BALBOA AVENUE STATION AREA SPECIFIC PLAN

Transportation Impact Study

DECEMBER 2017

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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 Bluffside Avenue*
- *Provide a shared-use path along both sides of Garnet Avenue, east of Mission Bay Drive*
- *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 both sides of Garnet Avenue east of Mission Bay Drive to Santa Fe Street and along the north side from Santa Fe Drive to Moraga Avenue.*
- *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 the addition of a second westbound left turn lane, the widening of Garnet Avenue between Soledad Mountain Road and Mission Bay Drive to six lanes, and have 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.* T*his 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.*

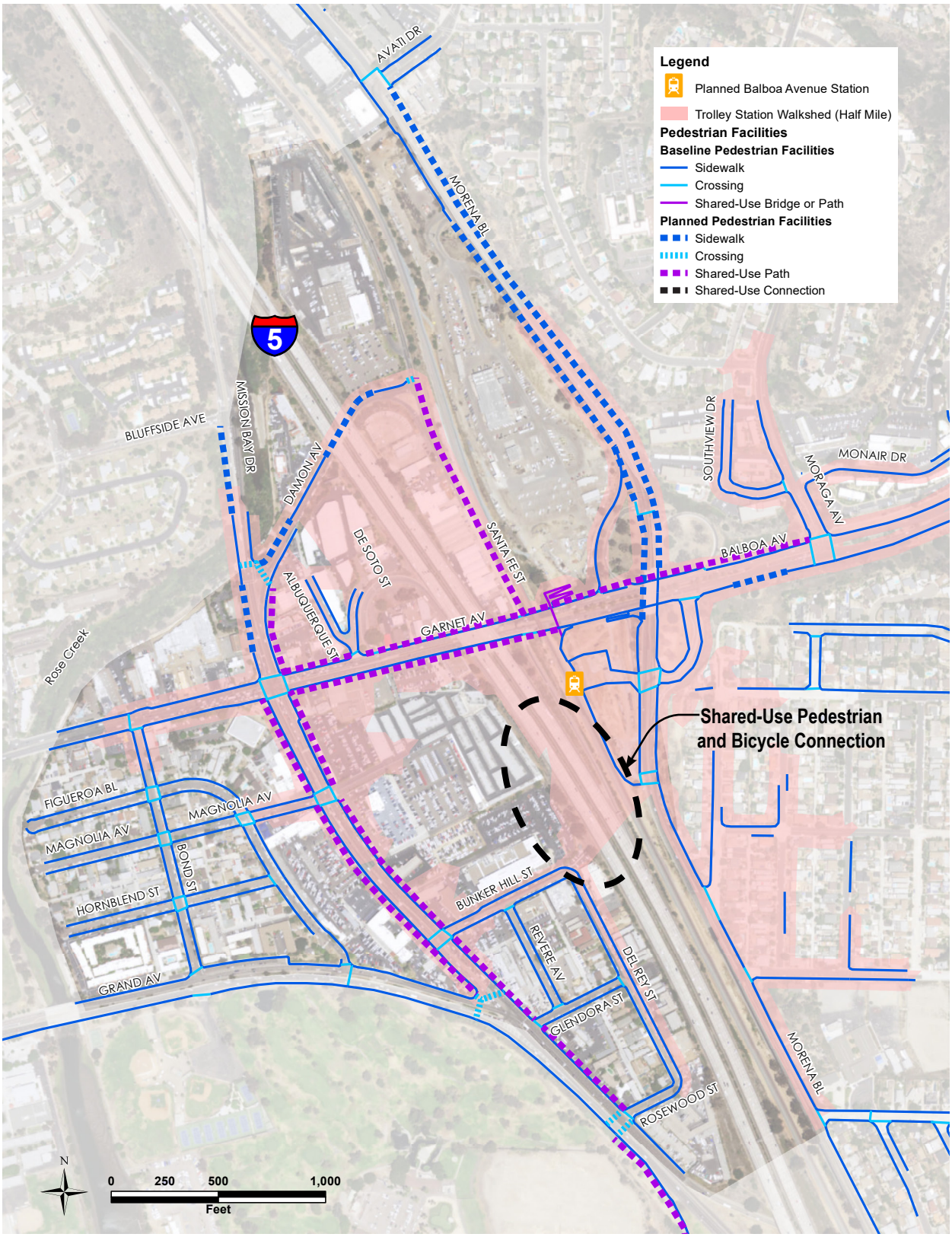


Figure E-1
Future Planned Pedestrian Network and Station Walkshed

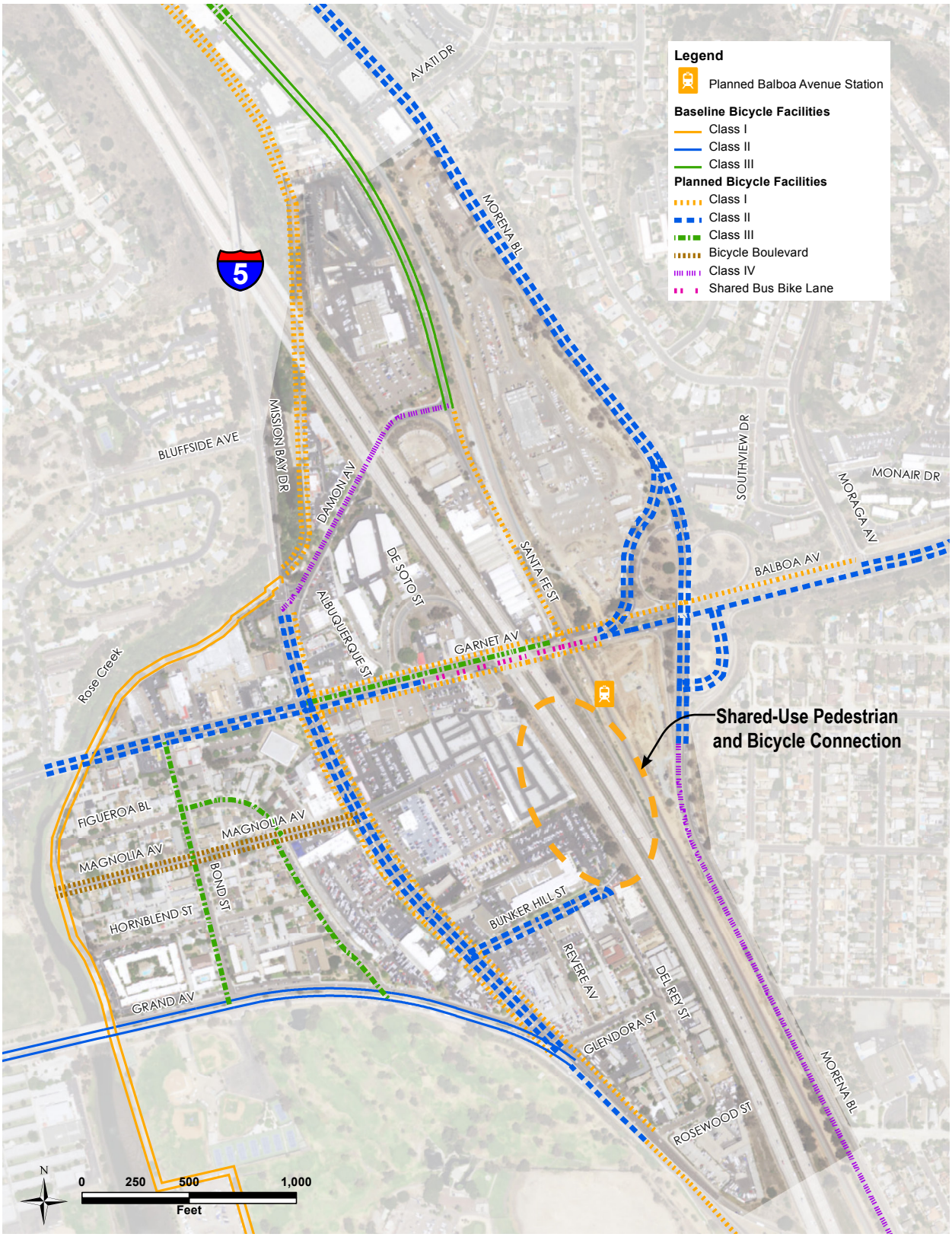


Figure E-2
Future Planned Bicycle Facilities



