.74		0.10	
Clearance Time (s)	4.4	5.1		4.9		4.9	
Vehicle Extension (s)	2.0	4.2		4.1		2.0	
Lane Grp Cap (vph)	48	2851		2596		173	
v/s Ratio Prot	0.01	0.36		0.48		0.06	
v/s Ratio Perm							
v/c Ratio	0.48	0.45		0.65		0.59	
Uniform Delay, d1	50.8	3.1		7.0		45.6	
Progression Factor	1.00	1.00		1.00		1.00	
Incremental Delay, d2	2.7	0.5		1.3		3.3	
Delay (s)	53.5	3.6		8.3		48.9	
Level of Service	D	A		A		D	
Approach Delay (s)		4.5		8.3		48.9	
Approach LOS		A		A		D	
Intersection Summary							
HCM 2000 Control Delay			8.2		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.65				
Actuated Cycle Length (s)			106.0		Sum of lost time (s)		14.4
Intersection Capacity Utilization			57.6%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

Balboa Station
13: Lee St & Grand Ave

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1357	103	1696	50
v/c Ratio	0.50	0.62	0.53	0.45
Control Delay	7.7	74.4	2.6	43.8
Queue Delay	6.0	0.0	0.0	0.0
Total Delay	13.7	74.4	2.6	43.8
Queue Length 50th (ft)	216	88	123	17
Queue Length 95th (ft)	336	146	200	59
Internal Link Dist (ft)	211		1401	337
Turn Bay Length (ft)		400		
Base Capacity (vph)	2701	175	3173	424
Starvation Cap Reductn	1280	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.95	0.59	0.53	0.12
Intersection Summary				

Balboa Station
13: Lee St & Grand Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←↑↑	←↑	←↑	←↑↑	←↑↑	←↑
Traffic Volume (vph)	1214	34	95	1560	18	28
Future Volume (vph)	1214	34	95	1560	18	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.4	4.9		
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	
Flt	1.00	1.00	1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3525		1770	3539	1678	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3525		1770	3539	1678	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1320	37	103	1696	20	30
RTOR Reduction (vph)	1	0	0	0	29	0
Lane Group Flow (vph)	1356	0	103	1696	21	0
Turn Type	NA	Prot	Prot	NA	Prot	
Protected Phases	2	1	6	8		
Permitted Phases						
Actuated Green, G (s)	101.7	12.5	118.1	5.6		
Effective Green, g (s)	101.7	12.5	118.1	5.6		
Actuated g/C Ratio	0.76	0.09	0.88	0.04		
Clearance Time (s)	4.9	4.4	5.4	4.9		
Vehicle Extension (s)	4.0	2.0	4.4	2.0		
Lane Grp Cap (vph)	2675	165	3119	70		
v/s Ratio Prot	0.38	0.06	c0.48	c0.01		
v/s Ratio Perm						
v/c Ratio	0.51	0.62	0.54	0.30		
Uniform Delay, d1	6.3	58.5	1.8	62.3		
Progression Factor	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.7	5.2	0.7	0.9		
Delay (s)	7.0	63.7	2.5	63.2		
Level of Service	A	E	A	E		
Approach Delay (s)	7.0		6.0	63.2		
Approach LOS	A		A	E		
Intersection Summary						
HCM 2000 Control Delay		7.3		HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio		0.55				
Actuated Cycle Length (s)		134.0		Sum of lost time (s)	14.2	
Intersection Capacity Utilization		55.1%		ICU Level of Service	B	
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Station
14: Grand Ave & Figueroa Blvd

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Lane Group	EBL	EBT	WBT	WBL
Lane Group Flow (vph)	115	1251	1734	
v/c Ratio	0.72	0.35	0.58	
Control Delay	98.7	0.3	19.1	
Queue Delay	0.0	0.0	3.9	
Total Delay	98.7	0.3	23.0	
Queue Length 50th (ft)	127	0	5	
Queue Length 95th (ft)	194	0	917	
Internal Link Dist (ft)		605	773	
Turn Bay Length (ft)	90			
Base Capacity (vph)	249	3539	2999	
Starvation Cap Reductn	0	0	1159	
Spillback Cap Reductn	0	0	0	
Storage Cap Reductn	0	0	0	
Reduced v/c Ratio	0.46	0.35	0.94	
Intersection Summary				

Balboa Station
14: Grand Ave & Figueroa Blvd

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↱	↰	↱	↰	↱
Traffic Volume (vph)	106	1151	1530	65	0	0
Future Volume (vph)	106	1151	1530	65	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.3	5.3			
Lane Util. Factor	1.00	0.95	0.95			
Flt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	3539	3517			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	1770	3539	3517			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	1251	1663	71	0	0
RTOR Reduction (vph)	0	0	1	0	0	0
Lane Group Flow (vph)	115	1251	1733	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	15.4	170.0	144.9			
Effective Green, g (s)	15.4	170.0	144.9			
Actuated g/C Ratio	0.09	1.00	0.85			
Clearance Time (s)	4.4	5.3	5.3			
Vehicle Extension (s)	2.0	4.4	4.4			
Lane Grp Cap (vph)	160	3539	2997			
v/s Ratio Prot	0.06	0.35	0.49			
v/s Ratio Perm						
v/c Ratio	0.72	0.35	0.58			
Uniform Delay, d1	75.2	0.0	3.7			
Progression Factor	1.00	1.00	4.60			
Incremental Delay, d2	12.1	0.3	0.6			
Delay (s)	87.3	0.3	17.4			
Level of Service	F	A	B			
Approach Delay (s)		7.6	17.4	0.0		
Approach LOS		A	B	A		
Intersection Summary						
HCM 2000 Control Delay			13.1	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			170.0	Sum of lost time (s)		12.7
Intersection Capacity Utilization			58.3%	ICU Level of Service		B
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
15: Grand Ave & Mission Bay Dr

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↱	↰	↱	↰	↱
Traffic Volume (vph)	95	1150	1450	1228	1043	254
v/c Ratio	0.75	0.53	0.81	0.70	0.92	0.16
Control Delay	108.1	20.7	40.3	16.0	64.5	0.2
Queue Delay	0.0	0.2	3.4	0.4	45.5	0.0
Total Delay	108.1	20.9	43.7	16.4	110.0	0.2
Queue Length 50th (ft)	105	382	721	263	611	0
Queue Length 95th (ft)	#187	467	972	283	682	0
Internal Link Dist (ft)		773	536		492	
Turn Bay Length (ft)		225				150
Base Capacity (vph)	142	2160	1796	1764	1233	1583
Starvation Cap Reductn	0	294	253	174	279	0
Spillback Cap Reductn	0	49	63	135	0	178
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.62	0.94	0.77	1.09	0.18
Intersection Summary						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						

Balboa Station
15: Grand Ave & Mission Bay Dr

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	87	1058	1334	1130	960	234
Traffic Volume (vph)	87	1058	1334	1130	960	234
Future Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.4	4.9	5.7	5.7	4.9	4.0
Total Lost time (s)	1.00	0.95	0.95	0.88	0.97	1.00
Lane Util. Factor	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	2787	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	2787	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	1150	1450	1228	1043	254
RTOR Reduction (vph)	0	0	0	350	0	0
Lane Group Flow (vph)	95	1150	1450	878	1043	254
Turn Type	Prot	NA	NA	Prot	Prot	Free
Protected Phases	5	2	6	6	4	
Permitted Phases						Free
Actuated Green, G (s)	12.3	103.8	86.3	86.3	56.4	170.0
Effective Green, g (s)	12.3	103.8	86.3	86.3	56.4	170.0
Actuated g/C Ratio	0.07	0.61	0.51	0.51	0.33	1.00
Clearance Time (s)	4.4	4.9	5.7	5.7	4.9	
Vehicle Extension (s)	2.0	3.6	4.6	4.6	3.6	
Lane Grp Cap (vph)	128	2160	1796	1414	1138	1583
v/s Ratio Prot	c0.05	0.32	c0.41	0.32	c0.30	
v/s Ratio Perm	0.74	0.53	0.81	0.62	0.92	0.16
v/c Ratio	77.3	19.1	34.9	30.1	54.5	0.0
Uniform Delay, d1	1.00	1.00	1.01	1.12	0.97	1.00
Progression Factor	17.4	0.9	3.4	1.7	10.8	0.2
Incremental Delay, d2	94.7	20.0	38.7	35.3	63.6	0.2
Delay (s)	F	B	D	D	E	A
Level of Service						
Approach Delay (s)		25.7	37.2		51.2	
Approach LOS		C	D		D	
Intersection Summary						
HCM 2000 Control Delay			37.9		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.84			
Actuated Cycle Length (s)			170.0		Sum of lost time (s)	15.0
Intersection Capacity Utilization			81.6%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Movement	EBL	NBL	NBT	SBT	SBR
Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	494	361	1170	1404	662
v/c Ratio	0.92	0.71	0.44	0.97	0.84
Control Delay	54.7	31.4	4.0	44.5	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	31.4	4.0	44.5	25.7
Queue Length 50th (ft)	110	216	87	377	205
Queue Length 95th (ft)	#204	254	288	#535	#422
Internal Link Dist (ft)	261		749	743	
Turn Bay Length (ft)	270	205			70
Base Capacity (vph)	535	508	2664	1440	788
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.92	0.71	0.44	0.97	0.84
Intersection Summary					
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.				

Balboa Station
16: Mission Bay Dr & Bluffsides Av

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W	W	W	W	W	W
Traffic Volume (vph)	300	155	332	1076	1292	609
Future Volume (vph)	300	155	332	1076	1292	609
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	5.0	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	1.00	0.95	0.95	1.00
Flt	0.95	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.97	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3320	1770	3539	3539	3539	1583
Flt Permitted	0.97	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3320	1770	3539	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	326	168	361	1170	1404	662
RTOR Reduction (vph)	82	0	0	0	0	144
Lane Group Flow (vph)	412	0	361	1170	1404	518
Turn Type	Prot	Prot	Prot	NA	NA	Perm
Protected Phases	4	5	2	2	6	
Permitted Phases					6	
Actuated Green, G (s)	11.6	24.4	64.0	34.6	34.6	
Effective Green, g (s)	11.6	24.4	64.0	34.6	34.6	
Actuated g/C Ratio	0.14	0.29	0.75	0.41	0.41	
Clearance Time (s)	4.4	4.4	5.0	5.6	5.6	
Vehicle Extension (s)	2.0	2.0	4.0	4.8	4.8	
Lane Grp Cap (vph)	453	508	2664	1440	644	
v/s Ratio Prot	c0.12	c0.20	0.33	c0.40	0.33	
v/s Ratio Perm					0.80	
v/c Ratio	0.91	0.71	0.44	0.97	0.80	
Uniform Delay, d1	36.2	27.1	3.9	24.8	22.2	
Progression Factor	1.00	0.90	0.91	1.00	1.00	
Incremental Delay, d2	21.4	3.1	0.4	18.5	10.3	
Delay (s)	57.6	27.6	3.9	43.2	32.5	
Level of Service	E	C	A	D	C	
Approach Delay (s)	57.6		9.5	39.8		
Approach LOS	E		A	D		
Intersection Summary						
HCM 2000 Control Delay			30.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			85.0	Sum of lost time (s)	14.4	
Intersection Capacity Utilization			79.5%	ICU Level of Service	D	
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
17: Mission Bay Dr & Damon Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	202	207	1323	242	107	1496
v/c Ratio	0.81	0.65	0.63	0.24	0.33	0.53
Control Delay	94.8	40.6	24.6	9.7	47.5	1.0
Queue Delay	0.0	0.0	32.8	0.9	0.0	0.5
Total Delay	94.8	40.6	57.4	10.6	47.5	1.5
Queue Length 50th (ft)	222	102	484	62	90	6
Queue Length 95th (ft)	304	188	625	125	m93	m46
Internal Link Dist (ft)	1218		376			749
Turn Bay Length (ft)		75		160	185	
Base Capacity (vph)	391	436	2110	989	322	2842
Starvation Cap Reductn	0	0	862	499	0	793
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.47	1.06	0.49	0.33	0.73
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Station
17: Mission Bay Dr & Damon Ave