Figure E-3
Mission Bay Drive at Damon Avenue



Figure E-4
Mission Bay Drive at Garnet Avenue



Figure E-5
Balboa Avenue



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

CONTENTS

1 INTRODUCTION 1-1

2 SPECIFIC PLAN AREA FACILITIES AND ANALYSIS SCENARIOS 2-1

3 METHODOLOGY 3-1

4 EXISTING CONDITIONS 4-1

5 ACTIVE TRANSPORTATION: WALKABLE COMMUNITY 5-1

6 ACTIVE TRANSPORTATION: BICYCLING 6-1

7 PUBLIC TRANSIT 7-1

8 FUTURE YEAR VEHICLE NETWORK 8-1

FUTURE ADOPTED COMMUNITY PLAN ANALYSIS 8-3

FUTURE PREFERRED SPECIFIC PLAN ANALYSIS 8-21

FUTURE REDUCED SPECIFIC PLAN ANALYSIS 8-45

9 SUMMARY OF SCENARIOS 9-1

APPENDICES

Appendix A ….. Traffic Count and Freeway Data

Appendix B ….. Existing Conditions Analysis Supporting Information

Appendix C …..Future Year Model Information

Appendix D ….. Future Year Volume Estimates

Appendix E ….. Adopted Future Conditions Analysis Supporting Information

Appendix F ….. Intersection Mitigations

Appendix G ….. Mitigated Adopted Future Conditions Analysis Supporting Information

Appendix H ….. Preferred Future Conditions Analysis Supporting Information

Appendix I ….. Mitigated Preferred Future Conditions Analysis Supporting Information

Appendix J ….. Reduced Future Conditions Analysis Supporting Information

Appendix K ….. Mitigated Reduced Future Conditions Analysis Supporting Information

Appendix L ….. Active Transportation Analysis Data

FIGURES

Figure 1-1 Regional Project Vicinity 1-2

Figure 1-2 Specific Plan Area Boundary 1-3

Figure 2-1 Specific Plan Area: Intersections 2-3

Figure 2-2 Specific Plan Area: Roadway Segments and Corridors 2-4

Figure 4-1 Existing Intersection Geometrics 4-5

Figure 4-2 Existing Peak Period Volumes 4-7

Figure 4-4 Existing Pedestrian Walkshed 4-18

Figure 4-5 Existing Bicycle Network 4-22

Figure 4-6 Existing BLTS Results 4-24

Figure 4-7 Existing Parking Supply 4-25

Figure 5-1 Future Planned Pedestrian Network and Station Walkshed 5-3

Figure 5-2 Future Planned PEQE Analysis Results 5-4

Figure 6-1 Future Planned Bicycle Facilities 6-4

Figure 6-2 Future Planned BLTS Results 6-5

Figure 7-1 Transit Network Summary 7-2

Figure 7-2 Existing Transit Routes – Route 27 7-3

Figure 7-3 Existing Transit Routes – Route 30 7-4

Figure 8-1 Future Adopted Community Intersection Geometrics 8-4

Figure 8-2 Future Adopted Community Plan Peak Period Volumes 8-6

Figure 8-3 Preferred Specific Plan Projects: Mission Bay Drive at Damon Avenue 8-22

Figure 8-4 Preferred Specific Plan Projects: Mission Bay Drive at Garnet Avenue 8-23

Figure 8-5 Preferred Specific Plan Projects: Balboa Avenue 8-24

Figure 8-6 Preferred Specific Plan Projects: Mission Bay Drive at Grand Avenue 8-25

Figure 8-7 Preferred Specific Plan Projects: Mission Bay Drive between Damon Avenue and Rosewood Street 8-26

Figure 8-8 Future Preferred Specific Plan Intersection Geometrics 8-27

Figure 8-9 Future Preferred Specific Plan Peak Period Volumes 8-29

Figure 8-10 Future Reduced Specific Plan Peak Period Volumes 8-46

TABLES

Table 2-1 Study Intersections 2-1

Table 3-1 Pedestrian Environment Quality Evaluation Scoring Criteria 3-2

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

Table 3-3 Criteria for Bike Lanes Not Alongside a Parking Lane 3-4

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

Table 3-5 Level of Traffic Stress Criteria for Pocket Bike Lanes 3-4

Table 3-6 Level of Traffic Stress Criteria for Mixed Traffic in the Presence of a Right-turn Lane 3-5

Table 3-7 Level of Traffic Stress Criteria for Unsignalized Crossings Without a Median Refuge 3-5

Table 3-8 Level of Traffic Stress Criteria for Unsignalized Crossings with a Median Refuge at Least Six Feet Wide 3-5

Table 3-9 LOS Criteria for Intersections 3-7

Table 3-10 City of San Diego Roadway Segment Capacity and LOS Summary 3-8

Table 3-11 HCM 2000 Urban Street LOS Criteria 3-9

Table 3-12 HCM 2010 Freeway Segment LOS Criteria 3-10

Table 3-13 Significance Criteria For Facilities in Specific Plan Area 3-12

Table 4-1 Existing Roadway Network 4-2

Table 4-2 Existing Intersection Analysis Results 4-9

Table 4-3 Existing Volume-Based Roadway Segment Analysis Results 4-11

Table 4-4 Existing Speed-Based Corridor Analysis Results 4-13

Table 4-5 Existing Freeway Segment Analysis Results 4-14

Table 4-6 Existing Freeway Ramp Meter Analysis Results 4-15

Table 4-5 Regional Bicycle Facility Classifications 4-20

Table 4-6 Additional Bicycle Facility Classifications 4-21

Table 4-7 Existing Bicycle Facility Quality within Specific Plan Area 4-23

Table 5-1 Pedestrian Half Mile Walk from Station on Medium or High Quality Pedestrian Facilities Evaluation 5-2