Balboa Station
18: Mission Bay Dr & Magnolia Ave/Driveway

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	186	190	1217	223	98	1376
Traffic Volume (vph)	186	190	1217	223	98	1376
Future Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.4	4.4	5.0	5.0	4.4	5.2
Total Lost time (s)	1.00	1.00	0.95	1.00	1.00	0.95
Lane Util. Factor	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)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	202	207	1323	242	107	1496
RTOR Reduction (vph)	0	95	0	45	0	0
Lane Group Flow (vph)	202	112	1323	197	107	1496
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4		2		
Actuated Green, G (s)	23.8	23.8	101.4	101.4	31.0	136.6
Effective Green, g (s)	23.8	23.8	101.4	101.4	31.0	136.6
Actuated g/C Ratio	0.14	0.14	0.60	0.60	0.18	0.80
Clearance Time (s)	4.4	4.4	5.0	5.0	4.4	5.2
Vehicle Extension (s)	2.0	2.0	3.8	3.8	2.0	3.5
Lane Grp Cap (vph)	247	221	2110	944	322	2843
v/s Ratio Prot	c0.11		c0.37		0.06	c0.42
v/s Ratio Perm		0.07		0.12		
v/c Ratio	0.82	0.50	0.63	0.21	0.33	0.53
Uniform Delay, d1	71.0	67.6	22.1	15.8	60.5	5.7
Progression Factor	1.00	1.00	1.00	1.00	0.76	0.12
Incremental Delay, d2	17.7	0.7	1.4	0.5	0.1	0.2
Delay (s)	88.7	68.3	23.5	16.3	46.2	0.9
Level of Service	F	E	C	B	D	A
Approach Delay (s)	78.4		22.4		3.9	
Approach LOS	E		C		A	
Intersection Summary						
HCM 2000 Control Delay			20.5		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			170.0		Sum of lost time (s)	13.8
Intersection Capacity Utilization			60.9%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	354	17	96	1450	34	1278
v/c Ratio	1.07	0.06	0.78	0.60	0.42	0.57
Control Delay	123.7	37.1	113.9	10.2	94.1	17.8
Queue Delay	0.0	0.0	0.0	0.2	0.0	4.8
Total Delay	123.7	37.1	113.9	10.4	94.1	22.6
Queue Length 50th (ft)	-397	8	99	262	38	399
Queue Length 95th (ft)	#611	32	m#175	557	78	461
Internal Link Dist (ft)	303	271		804		461
Turn Bay Length (ft)			65		50	
Base Capacity (vph)	331	294	136	2410	167	2232
Starvation Cap Reductn	0	0	0	249	0	871
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.06	0.71	0.67	0.20	0.94
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

Balboa Station
18: Mission Bay Dr & Magnolia Ave/Driveway

Balboa Station
19: Mission Bay Dr & Driveway/Bunker Hill St

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↔		↔	↔	↔	↖	↖		↗	↗	↗	
Traffic Volume (vph)	120	8	198	6	2	7	88	1331	3	31	946	230	
Future Volume (vph)	120	8	198	6	2	7	88	1331	3	31	946	230	
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	5.0		4.4	5.0		
Lane Util. Factor	1.00			1.00			1.00	0.95		1.00	0.95		
Flt Protected	0.98			0.98			0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1679			1709			1770	3538		1770	3435		
Flt Permitted	0.87			0.83			0.95	1.00		0.95	1.00		
Satd. Flow (perm)	1491			1441			1770	3538		1770	3435		
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)	130	9	215	7	2	8	96	1447	3	34	1028	250	
RTOR Reduction (vph)	0	33	0	0	6	0	0	0	0	0	12	0	
Lane Group Flow (vph)	0	321	0	0	11	0	96	1450	0	34	1266	0	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA		
Protected Phases	8			4			1	6		5		2	
Permitted Phases	8			4				6					
Actuated Green, G (s)	34.0			34.0			11.9	114.9		6.8	109.8		
Effective Green, g (s)	34.0			34.0			11.9	114.9		6.8	109.8		
Actuated g/C Ratio	0.20			0.20			0.07	0.68		0.04	0.65		
Clearance Time (s)	4.9			4.9			4.4	5.0		4.4	5.0		
Vehicle Extension (s)	2.0			2.0			2.0	3.7		2.0	3.7		
Lane Grp Cap (vph)	298			288			123	2391		70	2218		
v/s Ratio Prot	c0.22			0.01			c0.05	c0.41		0.02	0.37		
v/s Ratio Perm	1.08			0.04			0.78	0.61		0.49	0.57		
Uniform Delay, d1	68.0			54.8			77.8	15.1		79.9	16.9		
Progression Factor	1.00			1.00			1.08	0.60		1.00	1.00		
Incremental Delay, d2	74.4			0.0			20.7	0.9		1.9	1.1		
Delay (s)	142.4			54.8			104.4	10.1		81.8	18.0		
Level of Service	F			D			F	B		F	B		
Approach Delay (s)	142.4			54.8			15.9			19.6			
Approach LOS	F			D			B			B			
Intersection Summary													
HCM 2000 Control Delay	31.5						HCM 2000 Level of Service						C
HCM 2000 Volume to Capacity ratio	0.73												
Actuated Cycle Length (s)	170.0						Sum of lost time (s)						14.3
Intersection Capacity Utilization	76.3%						ICU Level of Service						D
Analysis Period (min)	15												
Critical Lane Group													

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Traffic Volume (vph)	120	8	198	6	2	7	88	1331	3	31	946	230
Future Volume (vph)	120	8	198	6	2	7	88	1331	3	31	946	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Flt Protected	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Satd. Flow (prot)	1679	1679	1679	1679	1679	1679	1679	1679	1679	1679	1679	1679
Flt Permitted	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Satd. Flow (perm)	1491	1491	1491	1491	1491	1491	1491	1491	1491	1491	1491	1491
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)	130	9	215	7	2	8	96	1447	3	34	1028	250
RTOR Reduction (vph)	0	33	0	0	6	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	321	0	0	11	0	96	1450	0	34	1266	0
Turn Type	Perm	NA	NA	Perm	NA	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	8	8	8	4	4	4	1	6	5	5	2	2
Permitted Phases	8	8	8	4	4	4	1	6	5	5	2	2
Actuated Green, G (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.9	114.9	6.8	109.8	6.8	109.8
Effective Green, g (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.9	114.9	6.8	109.8	6.8	109.8
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.20	0.07	0.68	0.04	0.65	0.04	0.65
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9	4.9	4.4	5.0	4.4	5.0	4.4	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.7	2.0	3.7	2.0	3.7
Lane Grp Cap (vph)	298	298	298	298	298	298	123	2391	70	2218	70	2218
v/s Ratio Prot	c0.22	c0.22	c0.22	c0.22	c0.22	c0.22	c0.05	c0.41	0.02	0.37	0.02	0.37
v/s Ratio Perm	1.08	1.08	1.08	1.08	1.08	1.08	0.78	0.61	0.49	0.57	0.49	0.57
Uniform Delay, d1	68.0	68.0	68.0	68.0	68.0	68.0	77.8	15.1	79.9	16.9	79.9	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.08	0.60	1.00	1.00	1.00	1.00
Incremental Delay, d2	74.4	74.4	74.4	74.4	74.4	74.4	20.7	0.9	1.9	1.1	1.9	1.1
Delay (s)	142.4	142.4	142.4	142.4	142.4	142.4	104.4	10.1	81.8	18.0	81.8	18.0
Level of Service	F	F	F	F	F	F	F	B	F	B	F	B
Approach Delay (s)	142.4	142.4	142.4	142.4	142.4	142.4	15.9	15.9	19.6	19.6	19.6	19.6
Approach LOS	F	F	F	F	F	F	B	B	B	B	B	B
Intersection Summary												
#	95th percentile volume exceeds capacity, queue may be longer.											
m	Queue shown is maximum after two cycles.											
m	Volume for 95th percentile queue is metered by upstream signal.											

Balboa Station
19: Mission Bay Dr & Driveway/Bunker Hill St

Balboa Station
20: Mission Bay Dr & Rosewood St

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	147	0	114	0	1172	42	172	995	0
Future Volume (vph)	0	0	0	147	0	114	0	1172	42	172	995	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9						5.0			4.4	5.0	
Lane Util. Factor				1.00			0.95			1.00	0.95	
Flt				0.94			0.99			1.00	1.00	
Flt Protected				0.97			1.00			0.95	1.00	
Satd. Flow (prot)				1705			3521			1770	3539	
Flt Permitted				0.83			1.00			0.95	1.00	
Satd. Flow (perm)				1446			3521			1770	3539	
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)	0	0	0	160	0	124	0	1274	46	187	1082	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	159	0	0	1317	0	187	1082	0
Turn Type				Perm	NA	Prot	NA	Prot	NA	Prot	NA	
Protected Phases	4	4		4		1	6		5	2		
Permitted Phases												
Actuated Green, G (s)				12.5			48.2		10.0	62.6		
Effective Green, g (s)				12.5			48.2		10.0	62.6		
Actuated g/C Ratio				0.15			0.57		0.12	0.74		
Clearance Time (s)				4.9			5.0		4.4	5.0		
Vehicle Extension (s)				2.0			3.2		2.0	3.2		
Lane Grp Cap (vph)				212			1996		208	2606		
v/s Ratio Prot				c0.11			c0.37		c0.11	0.31		
v/c Ratio				0.75			0.66		0.90	0.42		
Uniform Delay, d1				34.8			12.7		37.0	4.3		
Progression Factor				1.00			1.22		1.20	1.64		
Incremental Delay, d2				12.5			1.2		28.8	0.4		
Delay (s)				47.3			16.7		73.1	7.3		
Level of Service				D			B		E	A		
Approach Delay (s)	0.0			47.3			16.7			17.0		
Approach LOS	A			D			B			B		
Intersection Summary												
HCM 2000 Control Delay			19.9			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			85.0			Sum of lost time (s)			14.3			
Intersection Capacity Utilization			70.3%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	2717	2	2157
v/c Ratio	0.13	0.57	0.02	0.63
Control Delay	21.4	2.8	42.0	1.9
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	21.4	2.9	42.0	1.9
Queue Length 50th (ft)	1	0	1	0
Queue Length 95th (ft)	20	346	m2	345
Internal Link Dist (ft)	221	960		536
Turn Bay Length (ft)			60	
Base Capacity (vph)	319	4776	118	3411
Starvation Cap Reductn	0	0	0	27
Spillback Cap Reductn	0	532	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.64	0.02	0.64
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Balboa Station
20: Mission Bay Dr & Rosewood St

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBT
Lane Configurations	W		4+4	4	4+4
Traffic Volume (vph)	2	14	2484	16	2
Future Volume (vph)	2	14	2484	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.95	1.00
Flt	0.88	1.00	1.00	1.00	1.00
Flt Protected	0.99	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1631	5081	1770	3539	1631
Flt Permitted	0.99	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1631	5081	1770	3539	1631
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	15	2100	17	2
RTOR Reduction (vph)	15	0	0	0	0
Lane Group Flow (vph)	2	0	2717	0	2
Turn Type	Prot	NA	NA	Prot	NA
Protected Phases	8	2		1	6
Permitted Phases					
Actuated Green, G (s)	1.5	70.3	1.2	75.5	
Effective Green, g (s)	1.5	70.3	1.2	75.5	
Actuated g/C Ratio	0.02	0.83	0.01	0.89	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	28	4202	24	3143	
v/s Ratio Prot	c0.00	0.53	0.00	c0.61	
v/s Ratio Perm					
v/c Ratio	0.08	0.65	0.08	0.69	
Uniform Delay, d1	41.1	2.7	41.4	1.4	
Progression Factor	1.00	1.00	1.13	1.27	
Incremental Delay, d2	1.2	0.8	1.1	0.9	
Delay (s)	42.3	3.5	48.0	2.6	
Level of Service	D	A	D	A	
Approach Delay (s)	42.3	3.5		2.7	
Approach LOS	D	A		A	
Intersection Summary					
HCM 2000 Control Delay		3.3	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio		0.71			
Actuated Cycle Length (s)		85.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization		64.8%	ICU Level of Service		C
Analysis Period (min)		15			
c Critical Lane Group					

Balboa Station
21: Santa Fe St & Damon Ave

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	4	4
Sign Control	Stop			Stop	Stop	Stop
Traffic Volume (vph)	108	65	80	66	98	153
Future Volume (vph)	108	65	80	66	98	153
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	117	71	87	72	107	166
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	188	159	273			
Volume Left (vph)	117	87	0			
Volume Right (vph)	71	0	166			
Hadj (s)	-0.07	0.14	-0.33			
Departure Headway (s)	4.8	4.8	4.3			
Degree Utilization, x	0.25	0.21	0.32			
Capacity (veh/h)	693	707	804			
Control Delay (s)	9.4	9.1	9.3			
Approach Delay (s)	9.4	9.1	9.3			
Approach LOS	A	A	A			
Intersection Summary						
Delay			9.3			
Level of Service			A			
Intersection Capacity Utilization			42.4%			
Analysis Period (min)			15			
ICU Level of Service						
A						

Balboa Station
22: Morena Blvd & Jutland Dr

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Stop	Stop	Stop	Stop	Stop
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Volume (vph)	588	11	175	260	17	316
Future Volume (vph)	588	11	175	260	17	316
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	639	12	190	283	18	343
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	639	12	190	283	132	229
Volume Left (vph)	639	0	0	0	18	0
Volume Right (vph)	0	12	0	283	0	0
Head (s)	0.53	-0.67	0.03	-0.67	0.10	0.03
Departure Headway (s)	7.3	6.1	7.1	6.4	7.3	7.2
Degree Utilization, x	1.30	0.02	0.38	0.51	0.27	0.46
Capacity (veh/h)	497	568	499	553	483	490
Control Delay (s)	170.7	8.0	13.1	14.6	11.8	15.0
Approach Delay (s)	167.7		14.0		13.8	
Approach LOS	F		B		B	
Intersection Summary						
Delay	81.3					
Level of Service	F					
Intersection Capacity Utilization	60.6%					
Analysis Period (min)	15					
	ICU Level of Service					
	B					

Balboa Station
23: Morena Blvd & Costco Drw

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	WBL	NBT	SBL	SBT
Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	491	750	60	968
v/c Ratio	0.52	0.53	0.26	0.63
Control Delay	13.4	6.7	21.2	10.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.4	6.7	21.2	10.1
Queue Length 50th (ft)	33	20	10	68
Queue Length 95th (ft)	89	77	45	132
Internal Link Dist (ft)	195	3170		1658
Turn Bay Length (ft)			110	
Base Capacity (vph)	2340	1759	233	2595
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.43	0.26	0.37
Intersection Summary				