Table 6-1 Proposed Bicycle Facility Quality within Specific Plan Area 6-3

Table 7-1 Garnet Avenue/ Balboa Avenue Future Travel Time Summary 7-5

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

Table 8-2 Preferred Land Use Community Trip Generation for Preferred Future Year Build-out 8-1

Table 8-3 Reduced Land Use Community Trip Generation for Reduced Future Year Build-out 8-1

Table 8-4 Future Adopted Community Plan Intersection Analysis Summary 8-8

Table 8-5 Future Adopted Community Plan Volume-Based Roadway Segment Analysis Summary 8-10

Table 8-6 Future Adopted Community Plan Speed-Based Corridor Analysis Summary 8-12

Table 8-7 Future Adopted Community Plan Freeway Segment Analysis Summary 8-13

Table 8-8 Future Adopted Community Plan Freeway Ramp Meter Analysis Summary 8-13

Table 8-9 Future Adopted Community Plan with Recommended Mitigation Intersection Analysis Summary 8-19

Table 8-10 Future Adopted Community Plan with Recommended Mitigation Roadway Segment Analysis Summary 8-20

Table 8-11 Future Preferred Specific Plan Intersection Analysis Summary 8-31

Table 8-12 Future Preferred Specific Plan Volume-Based Roadway Segment Analysis Summary 8-34

Table 8-13 Future Preferred Specific Plan Speed-Based Corridor Analysis Summary 8-36

Table 8-14 Future Preferred Specific Plan Freeway Segment Analysis Summary 8-37

Table 8-15 Future Preferred Specific Plan Freeway Ramp Meter Analysis Summary 8-37

Table 8-16 Future Preferred Specific Plan with Recommended Mitigation Intersection Analysis Summary 8-43

Table 8-17 Future Preferred Specific Plan with Recommended Mitigation Roadway Segment Analysis Summary 8-44

Table 8-18 Future Reduced Specific Plan Intersection Analysis Summary 8-48

Table 8-19 Future Reduced Specific Plan Volume-Based Roadway Segment Analysis Summary 8-50

Table 8-20 Future Reduced Specific Plan Speed-Based Corridor Analysis Summary 8-52

Table 8-21 Future Reduced Specific Plan Freeway Segment Analysis Summary 8-54

Table 8-22 Future Preferred Specific Plan Freeway Ramp Meter Analysis Summary 8-54

Table 8-23 Future Reduced Specific Plan with Recommended Mitigation Intersection Analysis Summary 8-61

Table 8-24 Future Reduced Specific Plan with Recommended Mitigation Roadway Segment Analysis Summary 8-62

Table 9-1 Future Intersection Analysis Summary..... 9-2

Table 9-2 Future Volume-Based Roadway Segment Analysis Summary 9-6

Table 9-3 Future Freeway Segment Analysis Summary..... 9-9

Table 9-4 Future Freeway Ramp Meter Analysis Summary..... 9-9

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.