Balboa Station
23: Morena Blvd & Costco Dwy

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	W	W	W	W
Traffic Volume (vph)	376	75	320	370	55	891
Future Volume (vph)	376	75	320	370	55	891
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.4	5.5	4.4	5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.95	1.00	0.95
Flt	0.97	0.92	1.00	0.95	1.00	1.00
Flt Protected	0.96	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3382	3255	1770	3539	1770	3539
Flt Permitted	0.96	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3382	3255	1770	3539	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	409	82	348	402	60	968
RTOR Reduction (vph)	36	0	268	0	0	0
Lane Group Flow (vph)	455	0	482	0	60	968
Turn Type	Prot	NA	NA	Prot	NA	NA
Protected Phases	8	2	2	1	6	6
Permitted Phases						
Actuated Green, G (s)	9.8	13.1	1.5	1.5	19.0	19.0
Effective Green, g (s)	9.8	13.1	1.5	1.5	19.0	19.0
Actuated g/C Ratio	0.25	0.33	0.04	0.04	0.48	0.48
Clearance Time (s)	4.9	5.5	4.4	5.5	5.5	5.5
Vehicle Extension (s)	2.0	2.8	2.0	2.8	2.0	2.8
Lane Grp Cap (vph)	845	1087	67	1715		
v/s Ratio Prot	0.13	0.15	0.03	0.27		
v/s Ratio Perm						
v/c Ratio	0.54	0.44	0.90	0.56		
Uniform Delay, d1	12.7	10.2	18.8	7.2		
Progression Factor	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.3	0.3	72.6	0.4		
Delay (s)	13.1	10.5	91.4	7.6		
Level of Service	B	B	F	A		
Approach Delay (s)	13.1	10.5		12.5		
Approach LOS	B	B		B		
Intersection Summary						
HCM 2000 Control Delay		11.9		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.66				
Actuated Cycle Length (s)		39.2		Sum of lost time (s)		14.8
Intersection Capacity Utilization		49.5%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Station
24: Morena Blvd & Avati Dr

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	207	58	710	208	74	1363
v/c Ratio	0.35	0.18	0.47	0.16	0.30	0.67
Control Delay	18.7	7.8	11.5	0.9	22.5	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	7.8	11.5	0.9	22.5	8.3
Queue Length 50th (ft)	25	0	75	0	18	98
Queue Length 95th (ft)	52	23	125	12	52	168
Internal Link Dist (ft)	317		2304			3170
Turn Bay Length (ft)		135		115	120	
Base Capacity (vph)	2193	1032	2604	1583	276	2847
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.06	0.27	0.13	0.27	0.48
Intersection Summary						

Balboa Station
24: Morena Blvd & Avati Dr

Balboa Station
25: Morena Blvd & Balboa WB Ramps

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↔	↔↔	↔	↔	↔↔
Traffic Volume (vph)	190	53	0	653	191	68	1254
Future Volume (vph)	190	53	0	653	191	68	1254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	5.7	
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00	0.95
Fit	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Fit Protected	0.95	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539	
Fit Permitted	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	58	0	710	208	74	1363
RTOR Reduction (vph)	0	48	0	0	87	0	0
Lane Group Flow (vph)	207	10	0	710	121	74	1363
Turn Type	Prot	Prot	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	7	1	6	7	5	2
Permitted Phases					6		5
Actuated Green, G (s)	7.5	7.5		18.6	26.1	3.6	26.9
Effective Green, g (s)	7.5	7.5		18.6	26.1	3.6	26.9
Actuated g/C Ratio	0.17	0.17		0.41	0.58	0.08	0.60
Clearance Time (s)	4.9	4.9	6.0	4.9	4.4	5.7	
Vehicle Extension (s)	2.0	2.0		5.2	2.0	2.0	5.0
Lane Grp Cap (vph)	572	263		1462	918	141	2115
v/s Ratio Prot	c0.06	0.01		0.20	0.02	0.04	c0.39
v/s Ratio Perm					0.05		
v/c Ratio	0.36	0.04		0.49	0.13	0.52	0.64
Uniform Delay, d1	16.6	15.7		9.7	4.3	19.9	5.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		0.6	0.0	1.6	0.9
Delay (s)	16.8	15.7		10.3	4.3	21.5	6.9
Level of Service	B	B		B	A	C	A
Approach Delay (s)	16.5			8.9			7.6
Approach LOS	B			A			A
Intersection Summary							
HCM 2000 Control Delay			9.0		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.67				
Actuated Cycle Length (s)			45.0		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							

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	163	282	98	1378	871	1054
v/c Ratio	0.42	0.52	0.58	0.66	0.57	0.67
Control Delay	16.9	7.3	37.1	8.4	12.1	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	7.3	37.1	8.4	12.1	2.2
Queue Length 50th (ft)	32	7	22	90	80	0
Queue Length 95th (ft)	69	49	#82	193	151	0
Internal Link Dist (ft)	439			882	2304	
Turn Bay Length (ft)		50	200			100
Base Capacity (vph)	679	757	169	2110	1565	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.37	0.58	0.65	0.56	0.67
Intersection Summary						
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.					

Balboa Station
25: Morena Blvd & Balboa WB Ramps

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	150	259	90	1268	801	970
Traffic Volume (vph)	150	259	90	1268	801	970
Future Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	0.95	0.95	1.00
Lane Util. Factor	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	282	98	1378	871	1054
RTOR Reduction (vph)	0	191	0	0	0	0
Lane Group Flow (vph)	163	91	98	1378	871	1054
Turn Type	Perm	Perm	Prot	NA	NA	Free
Protected Phases			5	2	6	
Permitted Phases	4	4				Free
Actuated Green, G (s)	9.2	9.2	3.2	25.4	18.2	42.6
Effective Green, g (s)	9.2	9.2	3.2	25.4	18.2	42.6
Actuated g/C Ratio	0.22	0.22	0.08	0.60	0.43	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	382	341	132	2110	1511	1583
v/s Ratio Prot			0.06	0.39	0.25	
v/s Ratio Perm	0.09	0.06				0.67
v/c Ratio	0.43	0.27	0.74	0.65	0.58	0.67
Uniform Delay, d1	14.4	13.9	19.3	5.7	9.3	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.4	20.0	0.7	0.5	2.2
Delay (s)	15.2	14.3	39.3	6.4	9.8	2.2
Level of Service	B	B	D	A	A	A
Approach Delay (s)	14.6		8.6	5.7		
Approach LOS	B		A	A		
Intersection Summary						
HCM 2000 Control Delay			7.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			42.6		Sum of lost time (s)	12.0
Intersection Capacity Utilization			50.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Balboa Station
26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Movement	EBL	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	87	34	359	576	5	911	141
v/c Ratio	0.29	0.05	0.73	0.85	0.03	0.57	0.70
Control Delay	14.5	9.7	25.1	26.1	7.6	9.7	34.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	9.7	25.1	26.1	7.6	9.7	34.5
Queue Length 50th (ft)	18	5	89	110	1	78	29
Queue Length 95th (ft)	46	19	#204	#281	5	121	#109
Internal Link Dist (ft)		105	678		1978		882
Turn Bay Length (ft)					100		135
Base Capacity (vph)	339	750	550	740	199	1916	242
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.05	0.65	0.78	0.03	0.48	0.58
Intersection Summary							
# 95th percentile volume exceeds capacity, queue may be longer.							
Queue shown is maximum after two cycles.							

Balboa Station
26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

Balboa Station
27: Morena Blvd & Baker St

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Horizon Year with Reduced LU
 Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗	↖	↗		↖	↗	
Traffic Volume (vph)	80	27	5	300	30	530	5	658	180	130	919	11
Future Volume (vph)	80	27	5	300	30	530	5	658	180	130	919	11
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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	1.00	0.95
Flt	1.00	0.98		1.00	0.85	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Flt Protected	0.95	1.00		0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1822		1782	1583	1770	3425	1770	3533	1770	3533	1770
Flt Permitted	0.44	1.00		0.72	1.00	0.20	1.00	0.20	1.00	0.24	1.00	0.24
Satd. Flow (perm)	828	1822		1343	1583	365	3425	365	443	3533	443	3533
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)	87	29	5	326	33	576	5	715	196	141	999	12
RTOR Reduction (vph)	0	3	0	0	0	97	0	52	0	0	2	0
Lane Group Flow (vph)	87	31	0	0	359	479	5	859	0	141	1009	0
Turn Type	Perm	NA	Perm	Perm	Perm	Perm	NA	NA	Perm	NA	NA	NA
Protected Phases	4			8		8	2			6		6
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	16.6	16.6		16.6	16.6	16.6	20.5	20.5	20.5	20.5	20.5	20.5
Effective Green, g (s)	16.6	16.6		16.6	16.6	16.6	20.5	20.5	20.5	20.5	20.5	20.5
Actuated g/C Ratio	0.37	0.37		0.37	0.37	0.37	0.45	0.45	0.45	0.45	0.45	0.45
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	304	670		494	582	165	1556		201	1605		
v/s Ratio Prot	0.02			0.27	c0.30	0.01		0.25		c0.32		0.29
v/s Ratio Perm	0.11			0.73	0.82	0.03	0.55		0.70	0.63		0.63
v/c Ratio	0.29	0.05		12.3	12.9	6.8	9.0		9.8	9.4		9.4
Uniform Delay, d1	10.1	9.2		1.00	1.00	1.00	1.00		1.00	1.00		1.00
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.5	0.0		5.3	9.2	0.1	0.4		10.5	0.8		0.8
Delay (s)	10.6	9.2		17.6	22.1	6.9	9.4		20.4	10.2		10.2
Level of Service	B	A		B	C	A	A		C	B		B
Approach Delay (s)	10.2			20.3			9.4			11.4		
Approach LOS	B			C			A			B		
Intersection Summary												
HCM 2000 Control Delay	13.4				HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio	0.75											
Actuated Cycle Length (s)	45.1				Sum of lost time (s)				8.0			
Intersection Capacity Utilization	71.2%				ICU Level of Service				C			
Analysis Period (min)	15											
Critical Lane Group												

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑	↑	↓	↓
Traffic Volume (veh/h)	15	27	380	23	46	840
Future Volume (Veh/h)	15	27	380	23	46	840
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	29	413	25	50	913
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)			None		None	
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked	970	413			438	
vC, conflicting volume						
vC1, stage 1 conf vol						
vC2, stage 2 conf vol	970	413			438	
vCu, unblocked vol	6.8	6.9			4.1	
IC, single (s)						
IC, 2 stage (s)	3.5	3.3			2.2	
IF (s)						
p0 queue free %	93	95			96	
dM capacity (veh/h)	240	588			1118	
Direction, Lane #						
	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	45	413	25	50	456	456
Volume Left	16	0	0	50	0	0
Volume Right	29	0	25	0	0	0
cSH	388	1700	1700	1118	1700	1700
Volume to Capacity	0.12	0.24	0.01	0.04	0.27	0.27
Queue Length 95th (ft)	10	0	0	4	0	0
Control Delay (s)	15.5	0.0	0.0	8.4	0.0	0.0
Lane LOS	C			A		
Approach Delay (s)	15.5	0.0		0.4		
Approach LOS	C					
Intersection Summary						
Average Delay				0.8		
Intersection Capacity Utilization				36.7%	ICU Level of Service	
Analysis Period (min)				15	A	

Balboa Station
28: Morena Blvd & Gesner St

Balboa Station
28: Morena Blvd & Gesner St

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Movement	WBL	NBT	NBR	SBL	SBT
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	134	439	50	112	985
v/c Ratio	0.34	0.26	0.06	0.31	0.44
Control Delay	9.8	10.4	4.7	17.6	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	10.4	4.7	17.6	5.5
Queue Length 50th (ft)	8	38	0	21	49
Queue Length 95th (ft)	43	76	16	62	100
Internal Link Dist (ft)	1333	298			3362
Turn Bay Length (ft)			95	95	
Base Capacity (vph)	1295	1995	914	461	2876
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.22	0.05	0.24	0.34
Intersection Summary					

Movement	WBL	NBT	NBR	SBL	SBT
Lane Configurations	W	4	4	4	4
Traffic Volume (vph)	38	86	404	46	103
Future Volume (vph)	38	86	404	46	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.9	5.9	4.4	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95
Flt	0.91	1.00	0.85	1.00	1.00
Flt Protected	0.98	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1663	3539	1583	1770	3539
Flt Permitted	0.98	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1663	3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	93	439	50	112
RTOR Reduction (vph)	81	0	0	31	0
Lane Group Flow (vph)	53	0	439	19	112
Turn Type	Prot	NA	Perm	Prot	NA
Protected Phases	8	2		1	6
Permitted Phases			2		
Actuated Green, G (s)	4.5	13.4	13.4	3.6	21.3
Effective Green, g (s)	4.5	13.4	13.4	3.6	21.3
Actuated g/c Ratio	0.12	0.37	0.37	0.10	0.59
Clearance Time (s)	4.4	5.9	5.9	4.4	6.0
Vehicle Extension (s)	2.0	4.4	4.4	2.0	4.2
Lane Grp Cap (vph)	206	1310	585	176	2082
v/s Ratio Prot	0.03	0.12		0.06	0.28
v/c Ratio Perm			0.01		
v/c Ratio	0.26	0.34	0.03	0.64	0.47
Uniform Delay, d1	14.3	8.2	7.3	15.7	4.2
Progression Factor	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3	0.0	5.4	0.3
Delay (s)	14.6	8.4	7.3	21.1	4.5
Level of Service	B	A	A	C	A
Approach Delay (s)	14.6	8.3		6.2	
Approach LOS	B	A		A	
Intersection Summary					
HCM 2000 Control Delay		7.5		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio		0.52			
Actuated Cycle Length (s)		36.2		Sum of lost time (s)	14.7
Intersection Capacity Utilization		41.1%		ICU Level of Service	A
Analysis Period (min)		15			
c Critical Lane Group					

Queues

29: Garnet Ave & Balboa WB Ramps

12/20/2017



Lane Group	EBT	WBT	WBR	SBR
Lane Group Flow (vph)	2313	1139	445	1152
v/c Ratio	0.45	0.57	0.50	0.80
Control Delay	0.3	20.5	3.7	22.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.3	20.5	3.7	22.6
Queue Length 50th (ft)	0	164	0	260
Queue Length 95th (ft)	0	204	52	#431
Internal Link Dist (ft)	265	362		
Turn Bay Length (ft)		300		
Base Capacity (vph)	5085	2466	996	1448
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.45	0.46	0.45	0.80

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

29: Garnet Ave & Balboa WB Ramps

12/20/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	←←←	←←←	←←←	←	←	←←
Traffic Volume (vph)	0	2128	1048	409	0	1060
Future Volume (vph)	0	2128	1048	409	0	1060
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	0.91	1.00	0.88	0.88
Frt	1.00	1.00	1.00	0.85	0.85	0.85
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	5085	5085	5085	1583	2787	2787
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	5085	5085	5085	1583	2787	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2313	1139	445	0	1152
RTOR Reduction (vph)	0	0	0	270	0	29
Lane Group Flow (vph)	0	2313	1139	175	0	1123
Turn Type	NA	NA	NA	Perm	Prot	Prot
Protected Phases	1 4	8			1	
Permitted Phases				8		
Actuated Green, G (s)	83.0	32.7	32.7	32.7	42.3	42.3
Effective Green, g (s)	83.0	32.7	32.7	32.7	42.3	42.3
Actuated g/C Ratio	1.00	0.39	0.39	0.39	0.51	0.51
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	5085	2003	623		1420	
v/s Ratio Prot	0.45	c0.22			c0.40	
v/s Ratio Perm			0.11			
v/c Ratio	0.45	0.57	0.28		0.79	
Uniform Delay, d1	0.0	19.6	17.1		16.7	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.4	0.2		3.1	
Delay (s)	0.1	20.0	17.4		19.8	
Level of Service	A	C	B		B	
Approach Delay (s)	0.1	19.3		19.8		
Approach LOS	A	B		B		
Intersection Summary						
HCM 2000 Control Delay		10.6		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.69				
Actuated Cycle Length (s)		83.0		Sum of lost time (s)		8.0
Intersection Capacity Utilization		64.0%		ICU Level of Service		B
Analysis Period (min)		15				
c Critical Lane Group						

Balboa Station

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Arterial Level of Service: EB Garnet Ave

*Reduction of signal delay for
transit queue jump lane

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Onsey St	II	30	42.1	39.6	46.6	0.00	6.8	F
Balboa Ave	II	30	23.5	29.6	53.1	0.19	12.6	F
Soledad Mtn Rd	II	35	27.3	8.3	35.6	0.23	23.2	C
Bond St	II	35	21.0	0.5	21.5	0.17	28.1	B
Mission Bay Dr	II	35	15.5	59.7	75.2	0.12	5.9	F
I-5 Off-ramp	II	45	24.2	49.4	12.0	0.23	19.8	D
Balboa WB Ramps	II	45	7.1	1.0	8.1	0.07	29.0	B
Miraga Ave *	II	45	22.2	64.4	4.2	0.20	25.7	C
Clarendon Dr	II	45	49.7	69.8	119.5	0.62	18.7	D
Total	II		202.6	227.0	429.6	1.92	16.1	E

Arterial Level of Service: WB Garnet Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Clarendon Dr	II	45	14.7	38.6	71.5	0.13	6.8	F
Miraga Ave	II	45	49.7	19.3	69.0	0.62	32.4	B
Balboa WB Ramps	II	45	22.2	25.7	47.9	0.20	15.3	E
Santa Fe St	II	45	7.1	0.3	7.4	0.07	31.8	B
Mission Bay Dr	II	45	24.2	57.4	81.6	0.23	10.3	F
Bond St	II	35	15.5	1.0	16.5	0.12	27.0	C
Soledad Mtn Rd	II	35	21.0	27.7	48.7	0.17	12.4	F
Garnet Ave	II	35	27.3	1.2	28.5	0.23	29.0	B
Onsey St	II	30	23.5	15.1	38.6	0.19	17.3	D
Total	II		205.2	204.5	409.7	1.97	17.3	D

Arterial Level of Service: NB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Reewood St	III	35	29.6	9.9	26.4	0.22	25.9	B
Mission Bay Dr	III	35	15.8	16.6	31.8	0.12	19.2	E
Bunker Hill St	III	35	14.6	17.8	32.4	0.11	12.0	E
Driveway	III	35	21.4	10.2	31.6	0.17	19.1	C
Garnet Ave	III	35	13.8	40.0	53.8	0.10	6.9	F
Damon Ave	III	35	11.7	24.6	36.3	0.09	8.6	F
Bluffs Ave	III	35	20.1	4.0	24.1	0.16	23.5	C
Total	III		121.0	115.4	236.4	0.94	14.2	D

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Balboa Station

Horizon Year with Reduced LU
Timing Plan: PM Peak Period

Arterial Level of Service: SB Mission Bay Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bluffs Ave	III	35	29.6	14.6	64.5	0.16	9.7	F
Damon Ave	III	35	20.1	1.0	21.1	0.16	26.8	B
Garnet Ave	III	35	11.7	110.8	122.5	0.09	2.5	F
Magnolia Ave	III	35	13.8	17.8	31.6	0.10	11.7	E
Driveway	III	35	21.4	8.2	29.6	0.17	20.4	C
Grand Ave	III	35	14.6	64.5	79.1	0.11	4.9	F
Reewood St	III	35	15.8	1.9	17.7	0.12	22.7	C
Total	III		117.4	248.7	366.1	0.89	8.8	F

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APPENDIX K

MITIGATED REDUCED FUTURE CONDITIONS ANALYSIS SUPPORTING INFORMATION

Balboa Transit Station
5: Mission Bay Dr & Garnet Ave

Horizon Year with Reduced LU MITIGATED
 Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔	↔↔	↔↔	↔	↔↔	↔↔	↔	↔↔	↔	↔
Traffic Volume (vph)	692	656	533	214	528	242	440	551	263	250	329	378
Future Volume (vph)	692	656	533	214	528	242	440	551	263	250	329	378
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	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	1863	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	1863	2787
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)	752	713	579	233	574	263	478	599	286	272	358	411
RTOR Reduction (vph)	0	0	72	0	0	62	0	0	49	0	0	31
Lane Group Flow (vph)	752	713	507	233	574	201	478	599	237	272	358	380
Turn Type	Prot	NA	pm-ov	Prot	NA	pm-ov	Prot	NA	pm-ov	Prot	NA	pm-ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8		4			6			2	
Actuated Green, G (s)	29.0	43.8	65.8	13.1	27.9	42.5	22.0	44.9	58.0	14.6	37.1	66.1
Effective Green, g (s)	29.0	43.8	65.8	13.1	27.9	42.5	22.0	44.9	58.0	14.6	37.1	66.1
Actuated g/C Ratio	0.21	0.32	0.49	0.10	0.21	0.31	0.16	0.33	0.43	0.11	0.27	0.49
Clearance Time (s)	4.4	4.9	4.4	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	737	1148	771	333	731	498	559	1177	680	371	511	1364
v/s Ratio Prot	c0.22	0.20	0.11	0.07	c0.16	0.04	c0.14	0.17	0.03	0.08	c0.19	0.06
v/s Ratio Perm			0.21		0.08		0.12		0.12		0.08	
v/c Ratio	1.02	0.62	0.66	0.70	0.79	0.40	0.86	0.51	0.35	0.73	0.70	0.28
Uniform Delay, d1	53.0	38.6	26.1	59.0	50.7	36.3	54.9	36.2	25.8	58.3	44.0	20.4
Progression Factor	1.06	1.04	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	37.4	1.1	1.5	5.1	6.1	0.2	11.8	1.6	0.1	6.3	7.8	0.0
Delay (s)	93.3	41.5	31.0	64.2	56.8	36.5	66.7	37.8	25.9	64.6	51.8	20.4
Level of Service	F	D	C	E	E	D	E	D	C	E	D	C
Approach Delay (s)		57.6			53.4			45.4			42.7	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	51.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Balboa Transit Station
7: Balboa EB Ramps & Balboa Ave

Horizon Year with Reduced LU MITIGATED
 Timing Plan: AM Peak Period

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔↔	↔	↔↔	↔↔	↔↔	↔
Traffic Volume (vph)	738	657	0	1299	0	210
Future Volume (vph)	738	657	0	1299	0	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	0.91	1.00	1.00	0.86
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3539	1583	5085	5085	1611	1611
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3539	1583	5085	5085	1611	1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	802	714	0	1412	0	228
RTOR Reduction (vph)	0	396	0	0	0	73
Lane Group Flow (vph)	802	318	0	1412	0	155
Turn Type	NA	Perm	NA	NA	Prot	Prot
Protected Phases	4			5	8	5
Permitted Phases		4				
Actuated Green, G (s)	17.7	17.7		39.7		14.0
Effective Green, g (s)	17.7	17.7		39.7		14.0
Actuated g/C Ratio	0.45	0.45		1.00		0.35
Clearance Time (s)	4.0	4.0		4.0		4.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	1577	705		5085		568
v/s Ratio Prot	c0.23			c0.28		0.10
v/s Ratio Perm		0.20				
v/c Ratio	0.51	0.45		0.28		0.27
Uniform Delay, d1	7.9	7.6		0.0		9.2
Progression Factor	1.00	1.00		1.00		1.00
Incremental Delay, d2	0.3	0.5		0.0		0.3
Delay (s)	8.1	8.1		0.0		9.5
Level of Service	A	A		A		A
Approach Delay (s)	8.1			0.0		9.5
Approach LOS	A			A		A

Intersection Summary			
HCM 2000 Control Delay	4.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	39.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Balboa Transit Station
9: Clairemont Dr & Balboa Ave

Horizon Year with Reduced LU MITIGATED

Timing Plan: AM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT
Traffic Volume (vph)	187	746	61	431	710	123	125	404	436	210	341	285
Future Volume (vph)	187	746	61	431	710	123	125	404	436	210	341	285
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	6.4	6.4	4.4	5.3	4.4	4.4	4.4	5.3	5.3
Lane Util. Factor	0.97	0.91	0.97	0.91	0.91	1.00	0.95	1.00	0.95	1.00	0.95	0.95
Frt	1.00	0.99	1.00	0.98	1.00	0.98	1.00	1.00	0.85	1.00	0.93	0.93
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5028	3433	4972	1770	3539	1583	1770	3298	1770	3298	3298
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5028	3433	4972	1770	3539	1583	1770	3298	1770	3298	3298
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)	203	811	66	468	772	134	136	439	474	228	371	310
RTOR Reduction (vph)	0	9	0	0	23	0	0	0	48	0	144	0
Lane Group Flow (vph)	203	868	0	468	883	0	136	439	426	228	537	0
Turn Type	Prot	NA	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA	NA	NA
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	7.8	20.6		13.9	26.0		11.0	18.4	32.3	12.8	20.2	
Effective Green, g (s)	7.8	20.6		13.9	26.0		11.0	18.4	32.3	12.8	20.2	
Actuated g/C Ratio	0.09	0.24		0.16	0.30		0.13	0.22	0.38	0.15	0.24	
Clearance Time (s)	4.4	5.7		4.4	6.4		4.4	5.3	4.4	4.4	5.3	
Vehicle Extension (s)	2.0	3.5		2.0	3.0		2.0	2.4	2.0	2.0	2.6	
Lane Grp Cap (vph)	313	1211		558	1511		227	761	598	264	779	
v/s Ratio Prot	0.06	c0.17		c0.14	0.18		0.08	0.12	0.12	c0.13	c0.16	
v/c Ratio	0.65	0.72		0.84	0.58		0.60	0.58	0.71	0.86	0.69	
Uniform Delay, d1	37.5	29.8		34.7	25.2		35.2	30.1	22.6	35.5	29.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.4	2.1		10.2	0.6		2.8	0.8	3.3	23.4	2.4	
Delay (s)	41.0	31.9		44.9	25.8		38.0	30.9	26.0	58.9	32.2	
Level of Service	D	C		D	C		D	C	C	E	C	
Approach Delay (s)	33.6			32.3			29.6			38.9		
Approach LOS	C			C			C			D		
Intersection Summary												
HCM 2000 Control Delay	33.3											
HCM 2000 Volume to Capacity ratio	0.79											
Actuated Cycle Length (s)	85.5											
Intersection Capacity Utilization	70.1%											
Analysis Period (min)	15											
c Critical Lane Group												