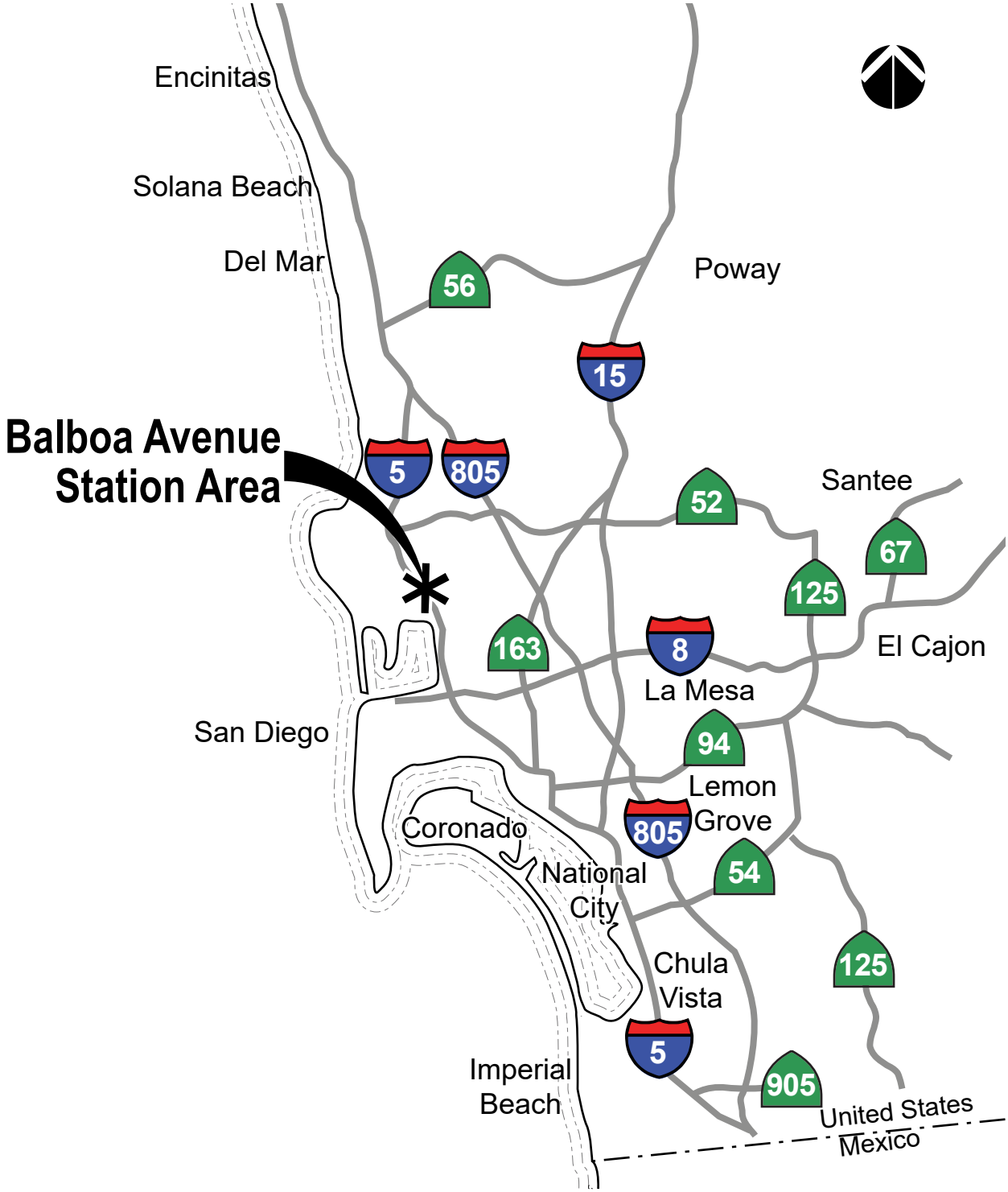


Figure 1-1
Regional Project Vicinity



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
1	Garnet Ave at Olney St
2	Garnet Ave at Balboa Ave
3	Garnet Ave at Soledad Mountain Rd
4	Garnet Ave at Bond St
5	Garnet Ave at Mission Bay Dr
6	Garnet Ave at Santa Fe St
7	Balboa Ave at Morena Blvd NB Ramps
8	Balboa Ave at Moraga Ave
9	Balboa Ave at Clairemont Dr
10	Balboa Ave at Olney St
11	Grand Ave at Olney St
12	Grand Ave at Culver St
13	Grand Ave at Lee St
14	Grand Ave at Figueroa Blvd
15	Grand Ave at Mission Bay Dr

ID	Intersection
16	Mission Bay Dr at Bluffside Ave
17	Mission Bay Dr at Damon Ave
18	Mission Bay Dr at Magnolia Ave
19	Mission Bay Dr at Bunker Hill St
20	Mission Bay Dr at Rosewood St
21	Santa Fe St at Damon Ave
22	Morena Blvd at Jutland Dr
23	Morena Blvd at Costco Dwy
24	Morena Blvd at Avati Dr
25	Morena Blvd at WB Balboa Ave Ramps
26	Morena Blvd at EB Balboa Ave Ramps
27	Morena Blvd at Baker St
28	Morena Blvd at Gesner St
29	Balboa Ave at Morena Blvd SB Ramps

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

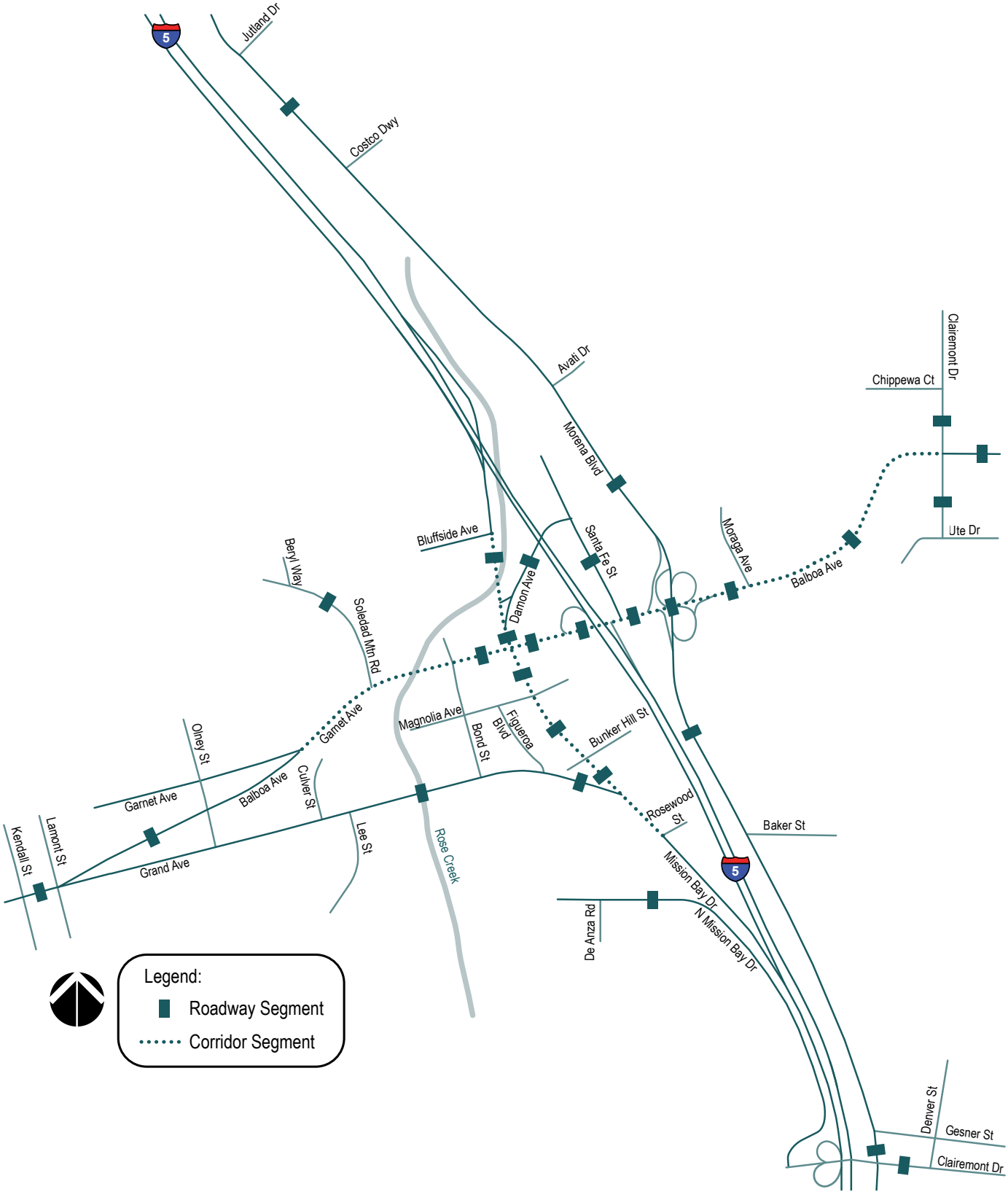


Figure 2-2
Specific Plan Area: Roadway Segments and Corridors

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 *between two intersections*	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	• 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	• 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 ≤ 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 ≥ 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	60,0000	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.

[1]Cross 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	• 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	• 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	• 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	• 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	• 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	• 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	• 2 WB lanes/ 2 EB lanes • Raised center median • No on-street parking • Class II (Bike Lane) facility	45	6-Lane Major	No