Balboa Transit Station
22: Morena Blvd & Jutland Dr

Horizon Year with Reduced LU MITIGATED

Timing Plan: AM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	HT	HT	HT	HT	HT	HT
Traffic Volume (vph)	190	13	257	391	4	163
Future Volume (vph)	190	13	257	391	4	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1863	1583	3635	3635
Flt Permitted	0.95	1.00	1.00	1.00	1.00	0.95
Satd. Flow (perm)	1770	1583	1863	1583	3363	3363
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	14	279	425	4	177
RTOR Reduction (vph)	0	11	0	184	0	0
Lane Group Flow (vph)	207	3	279	241	0	181
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2		6	
Permitted Phases				2		
Actuated Green, G (s)	8.1	8.1	21.1	21.1	21.1	21.1
Effective Green, g (s)	8.1	8.1	21.1	21.1	21.1	21.1
Actuated g/C Ratio	0.22	0.22	0.57	0.57	0.57	0.57
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	385	344	1056	897	1907	1907
v/s Ratio Prot	c0.12		0.15		c0.15	0.05
v/c Ratio	0.54	0.01	0.26	0.27	0.09	0.09
Uniform Delay, d1	12.9	11.4	4.1	4.1	3.7	3.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.0	0.6	0.7	0.1	0.1
Delay (s)	14.3	11.4	4.7	4.8	3.8	3.8
Level of Service	B	B	A	A	A	A
Approach Delay (s)	14.2		4.8		3.8	
Approach LOS	B		A		A	
Intersection Summary						
HCM 2000 Control Delay	6.5					
HCM 2000 Volume to Capacity ratio	0.34					
Actuated Cycle Length (s)	37.2					
Intersection Capacity Utilization	35.5%					
Analysis Period (min)	15					
c Critical Lane Group						

MOVEMENT SUMMARY

 **Site: 1 [AM - Future Reduced MITIGATED - Morena at Jutland - Copy]**

Roundabout
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Morena Blvd											
8	T1	279	2.0	0.501	7.6	LOS A	4.1	104.8	0.07	0.01	20.2
18	R2	425	2.0	0.501	7.6	LOS A	4.1	104.8	0.07	0.01	19.1
Approach		704	2.0	0.501	7.6	LOS A	4.1	104.8	0.07	0.01	19.5
East: Jutland Ave											
1	L2	207	2.0	0.265	7.2	LOS A	1.1	27.1	0.44	0.36	19.1
16	R2	14	2.0	0.265	7.2	LOS A	1.1	27.1	0.44	0.36	19.0
Approach		221	2.0	0.265	7.2	LOS A	1.1	27.1	0.44	0.36	19.1
North: Morena Blvd											
7	L2	4	2.0	0.202	6.0	LOS A	0.8	19.9	0.36	0.26	22.5
4	T1	177	2.0	0.202	6.0	LOS A	0.8	19.9	0.36	0.26	21.4
Approach		182	2.0	0.202	6.0	LOS A	0.8	19.9	0.36	0.26	21.5
All Vehicles		1107	2.0	0.501	7.3	LOS A	4.1	104.8	0.19	0.12	19.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: K:\SND_TPT\095413006 - Balboa Station\SIDRA\Morena at Jutland\Roundabout Mitigation Analysis.sip7

Balboa Station
5: Mission Bay Dr & Garnet Ave

Balboa Station
7: Balboa EB Ramps & Garnet Ave/Balboa Ave

Horizon Year with Reduced LU MITIGATED
 Timing Plan: PM Peak Period

Horizon Year with Reduced LU MITIGATED
 Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔	↔↔	↔↔	↔	↔↔	↔↔	↔	↔↔	↔	↔
Traffic Volume (vph)	469	629	443	308	678	353	647	494	332	272	467	763
Future Volume (vph)	469	629	443	308	678	353	647	494	332	272	467	763
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	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.88
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	1863	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	1863	2787
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)	510	684	482	335	737	384	703	537	361	296	508	829
RTOR Reduction (vph)	0	0	34	0	0	81	0	0	46	0	0	49
Lane Group Flow (vph)	510	684	448	335	737	303	703	537	315	296	508	780
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	22.6	38.1	64.7	15.6	31.1	47.0	26.6	46.8	62.4	15.9	35.7	58.3
Effective Green, g (s)	22.6	38.1	64.7	15.6	31.1	47.0	26.6	46.8	62.4	15.9	35.7	58.3
Actuated g/C Ratio	0.17	0.28	0.48	0.12	0.23	0.35	0.20	0.35	0.46	0.12	0.26	0.43
Clearance Time (s)	4.4	4.9	4.4	4.4	4.9	4.4	4.4	4.9	4.4	4.4	5.3	4.4
Vehicle Extension (s)	2.0	4.1	2.0	2.0	4.3	2.0	2.0	4.5	2.0	2.0	3.3	2.0
Lane Grp Cap (vph)	574	898	758	396	815	551	676	1226	731	404	492	1203
v/s Ratio Prot	c0.15	0.19	0.12	0.10	c0.21	0.06	c0.20	0.15	0.05	0.09	c0.27	0.11
v/s Ratio Perm			0.17			0.13			0.15		0.17	
v/c Ratio	0.89	0.69	0.59	0.85	0.90	0.55	1.04	0.44	0.43	0.73	1.03	0.65
Uniform Delay, d1	55.0	43.1	25.5	58.5	50.5	35.5	54.2	34.0	24.4	57.5	49.6	30.3
Progression Factor	0.83	0.95	1.24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.6	3.7	0.8	14.7	15.4	0.6	45.4	0.4	0.1	5.8	49.2	0.9
Delay (s)	60.5	44.5	32.5	73.2	65.9	36.1	99.6	34.4	24.5	63.3	98.8	31.2
Level of Service	E	D	C	E	E	D	F	C	C	E	F	C
Approach Delay (s)	45.9			59.7			60.8			58.1		
Approach LOS	D			E			E			E		
Intersection Summary												
HCM 2000 Control Delay			55.9				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			135.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			91.0%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔↔	↔		↔↔		↔
Traffic Volume (vph)	1268	860	0	1457	0	337
Future Volume (vph)	1268	860	0	1457	0	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0
Lane Util. Factor	0.95	1.00		0.91		1.00
Flt	1.00	0.85		1.00		0.86
Flt Protected	1.00	1.00		1.00		1.00
Satd. Flow (prot)	3539	1583		5085		1611
Flt Permitted	1.00	1.00		1.00		1.00
Satd. Flow (perm)	3539	1583		5085		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1378	935	0	1584	0	366
RTOR Reduction (vph)	0	430	0	0	0	25
Lane Group Flow (vph)	1378	505	0	1584	0	341
Turn Type	NA	Perm		NA		Prot
Protected Phases	4			5		8
Permitted Phases		4				
Actuated Green, G (s)	28.9	28.9		53.5		16.6
Effective Green, g (s)	28.9	28.9		53.5		16.6
Actuated g/C Ratio	0.54	0.54		1.00		0.31
Clearance Time (s)	4.0	4.0		4.0		4.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	1911	855		5085		499
v/s Ratio Prot	c0.39			0.31		c0.21
v/s Ratio Perm		0.32				
v/c Ratio	0.72	0.59		0.31		0.68
Uniform Delay, d1	9.3	8.3		0.0		16.2
Progression Factor	1.00	1.00		1.00		1.00
Incremental Delay, d2	1.4	1.1		0.0		3.9
Delay (s)	10.6	9.4		0.0		20.0
Level of Service	B	A		A		C
Approach Delay (s)	10.1			0.0		20.0
Approach LOS	B			A		C
Intersection Summary						
HCM 2000 Control Delay				7.2	HCM 2000 Level of Service	
HCM 2000 Volume to Capacity ratio				0.71	A	
Actuated Cycle Length (s)				53.5	Sum of lost time (s)	
Intersection Capacity Utilization				62.6%	ICU Level of Service	
Analysis Period (min)				15	B	
c Critical Lane Group						

Balboa Station
9: Clairemont Dr & Balboa Ave

Horizon Year with Reduced LU MITIGATED
Timing Plan: PM Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔
Traffic Volume (vph)	351	996	49	533	947	160	71	391	429	346	602	253
Future Volume (vph)	351	996	49	533	947	160	71	391	429	346	602	253
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	6.4		4.4	5.3	4.4	4.4	5.3	
Lane Util. Factor	0.97	0.91	0.97	0.91	0.97	0.91	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5050		3433	4975		1770	3539	1583	1770	3382	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5050		3433	4975		1770	3539	1583	1770	3382	
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)	382	1083	53	579	1029	174	77	425	466	376	654	275
RTOR Reduction (vph)	0	4	0	0	16	0	0	0	58	0	32	0
Lane Group Flow (vph)	382	1132	0	579	1187	0	77	425	408	376	887	0
Turn Type	Prot	NA	NA	Prot	NA	NA	Prot	NA	pm+ov	Prot	NA	NA
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	16.4	34.2		22.8	39.9		8.8	21.6	44.4	28.9	41.7	
Effective Green, g (s)	16.4	34.2		22.8	39.9		8.8	21.6	44.4	28.9	41.7	
Actuated g/C Ratio	0.13	0.27		0.18	0.31		0.07	0.17	0.35	0.23	0.33	
Clearance Time (s)	4.4	5.7		4.4	6.4		4.4	5.3	4.4	4.4	5.3	
Vehicle Extension (s)	2.0	3.5		2.0	3.0		2.0	2.4	2.0	2.0	2.6	
Lane Grp Cap (vph)	442	1356		614	1559		122	600	552	401	1107	
v/s Ratio Prot	0.11	c0.22		c0.17	0.24		0.04	0.12	0.13	c0.21	c0.27	
v/c Ratio	0.86	0.84		0.94	0.76		0.63	0.71	0.74	0.94	0.81	
Uniform Delay, d1	54.4	43.9		51.6	39.4		57.7	49.9	36.4	48.3	39.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.5	4.7		22.9	2.2		7.6	3.5	4.5	29.0	4.5	
Delay (s)	69.8	48.6		74.5	41.7		65.3	53.3	40.8	77.3	43.7	
Level of Service	E	D		E	D		E	D	D	E	D	
Approach Delay (s)		54.0			52.3			48.3			53.4	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay												
HCM 2000 Volume to Capacity ratio												
Actuated Cycle Length (s)												
Intersection Capacity Utilization												
Analysis Period (min)												
c Critical Lane Group												

Balboa Station
22: Morena Blvd & Jutland Dr

Horizon Year with Reduced LU MITIGATED
Timing Plan: PM Peak Period

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔
Traffic Volume (vph)	588	11	175	260	17	316
Future Volume (vph)	588	11	175	260	17	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1863	1583	3530	3530
Flt Permitted	0.95	1.00	1.00	1.00	1.00	0.94
Satd. Flow (perm)	1770	1583	1863	1583	3316	3316
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	639	12	190	283	18	343
RTOR Reduction (vph)	0	6	0	201	0	0
Lane Group Flow (vph)	639	6	190	82	0	361
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2		6	
Permitted Phases			8	2		6
Actuated Green, G (s)	17.6	17.6	10.4	10.4	10.4	10.4
Effective Green, g (s)	17.6	17.6	10.4	10.4	10.4	10.4
Actuated g/C Ratio	0.49	0.49	0.29	0.29	0.29	0.29
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	865	773	538	457		957
v/s Ratio Prot	c0.36		0.10			c0.11
v/c Ratio	0.74	0.01	0.35	0.18		0.38
Uniform Delay, d1	7.4	4.7	10.1	9.6		10.2
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	3.3	0.0	0.4	0.2		0.3
Delay (s)	10.7	4.7	10.5	9.8		10.5
Level of Service	B	A	B	A		B
Approach Delay (s)	10.6		10.1			10.5
Approach LOS	B		B			B
Intersection Summary						
HCM 2000 Control Delay						
HCM 2000 Volume to Capacity ratio						
Actuated Cycle Length (s)						
Intersection Capacity Utilization						
Analysis Period (min)						
c Critical Lane Group						

MOVEMENT SUMMARY

 Site: 1 [PM - Future Reduced MITIGATED - Morena at Jutland - Copy - Copy - Copy]

Roundabout
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Morena Blvd											
8	T1	190	2.0	0.341	5.6	LOS A	2.1	54.2	0.12	0.03	21.5
18	R2	283	2.0	0.341	5.6	LOS A	2.1	54.2	0.12	0.03	20.2
Approach		473	2.0	0.341	5.6	LOS A	2.1	54.2	0.12	0.03	20.7
East: Jutland Ave											
1	L2	639	2.0	0.714	16.7	LOS C	6.6	167.7	0.68	0.59	15.3
16	R2	12	2.0	0.714	16.7	LOS C	6.6	167.7	0.68	0.59	15.9
Approach		651	2.0	0.714	16.7	LOS C	6.6	167.7	0.68	0.59	15.3
North: Morena Blvd											
7	L2	18	2.0	0.627	19.3	LOS C	3.7	94.0	0.76	0.90	16.9
4	T1	343	2.0	0.627	19.3	LOS C	3.7	94.0	0.76	0.90	15.2
Approach		362	2.0	0.627	19.3	LOS C	3.7	94.0	0.76	0.90	15.3
All Vehicles		1486	2.0	0.714	13.8	LOS B	6.6	167.7	0.52	0.49	16.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX L