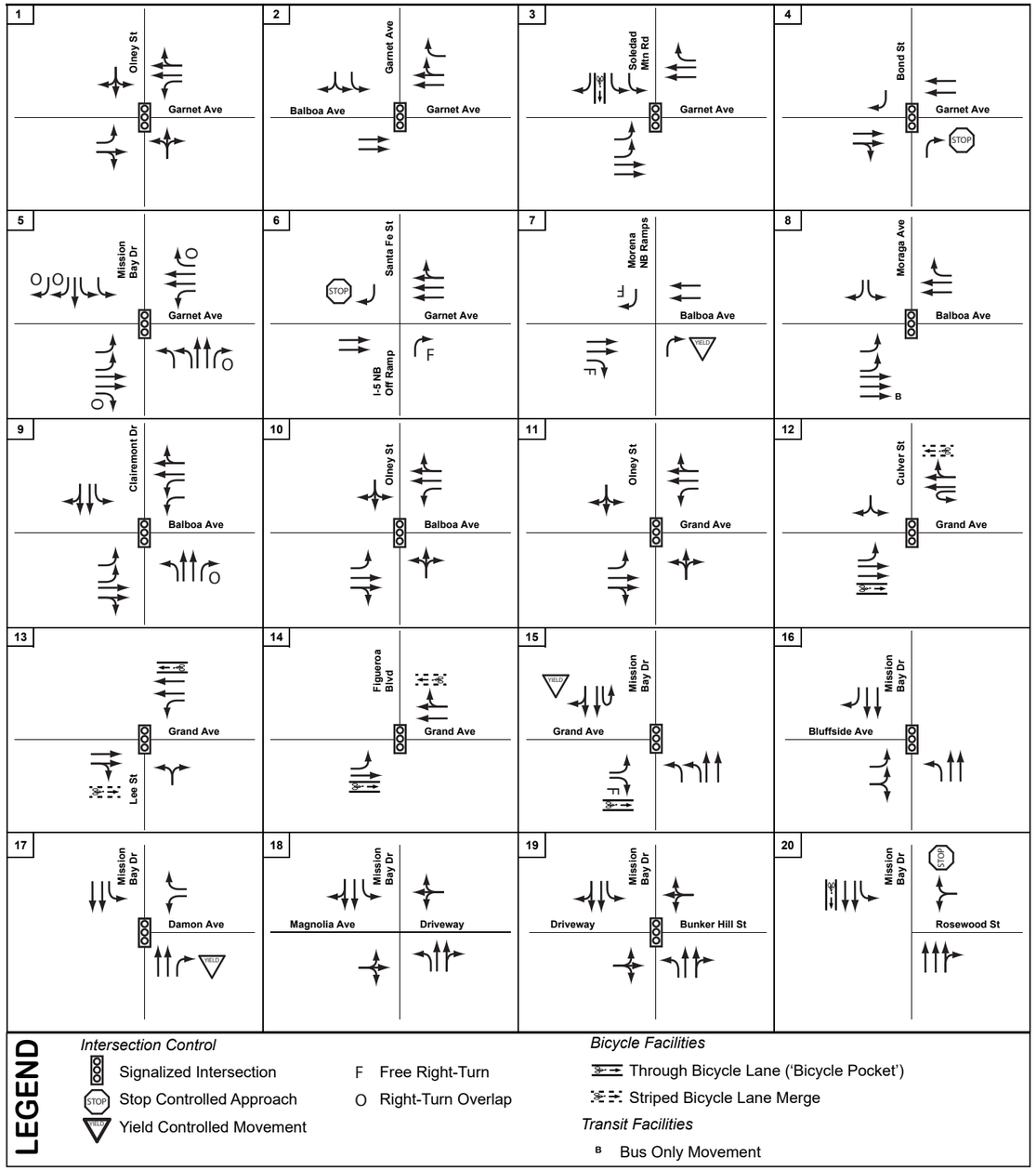
Table 4-1 Existing Roadway Network (Cont.)

Roadway Segment	Current Cross Section	Speed Limit (mph)	Community Plan Classification	Built to Ultimate?
Mission Bay Drive				
Bluffside Ave to Rosewood St	• 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	• 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	• 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	• 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	• 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	• 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	• 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	• 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	• 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	• 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	• 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