ACTIVE TRANSPORTATION ANALYSIS DATA

PEQE Segement Analysis													
FID	Shape *	Id	Material	Curb_Type	Width1	Type	Speed	Horizontal	Lighting	ClearZone	Seg_Score	Length	Notes
0	Polyline	0	Concrete	G	5	Sidewalk	1	0	1	0	2	613.5366	
1	Polyline	0	Concrete	G	4	Sidewalk	1	0	1	2	4	132.6586	
2	Polyline	0	Concrete	G	4	Sidewalk	1	0	1	2	4	734.2015	
3	Polyline	0	Concrete	G	5	Sidewalk	1	0	1	0	2	363.899	
4	Polyline	0	Concrete	G	4	Sidewalk	1	1	1	2	5	361.025	
5	Polyline	0	Concrete	G	4	Sidewalk	1	1	1	2	5	365.1695	
6	Polyline	0	Concrete	G	10	Sidewalk	1	1	1	2	5	340.8117	
7	Polyline	0	Concrete	G	4	Sidewalk	1	0	1	2	4	249.8485	
8	Polyline	0	Concrete	G	5	Sidewalk	1	0	1	0	2	591.8562	
9	Polyline	0	Concrete	H	5	Sidewalk	1	1	1	2	5	497.5172	
10	Polyline	0	Concrete	H	5	Sidewalk	1	1	1	2	5	810.3281	
11	Polyline	0	Concrete	G	6	Sidewalk	1	1	1	2	5	291.3238	
12	Polyline	0	Concrete	G	5	Sidewalk	2	1	1	2	5	273.5769	
13	Polyline	0	Concrete	H	5	Sidewalk	1	1	1	2	5	540.6052	
14	Polyline	0	Concrete	H	5	Sidewalk	2	1	1	2	5	291.2747	
15	Polyline	0	Concrete	H	10	Sidewalk	0	0	1	2	0	477.4729	
16	Polyline	0	Asphalt	Rolled	4	Sidewalk	0	2	1	2	5	1324.814	
17	Polyline	0	Asphalt	H	4	Sidewalk	1	2	1	2	6	365.7419	
18	Polyline	0	Concrete	H	5	Sidewalk	0	2	1	2	5	122.687	
19	Polyline	0	Concrete	G	4	Sidewalk	2	2	1	2	7	347.4627	
20	Polyline	0	Concrete	G	6	Sidewalk	1	1	1	2	5	797.7506	
21	Polyline	0	Concrete	H	5	Sidewalk	1	1	1	2	5	550.3903	
22	Polyline	0	Concrete	H	5	Sidewalk	1	1	1	2	5	487.44	
23	Polyline	0	Concrete	G	6	Sidewalk	1	1	1	2	5	327.5811	
24	Polyline	0	Concrete	G	6	Sidewalk	1	1	1	2	5	629.5068	
25	Polyline	0	Concrete	G	4	Sidewalk	2	2	1	2	7	321.7241	
26	Polyline	0	Concrete	H	7	Sidewalk	0	0	1	2	0	63.3038	
27	Polyline	0	Concrete	H	4	Sidewalk	0	0	1	2	3	232.0944	
28	Polyline	0	Concrete	Rolled	4	Sidewalk	0	2	1	2	5	364.4785	
29	Polyline	0	Concrete	G	4	Sidewalk	0	2	1	2	5	507.5938	
30	Polyline	0	Concrete	G	4	Sidewalk	0	2	1	2	5	253.7783	
31	Polyline	0	Concrete	H	4	Sidewalk	2	1	1	2	5	426.9293	
32	Polyline	0			0	Sidewalk	1	1	1	2	5	532.324	
33	Polyline	0			0	Sidewalk	2	1	1	2	6	655.6618	
34	Polyline	0			0	Sidewalk	1	1	1	2	5	250.6415	
35	Polyline	0			0	Crossing	0	0	1	0	0	0	
36	Polyline	0			0	Crossing	0	0	1	0	0	0	
37	Polyline	0			0	Crossing	0	0	1	0	0	0	
38	Polyline	0			0	Crossing	0	0	1	0	0	0	
39	Polyline	0			0	Crossing	0	0	1	0	0	0	
40	Polyline	0			0	Crossing	0	0	1	0	0	0	
41	Polyline	0			0	Crossing	0	0	1	0	0	0	
42	Polyline	0	Concrete	G	6	Sidewalk	1	1	1	2	5	74.92536	
43	Polyline	0	Concrete	G	6	Crossing	0	0	1	0	0	0	
44	Polyline	0			0	Crossing	0	0	1	0	0	0	
45	Polyline	0			0	Crossing	0	0	1	0	0	0	
46	Polyline	0			0	Crossing	0	0	1	0	0	0	
47	Polyline	0			0	Crossing	0	0	1	0	0	0	
48	Polyline	0			0	Crossing	0	0	1	0	0	0	
49	Polyline	0			0	Crossing	0	0	1	0	0	0	
50	Polyline	0			0	Crossing	0	0	1	0	0	0	
51	Polyline	0			0	Crossing	0	0	1	0	0	0	
52	Polyline	0	Concrete	G	6	Sidewalk	1	1	1	2	5	60.77096	
53	Polyline	0			0	Crossing	0	0	1	0	0	0	
54	Polyline	0			0	Crossing	0	0	1	0	0	0	
55	Polyline	0			0	Crossing	0	0	1	0	0	0	
56	Polyline	0			0	Crossing	0	0	1	0	0	0	
57	Polyline	0			0	Crossing	0	0	1	0	0	0	
58	Polyline	0			0	Crossing	0	0	1	0	0	0	
59	Polyline	0			0	Crossing	0	0	1	0	0	0	
60	Polyline	0			0	Crossing	0	0	1	0	0	0	
61	Polyline	0	Concrete	H	5	Crossing	0	0	1	0	0	0	
62	Polyline	0	Concrete	H	5	Crossing	0	0	1	0	0	0	
63	Polyline	0			0	Crossing	0	0	1	0	0	0	
64	Polyline	0			0	Crossing	0	0	1	0	0	0	
65	Polyline	0			0	Crossing	0	0	1	0	0	0	
66	Polyline	0			0	Crossing	0	0	1	0	0	0	

FID	Shape *	Id	Material	Curb_Type	Width1	Type	Speed	Horizontal	Lighting	ClearZone	Seg_Score	Length	Notes
67	Polyline	0			0	Sidewalk	0	2	1	2	5	654.8924	
68	Polyline	0			0	Sidewalk	1	1	1	2	5	454.0467	
69	Polyline	0			0	Sidewalk	0	0	1	2	0	6.78426	
70	Polyline	0			0	Sidewalk	0	1	1	2	4	552.8071	
71	Polyline	0			0	Sidewalk	0	0	1	2	0	23.51617	
72	Polyline	0			0	Sidewalk	0	1	1	2	4	378.1876	
73	Polyline	0			0	Sidewalk	1	2	1	2	6	680.6621	
74	Polyline	0			0	Sidewalk	1	1	1	2	5	224.9515	
75	Polyline	0			0	Sidewalk	2	1	1	2	5	544.1328	
76	Polyline	0			0	Crossing	0	0	1	0	0	0	
77	Polyline	0			0	Crossing	0	0	1	0	0	0	
78	Polyline	0			0	Crossing	0	0	1	0	0	0	
79	Polyline	0			0	Crossing	0	0	1	0	0	0	
80	Polyline	0			0	Crossing	0	0	1	0	0	0	
81	Polyline	0			0	Crossing	0	0	1	0	0	0	
82	Polyline	0			0	Crossing	0	0	1	0	0	0	
83	Polyline	0			0	Crossing	0	0	1	0	0	0	
84	Polyline	0			0	Crossing	0	0	1	0	0	0	
85	Polyline	0			0		0	0	1	0	0	0	
86	Polyline	0			0		0	0	1	0	0	0	
87	Polyline	0			0		0	0	1	0	0	0	
88	Polyline	0			0		0	0	1	0	0	0	
89	Polyline	0			0	Crossing	0	0	1	0	0	0	
90	Polyline	0			0	Sidewalk	0	0	1	2	0	97.93259	
91	Polyline	0	Concrete	H	5	Sidewalk	1	1	1	2	5	236.249	
92	Polyline	0			0	Sidewalk	2	2	1	2	7	513.8151	
93	Polyline	0			0		0	0	1	0	0	0	
94	Polyline	0			0	Sidewalk	1	0	1	2	4	320.2853	
95	Polyline	0	Asphalt	Rolled	4	Sidewalk	1	1	1	2	5	679.1614	
96	Polyline	0			0		2	1	1	2	6	1164.958	
97	Polyline	0			0		2	0	1	2	5	1203.657	
98	Polyline	0			0		1	0	1	0	2	381.4426	
99	Polyline	0			0		0	2	1	2	5	255.0287	
100	Polyline	0			0		0	0	1	2	3	241.8959	
101	Polyline	0			0	Shared-Use	0	0	0	0	8	0	
102	Polyline	0			0	Shared-Use	0	0	0	0	8	0	
103	Polyline	0			0	Shared-Use	0	0	0	0	8	0	
104	Polyline	0			0	Shared-Use	0	0	0	0	8	0	
105	Polyline	0			0	Shared-Use	0	0	0	0	8	0	
106	Polyline	0			0	Shared-Use	0	0	0	0	8	0	
107	Polyline	0			0	Shared-Use	0	0	0	0	8	0	
108	Polyline	0			0	Shared-Use	0	0	0	0	8	0	
109	Polyline	0			0	Shared-Use	0	0	0	0	8	0	
110	Polyline	0			0		0	2	1	2	5	0	
111	Polyline	0			0		0	0	0	0	8	0	
112	Polyline	0			0		0	0	0	0	8	0	
113	Polyline	0			0		0	0	0	0	8	0	

SPEED	RD20PREI	RD20NAN	RD20SFx	RD20FULL	EBNB_Bik	WBSB_Bik	EBNB_Lar	WBSB_Lar	EBNB_Par	WBSB_Par	EBNB_BL	WBSB_BL	EBNB_Spe	WBSB_Sp	EBNB_Blo	WBSB_Blc	EBNB_RT	WBSB_RT	EBNB_RT	WBSB_RT	EBNB_Poc	WBSB_Po	EBNB_Cro	WBSB_Crc	EBNB_Me	WBSB_Mc	Study_Arc	EBNB_Cro	WBSB_Crc	F_Class	GlobalID	Parking_C	Notes	Miles	FID_1	Shape__	OBJECTID	FUNCLASS		
35	MORENA	BL	MORENA	I Lane	Lane	2	2	0	0	0	0	47	52 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes							9765240e	0	0.04408	1	Polyline	12	C		
25	MORENA	IRA	MORENA	I Lane	Lane	1	1	0	0	0	0	99	99 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes							55a1a218	0	0.02165	7	Polyline	25	L		
35	MORENA	BL	MORENA	I Lane	Lane	2	2	0	0	0	0	47	52 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes							16d4c8b7	0	0.01546	8	Polyline	37	C		
30	GRAND	AV	GRAND	A Lane	Lane	2	2	0	7	5	5	43	45 Low	Low	0	0	None	None	Straight	Straight	Stop	N/A	None	None	Yes							bbea67b0	99	0.03262	9	Polyline	42	4		
35	MORENA	BL	MORENA	I Lane	Lane	2	2	0	0	0	0	47	52 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes							1955858d	0	0.03536	10	Polyline	44	C		
35	MORENA	BL	MORENA	I Lane	Lane	2	2	0	0	0	0	42	47 Low	Low	0	0			None	None	Signal	N/A	None	None	Yes							edf82af0-	0	0.04148	11	Polyline	48	C		
20	DEL REY	ST	DEL REY S'	None	None	1	1	8	8	0	0	25	25 Low	Low	0	0	None	None	None	None	N/A	Uncontrol	None	None	Yes							3a4d98d3	198	0.09893	13	Polyline	54	L		
25	MORENA	IRA	MORENA	I Lane	Lane	1	1	0	0	0	0	99	99 Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes							a47fb390-	0	0.16957	16	Polyline	63	L		
20	FIGUEROA	BL	FIGUEROA	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes	N/a	N/a					306f956f-1	198	Trail conn	17	Polyline	71	L		
35	MORENA	BL	MORENA	I Lane	Lane	2	2	0	0	0	0	42	47 Low	Low	0	0			None	None	N/A	Signal	None	None	Yes							d8a3b9e5	0	0.06361	19	Polyline	81	C		
20	GLENDOR	ST	GLENDOR	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None	N/A	Stop	None	None	Yes							a5b62665	198	0.03253	22	Polyline	95	L		
35	MORENA	BL	MORENA	I Lane	Lane	2	2	0	0	0	0	42	47 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes							560d0f32-	0	0.03372	23	Polyline	106	C		
25	MORENA	IRA	MORENA	I Lane	Lane	1	1	0	0	0	0	99	99 Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes							71511c9f-	0	0.03738	25	Polyline	109	L		
20	DAMON	AV	DAMON	A	Track	1	1	0	0	0	0	31	31 Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes							08b4c264-	0	0.03301	26	Polyline	116	L		
30	DAMON	AV	DAMON	A	Track	1	1	0	0	0	0	31	31 Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes							80373fe9-	0	0.00839	27	Polyline	117	L		
35	MORENA	BL	MORENA	I Lane	Lane	2	2	0	0	0	0	47	52 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes							7bdfa84a-	0	0.02064	28	Polyline	126	C		
20	HORNBLEI	ST	HORNBLEI	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None	Uncontrol	N/A	None	None	Yes							11051d14	198	0.05742	33	Polyline	146	L		
20	HORNBLEI	ST	HORNBLEI	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None	N/A	Uncontrol	None	None	Yes	N/A	Uncontrol						5e65229c-	198	0.0328	34	Polyline	148	L	
30	GRAND	AV	GRAND	A Lane	Lane	2	2	0	0	5	5	43	45 Low	Low	0	0	None	None	Straight	Straight	N/A	N/A	None	None	Yes							80b41365	0	0.14086	35	Polyline	173	4		
20	DEL REY	ST	DEL REY S'	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None		N/A	None	None	Yes							4070043a	198	0.10622	37	Polyline	188	L		
30	GRAND	AV	GRAND	A Lane	Lane	2	2	0	0	5	5	43	45 Low	Low	0	0	None	None	Straight	Straight			None	None	Yes							8ebddf6d-	99	0.06878	39	Polyline	196	4		
30	MISSION	EDR	MISSION	E None	Lane	2	2	0	0	0	0	45	45 Low	Low	0	0			None	None			None	None	Yes							54200b50	0	0.09295	40	Polyline	206	4		
20	GLENDOR	ST	GLENDOR	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None			None	None	Yes							48c94d49-	198	0.03117	41	Polyline	228	L		
20	ROSEWOC	ST	ROSEWOC	None	None	1	1	99	99	0	0	25	25 Low	Low	0	0	None	None	None	None			None	None	Yes							70aaba7b	198	Not a roac	0.0244	42	Polyline	254	L	
20	ROSEWOC	ST	ROSEWOC	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None			None	None	Yes							248933bf-	198	0.03169	43	Polyline	255	L		
20	REVERE	AV	REVERE	A None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None			None	None	Yes							03d40a68	198	0.07547	45	Polyline	310	L		
20	DAMON	AV	DAMON	A	Track	1	1	0	0	0	0	31	31 Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes	Stop							54131aa6-	0	0.03626	46	Polyline	327	L	
30	GRAND	AV	GRAND	A Lane	Lane	1	2	0	0	5	0	43	45 Low	Low	0	0	None	None	Straight	None			None	None	Yes							21b94b85	0	0.10386	48	Polyline	346	4		
35	MORENA	BL	MORENA	I Lane	Lane	2	2	0	0	0	0	42	47 Low	Low	0	0			None	None			None	None	Yes							db663336	0	0.21021	51	Polyline	399	C		
35	MORENA	BL	MORENA	I Lane	Lane	2	2	0	0	0	0	42	47 Low	Low	0	0			None	None			None	None	Yes							f708c3ec-	0	0.04285	53	Polyline	403	C		
20	HORNBLEI	ST	HORNBLEI	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None	N/a	N/a	None	None	Yes							258aa2ad-	198	Trail conn	0.09628	54	Polyline	527	L	
35	MORENA	BL	MORENA	I Lane	Lane	2	2	0	0	0	0	42	47 Low	Low	0	0			None	None			None	None	Yes							b800cb1f-	0	0.03968	56	Polyline	540	C		
20	SANTA FE	ST	SANTA FE	Route	Route	1	1	0	0	0	0	40	40 Low	Low	0	0	None	None	None	None			None	None	Yes							b43eb9f8-	0	0.27039	57	Polyline	553	L		
20	ROSEWOC	ST	ROSEWOC	None	None	1	1	7	7	0	0	37	40 Low	Low	0	0	None	None	None	None			None	None	Yes							4de62b10	198	0.03355	58	Polyline	590	L		
20	GLENDOR	ST	GLENDOR	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None			None	None	Yes							0e362b09	198	0.03517	60	Polyline	657	L		
30	DAMON	AV	DAMON	A	Track	1	1	7	7	0	0	31	31 Low	Low	0	80	None	Single Rigt	None	None	N/A	Signal	None	None	Yes			Signal					2b9c12fd-	198	Some red	0.15681	61	Polyline	664	L
30	MISSION	EDR	MISSION	E None	None	2	2	0	0	0	0	36	36 Low	Low	0	0			None	None			None	None	Yes							38c326e9-	99	0.01728	63	Polyline	676	4		
35	MORENA	BL	MORENA	I Lane	Lane	2	2	0	0	0	0	42	47 Low	Low	0	0			None	None			None	None	Yes							93543dfe-	0	0.09044	66	Polyline	800	C		
20	REVERE	AV	REVERE	A None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None			None	None	Yes							5ddffde9-	198	0.03117	67	Polyline	814	L		
20	FIGUEROA	ABL	FIGUEROA	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None	None	N/a	None	None	Yes	Uncontrol	N/A						47c11bdb	198	0.03317	70	Polyline	829	L	
20	CONTINUE		CONTINUE	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None			None	None	Yes							06e61c27-	198	0.00331	71	Polyline	855	L		
20	HORNBLEI	ST	HORNBLEI	None	None	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None			None	None	Yes	Uncontrol	N/A						026ebb5c-	198	0.03165	72	Polyline	856	L	
30	DAMON	AV	DAMON	A	Track	1	1	0	0	0	0	31	31 Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes								58fa043d-	0	0.00975	73	Polyline	861	L	
0			Trail	Trail		0	0	0	0	8.5	8.5	0	0 Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes								28948366	0	0.81456	75	Polyline	863	Z	
20	MAGNOLI	AV	MAGNOLI	Boulevard	Boulevard	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None	N/a	N/a	None	None	Yes								ede8f937-	198	Trail conn	0.09679	76	Polyline	831	L
20	MAGNOLI	AV	MAGNOLI	Boulevard	Boulevard	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None	Signal		None	None	Yes	Signal							ffe800b7-1	198	0.03725	77	Polyline	374	L	
20	MAGNOLI	AV	MAGNOLI	Boulevard	Boulevard	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None			None	None	Yes	N/A	Uncontrol							480d4d96	198	0.02935	78	Polyline	561	L
20	MAGNOLI	AV	MAGNOLI	Boulevard	Boulevard	1	1	7	7	0	0	25	25 Low	Low	0	0	None	None	None	None	None	N/a	None	None	Yes	Uncontrol	N/A							be594c33-	198	0.03179	79	Polyline	649	L
20	MAGNOLI	AV	MAGNOLI																																					

SPEED	RD20PREI	RD20NAN\RD20SFx	RD20FULL	EBNB_Bik	WBSB_Bik	EBNB_Lar	WBSB_Lar	EBNB_Par	WBSB_Par	EBNB_Bl	WBSB_Bl	EBNB_Spe	WBSB_Sp	EBNB_Blo	WBSB_Blc	EBNB_RT	WBSB_RT	EBNB_RT	WBSB_RT	EBNB_Poc	WBSB_Po	EBNB_Cro	WBSB_Crc	EBNB_Me	WBSB_Mc	Study_Arc	EBNB_Cro	WBSB_CrcF_Class	GlobalID	Parking_C	Notes	Miles	FID_1	Shape__	OBJECTID	FUNCLASS
35	MORENA	BL	MORENA I	Lane	Lane	2	2	0	0	0	0	47	52 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			9765240e	0	0.04408	1	Polyline	12	C		
35	BALBOA	AV	BALBOA A	Lane	Lane	2	2	0	0	9	9	50	49 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			b8b1d6ff-i	0	0.00227	112	Polyline	20	4		
35	BALBOA	AV	BALBOA A	Lane	Lane	2	2	0	0	9	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			67ae63eb	0	0.00583	113	Polyline	22	4		
35	BALBOA	AV	BALBOA A	Lane	Lane	2	2	0	0	9	9	50	49 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			4d755c76-	0	0.12184	114	Polyline	47	4		
35	BALBOA	AV	BALBOA A	Lane	Lane	2	2	0	0	9	9	50	49 Low	Low	0	0			None	None	Signal	N/A	None	None	Yes			1536b8f5-	0	0.07184	115	Polyline	83	4		
35	BALBOA	AV	BALBOA A	Lane	Lane	2	2	0	0	9	9	50	49 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			98400f88-	0	0.08258	116	Polyline	105	4		
40	GARNET	AV	GARNET A	Bus	Bus	2	2	0	0	9	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			f989a973-	0	0.02379	117	Polyline	118	4		
40	GARNET	AV	GARNET A	Lane	Lane	2	2	0	0	9	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			e7831090	0	0.04355	118	Polyline	404	4		
40	GARNET	AV	GARNET A	Lane	Lane	2	2	0	0	9	9	35	35 Low	Low	0	0			None	None	None	None	None	None	Yes			2d1f497f-i	0	0.02811	119	Polyline	715	4		
40	GARNET	AV	GARNET A	Bus	Bus	2	2	0	0	9	9	35	35 Low	Low	0	0			None	None			None	None	Yes			efbc5a0a-i	0	0.01075	120	Polyline	716	4		
40	GARNET	AV	GARNET A	Lane	Route	2	2	0	0	6	0	35	35 Low	Low	0	0			None	None			None	None	Yes			5994d73f-	0	0.07382	121	Polyline	608	4		
40	GARNET	AV	GARNET A	Bus	Bus	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			41b2f85f-i	0	0.00859	122	Polyline	120	4		
40	GARNET	AV	GARNET A	Bus	Route	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			0c025638	0	0.02402	123	Polyline	121	4		
40	GARNET	AV	GARNET A	Bus	Route	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			58af9363-	0	0.01112	124	Polyline	405	4		
40	GARNET	AV	GARNET A	Bus	Route	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None			None	None	Yes			782ca079-	0	0.07295	125	Polyline	607	4		
40	GARNET	AV	GARNET A	Lane	Route	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None	None	None	None	None	Yes			0df2aa0a-	0	0.03064	126	Polyline	618	4		
25	GARNET	AV	GARNET A	Bus	Route	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None			None	None	Yes			8c2ab806-	0	0.00997	127	Polyline	665	4		
25	GARNET	AV	GARNET A	Lane	Lane	3	3	0	0	6	0	35	35 Low	Low	0	0			None	None			None	None	Yes			de77b70b	0	0.07887	128	Polyline	834	4		
25	GARNET	AV	GARNET A	Lane	Lane	3	3	0	0	10	0	35	35 Low	Low	0	0			None	None			None	None	Yes			eab15a99-	0	0.03266	129	Polyline	652	4		
35	MORENA	BL	MORENA I	None	Track	2	2	8	0	12	0	47	52 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			eff2bbcb-i	99	0.19203	130	Polyline	150	C		
30	MISSION	EDR	MISSION E	Lane	Lane	2	2	0	0	6	6	38	42 Low	Low	0	0			None	None			None	None	Yes			36be50dc-	0	0.08559	131	Polyline	789	4		
0			Trail	Trail	Trail	0	0	0	0	0	0	0	0					0	0										0	0	0	0	0			
30	GRAND	AV	GRAND A\	Lane	Lane	2	2	0	0	5	5	43	45 Low	Low	0	0	None	None	Straight	Straight	N/A	N/A	None	None	Yes	N/a		a50af843-	0	0.28495	29	Polyline	130	4		
20	SANTA FE	ST	SANTA FE	Route	Route	1	1	0	8	0	0	40	40 Low	Low	0	0	None	None	None	None			None	None	Yes			34962242	0	0.44272	59	Polyline	654	L		
0						0	0	0	0	0	0	0	0					0	0									0	0	0	0	0				
20	SANTA FE	ST	ANTA FE S	Route	Route	1	1	0	8	0	0	40	40 Low	Low	0	0	None	None	None	None			None	None	Yes			34962242	0	0.44272	59	Polyline	654	L		
20	SANTA FE	ST	ANTA FE S	Track	None	1	1	0	0	0	0	40	40 Low	Low	0	0	None	None	None	None			None	None	Yes			46ee3219	0	0.02722						
35	MORENA	BL	MORENA B	Track	None	2	2	8	0	0	0	47	52 Low	Low	0	0			None	None			None	None	Yes			ccb45d28	99	0.14264						
35	MORENA	BL	MORENA B	Track	None	2	2	8	0	0	0	47	52 Low	Low	0	0			None	None	Stop	N/A	None	None	Yes			b37469ce-	99	0.31808						
35	MORENA	BL	MORENA B	Track	None	2	2	8	0	0	0	47	52 Low	Low	0	0			None	None			None	None	Yes			bb5c3a44	0	0.04421						
20	UNKER HIL	ST	NKER HILL	Lane	Lane	1	1	0	0	6	6	25	25 Low	Low	0	0	None	None	None	None	Stop	Signal	None	None	Yes	Signal		0739d716	198	0.06879						
20	UNKER HIL	ST	NKER HILL	Lane	Lane	1	1	0	0	6	6	25	25 Low	Low	0	0	None	None	None	None			None	None	Yes			f4964da9-	198	0.0378						
20	UNKER HIL	ST	NKER HILL	Lane	Lane	1	1	0	0	6	6	25	25 Low	Low	0	0	None	None	None	None			None	None	Yes			34463382	198	0.03219						
35	BALBOA	AV	3ALBOA A\	Lane	Lane	2	2	0	0	9	9	50	49 Low	Low	0	0			None	None	N/A	Signal	None	None	Yes			27013e9e	0	0.05073						
35	BALBOA	AV	3ALBOA A\	Lane	Lane	2	2	0	0	9	9	50	49 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			b8b1d6ff-i	0	0.00227						
35	BALBOA	AV	3ALBOA A\	Lane	Lane	2	2	0	0	9	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			67ae63eb	0	0.00583						
35	BALBOA	AV	3ALBOA A\	Lane	Lane	2	2	0	0	9	9	50	49 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			4d755c76-	0	0.12184						
35	BALBOA	AV	3ALBOA A\	Lane	Lane	2	2	0	0	9	9	50	49 Low	Low	0	0			None	None	Signal	N/A	None	None	Yes			1536b8f5-	0	0.07184						
35	BALBOA	AV	3ALBOA A\	Lane	Lane	2	2	0	0	9	9	50	49 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			98400f88-	0	0.08258						
40	GARNET	AV	GARNET A\	Lane	Lane	2	2	0	0	9	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			f989a973-	0	0.02379						
40	GARNET	AV	GARNET A\	Lane	Lane	2	2	0	0	9	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			e7831090	0	0.04355						
40	GARNET	AV	GARNET A\	Lane	Lane	2	2	0	0	9	9	35	35 Low	Low	0	0			None	None			None	None	Yes			2d1f497f-i	0	0.02811						
40	GARNET	AV	GARNET A\	Lane	Lane	2	2	0	0	9	9	35	35 Low	Low	0	0			None	None			None	None	Yes			efbc5a0a-i	0	0.01075						
40	GARNET	AV	GARNET A\	Lane	Route	2	2	0	0	6	0	35	35 Low	Low	0	0			None	None			None	None	Yes			5994d73f-	0	0.07382						
40	GARNET	AV	GARNET A\	Lane	Lane	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			41b2f85f-i	0	0.00859						
40	GARNET	AV	GARNET A\	Lane	Lane	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			0c025638	0	0.02402						
40	GARNET	AV	GARNET A\	Lane	Lane	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			58af9363-	0	0.01112						
40	GARNET	AV	GARNET A\	Lane	Lane	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None			None	None	Yes			-4422-942i	0	0.07295						
40	GARNET	AV	GARNET A\	Lane	Lane	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None			None	None	Yes			4b4f-857d	0	0.03064						
25	GARNET	AV	GARNET A\	Lane	Lane	2	2	0	0	6	9	35	35 Low	Low	0	0			None	None			None	None	Yes			4d17-8789	0	0.00997						
25	GARNET	AV	GARNET A\	Lane	Route	2	2	0	0	6	0	35	35 Low	Low	0	0			None	None			None	None	Yes			-4baa-8e8z	0	0.07887						
25	GARNET	AV	GARNET A\	Lane	Route	2	2	0	0	10	0	35	35 Low	Low	0	0			None	None			None	None	Yes			-4cdc-9f33	0	0.03266						
35	MORENA	BL	MORENA B	Track	None	2	2	8	0	12	0	47	52 Low	Low	0	0			None	None	N/A	N/A	None	None	Yes			4860-83c5	99	0.19203						
30	MISSION	BA	SSION BAY	Lane	Lane	2	2	0	0	6	6	38	42 Low	Low	0	0			None	None			None	None	Yes			4412-ac68	0	0.08559						

NEWAY_SEG	CLASS	SPEED_1	RD20PREI	RD20NAN	RD20SF_X	RD20FULL	EBNB_Bik	WBSB_Bik	EBNB_Lar	WBSB_Lar	EBNB_Par	WBSB_Par	EBNB_BL	WBSB_BL	EBNB_Spc	WBSB_Sp	EBNB_Blo	WBSB_Blc	EBNB_RT	WBSB_RT	EBNB_RT	WBSB_RT	EBNB_Poc	WBSB_Po	EBNB_Cro	WBSB_Crc	EBNB_Me	WBSB_Mk	Study_Ar	EBNB_Cro	WBSB_CrcF	Class_1	GlobalID	Parking	Notes_1	Miles_1	EBNB_2_1	EBNB_2_2	
F	4	35	MORENA	BL	MORENA	I	Lane	Lane	2	2	0	0	0	0	47	52	Low	Low	0	0			None	None	N/A	N/A	None	None	Yes					9765240e	0	0.04408			
	5	25	MORENA	I	RA	MORENA	I	None	None	1	1	0	0	0	0	99	99	Low	Low	0	0			None	None	N/A	N/A	None	None	Yes					55a1a218	0	0.02161		
	4	35	MORENA	BL	MORENA	I	Lane	Lane	2	2	0	0	0	0	47	52	Low	Low	0	0			None	None	N/A	N/A	None	None	Yes					16d4c8b7	0	0.01546			
	3	30	GRAND	AV	GRAND	A	I	Lane	Lane	2	2	0	7	5	5	43	45	Low	Low	0	0	None	None	Straight	Straight	Stop	N/A	None	None	Yes					bbea67b0	99	0.03262		
	4	35	MORENA	BL	MORENA	I	Lane	Lane	2	2	0	0	0	0	47	52	Low	Low	0	0			None	None	N/A	N/A	None	None	Yes					1955858d	0	0.03536			
F	4	35	MORENA	BL	MORENA	I	Lane	Lane	2	2	0	0	0	0	42	47	Low	Low	0	0			None	None	Signal	N/A	None	None	Yes					edf82af0-	0	0.04148			
	5	20	DEL REY	ST	DEL REY	S	None	None	1	1	8	8	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	Uncontrol	None	None	Yes					3a4d98d3	198	0.09893			
	5	25	MORENA	I	RA	MORENA	I	Lane	Lane	1	1	0	0	0	0	99	99	Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes					a47fb390-	0	0.16957		
	5	20	FIGUEROA	BL	FIGUEROA	None	None	None	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes	N/a	N/a			306f956f-	198	Trail conn	0.09497		
	4	35	MORENA	BL	MORENA	I	Lane	Lane	2	2	0	0	0	0	42	47	Low	Low	0	0			None	None	N/A	Signal	None	None	Yes					d8a3b9e5	0	0.06361			
F	5	20	GLENDOR	ST	GLENDOR	None	None	None	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	Stop	None	None	Yes					a5b62665	198	0.03253			
	4	35	MORENA	BL	MORENA	I	Lane	Lane	2	2	0	0	0	0	42	47	Low	Low	0	0			None	None	N/A	N/A	None	None	Yes					560d0f32-	0	0.03372			
	5	25	MORENA	I	RA	MORENA	I	None	None	1	1	0	0	0	0	99	99	Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes					71511c9f-	0	0.07562		
	5	20	DAMON	AV	DAMON	A			1	1	0	0	0	0	31	31	Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes					08b4c264	0	0.03301			
	5	30	DAMON	AV	DAMON	A			1	1	0	0	0	0	31	31	Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes					80373fe9-	0	0.00839			
	4	35	MORENA	BL	MORENA	I	Lane	Lane	2	2	0	0	0	0	47	52	Low	Low	0	0			None	None	N/A	N/A	None	None	Yes					7bdfa84a-	0	0.02064			
	5	20	HORNBLEI	ST	HORNBLEI	None	None	None	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	Uncontrol	N/A	None	None	Yes					11051d14	198	0.05742			
	5	20	HORNBLEI	ST	HORNBLEI	None	None	None	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	Uncontrol	None	None	Yes	N/A	Uncontrol			5e65229c-	198	0.0328			
	3	30	GRAND	AV	GRAND	A	I	Lane	Lane	2	2	0	0	5	5	43	45	Low	Low	0	0	None	None	Straight	Straight	N/A	N/A	None	None	Yes					80b41365	0	0.14086		
	5	20	DEL REY	ST	DEL REY	S	None	None	None	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None		N/A	None	None	Yes					4070043a	198	0.10622		
	3	30	GRAND	AV	GRAND	A	I	Lane	Lane	2	2	0	0	5	5	43	45	Low	Low	0	0	None	None	Straight	Straight			None	None	Yes					8ebddf6d-	99	0.06878		
	3	30	MISSION	E	DR	MISSION	E	None	None	2	2	0	0	0	0	45	45	Low	Low	0	0			None	None			None	None	Yes					54200b50	0	0.09295		
	5	20	GLENDOR	ST	GLENDOR	None	None	None	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None			None	None	Yes					48c94d49	198	0.03117			
	5	20	ROSEWOC	ST	ROSEWOC	None	None	None	1	1	99	99	0	0	25	25	Low	Low	0	0	None	None	None	None			None	None	Yes					70aaba7b	198	Not a roac	0.0244		
	5	20	ROSEWOC	ST	ROSEWOC	None	None	None	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None			None	None	Yes					248933bf-	198	0.03169			
	5	20	REVERE	AV	REVERE	A	None	None	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None			None	None	Yes					03d40a68	198	0.07547			
	5	20	DAMON	AV	DAMON	A			1	1	0	0	0	0	31	31	Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes	Stop				54131aa6-	0	0.03626			
	3	30	GRAND	AV	GRAND	A	I	Lane	None	1	2	0	0	5	0	43	45	Low	Low	0	0	None	None	Straight	None			None	None	Yes					21b94b85	0	0.10386		
	4	35	MORENA	BL	MORENA	I	Lane	Lane	2	2	0	0	0	0	42	47	Low	Low	0	0			None	None			None	None	Yes					db663336	0	0.21021			
	4	35	MORENA	BL	MORENA	I	Lane	Lane	2	2	0	0	0	0	42	47	Low	Low	0	0			None	None			None	None	Yes					f708c3ec-	0	0.04285			
	5	20	HORNBLEI	ST	HORNBLEI	None	None	None	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/a	N/a	None	None	Yes										

EBNB_2_3	EBNB_2_4	EBNB_3_1	EBNB_3_2	EBNB_3_3	EBNB_3_4	EBNB_4_1	EBNB_5_1	EBNB_6_1	EBNB_7_1	EBNB_8_1	EBNB_Seq	EBNB_Int	EBNB_Tot	WBSB_2_1	WBSB_2_2	WBSB_2_3	WBSB_2_4	WBSB_3_1	WBSB_3_2	WBSB_3_3	WBSB_3_4	WBSB_4_1	WBSB_5_1	WBSB_6_1	WBSB_7_1	WBSB_8_1	WBSB_Seq	WBSB_Int	WBSB_To	Network	EBNB_Bik	WBSB_Bike2	
		2	1	3	1	0					3							2	1	3	1	0					3						
		2	1	1	1	1	0				1							1	1	1	1	1					2						
		1	1	1	1	1	1				0							1	1	1	1	1					1						
		2	2	1	1	0					2			3	3	4	1					0					3			EXISTING			
		1	1	1	1	1	1				0							1	1	1	1	1					1						
		2	1	3	1	0					3							2	1	3	1	0					3						
		0	0			1					1											1					1						
		1	1	1	1	0					1							2	1	1	1	0					2						
		0	0			1					1											1					1						
		2	1	3	1	0					3							2	1	3	1	0					3						
		0	0			1					1											1					1						
		2	1	3	1	0					3							2	1	3	1	0					3						
		0	0			1					1											1					1						
		2	1	1	1	0					1							1	1	1	1	1					2						
		0	0			0					0											0					1						
		0	0			3					0											3					1						
		2	1	3	1	0					3							2	1	3	1	0					3						
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		2	1	3	1	0					3							2	1	3	1	0					3						
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		0	0			4					4							2	1	1	1	0					2			Shared-Us			
		2	1	3	1	0					3							2	1	3	1	0					3						
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EBNB_2_	EBNB_2_4	EBNB_3_1	EBNB_3_2	EBNB_3_3	EBNB_3_4	EBNB_4_1	EBNB_5_1	EBNB_6_1	EBNB_7_1	EBNB_8_1	EBNB_Seq	EBNB_Int	EBNB_Tot	WBSB_2_	WBSB_2_	WBSB_2_	WBSB_2_	WBSB_3_	WBSB_3_	WBSB_3_	WBSB_3_	WBSB_3_	WBSB_4_	WBSB_5_	WBSB_6_	WBSB_7_	WBSB_8_	WBSB_Set	WBSB_Int	WBSB_To	Network	EBNB_Bik	WBSB_Bike2		
2	1	3	1	0							3							2	1	3	1	0						3							
2	1	4	1	0							3							2	1	4	1	0						4					Shared-Use		
2	1	3	1	0							3							2	1	3	1	0						4					Shared-Use		
2	1	4	1	0							4							2	1	4	1	0						4							
2	1	1	1	0							3							0	0	0	0	4						4					Shared-Use		
2	1	1	1	0							3							0	0	0	0	4						4					Shared-Use		
2	1	3	1	0							3							0	0	0	0	4						4					Shared-Us Shared-Use		
2	1	3	1	0							3							0	0	0	0	4						4					Shared-Use		
2	1	3	1	0							3							0	0	0	0	4						4					Shared-Us Shared-Use		
2	1	3	1	0							3							0	0	0	0	4						4					Shared-Us Shared-Use		
2	1	3	1	0							3							0	0	0	0	4						4					Shared-Us Shared-Use		
2	1	3	1	0							3							2	1	3	1	4						4					Shared-Us Shared-Use		
2	1	3	1	0							3							2	1	3	1	4						4					Shared-Us Shared-Use		
2	1	3	1	0							3							2	1	3	1	4						4					Shared-Us Shared-Use		
2	1	3	1	0							3							2	1	3	1	4						4					Shared-Us Shared-Use		
3	1	3	1	3							3							3	1	3	1	0						3							
3	1	3	1	3							3							3	1	3	1	0						3							
1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
2	1	3	1	0							2							2	1	4	1	0						3						Shared-Us	
1	1	1	1	0							1							1	1	1	1	0						1							
2	2	1	1	0							2							2	3	2	1	0						3						EXISTING	
0	0			4							4											4						4						EXISTING	
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0	0			4							4											4						4						EXISTING	
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