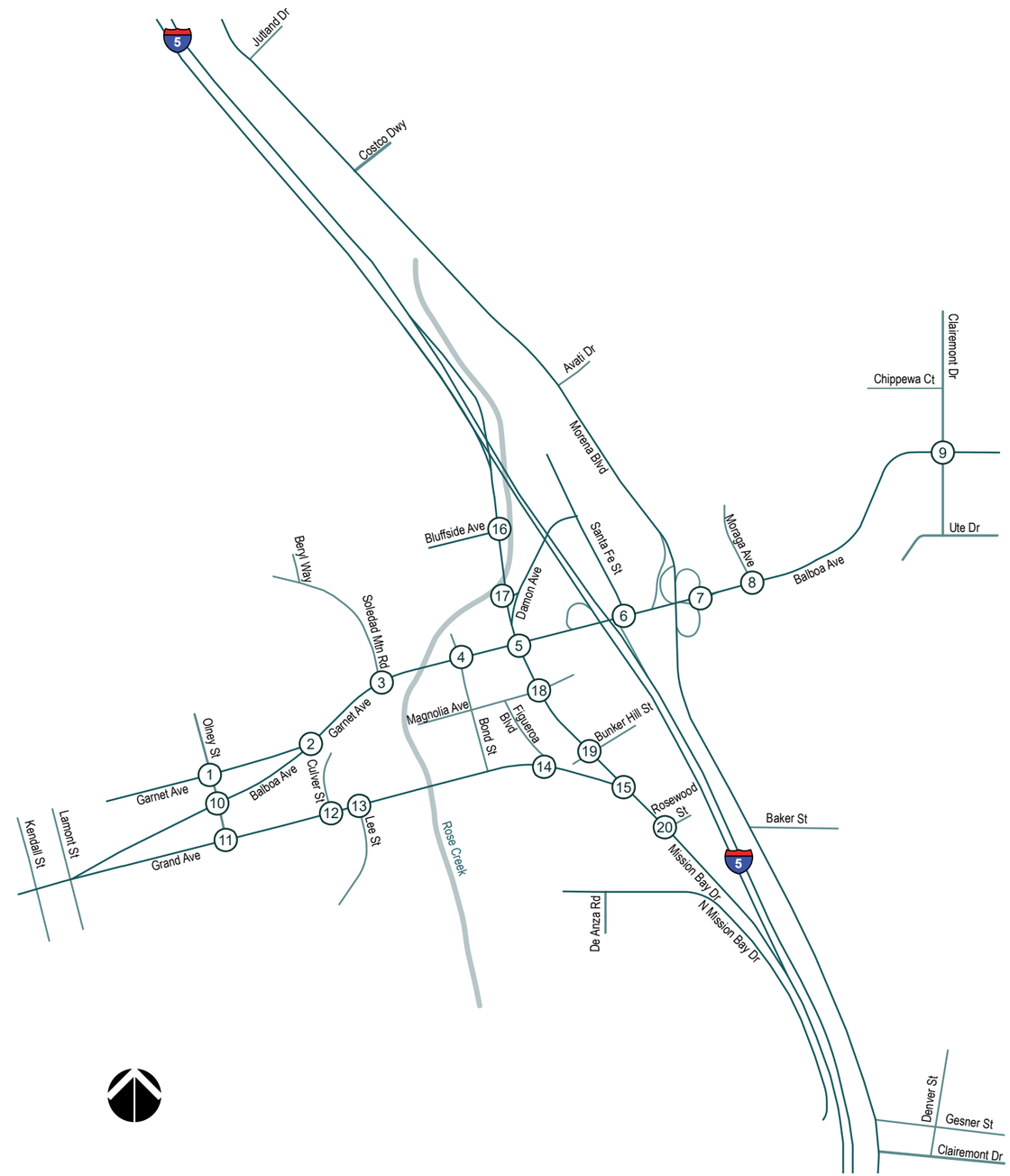
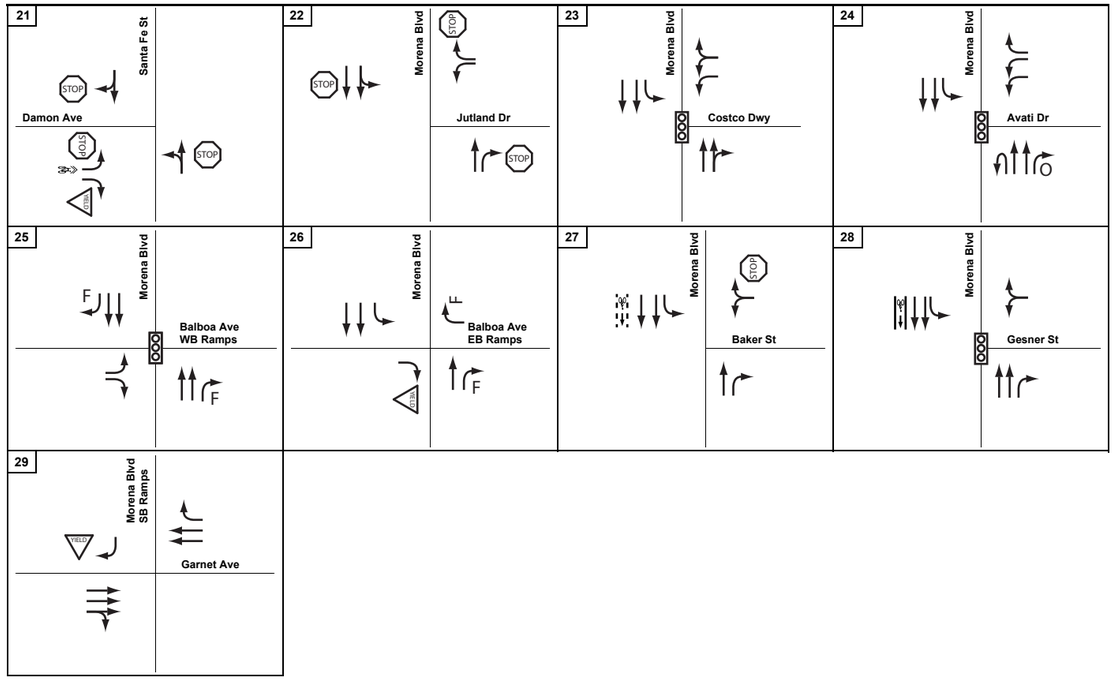
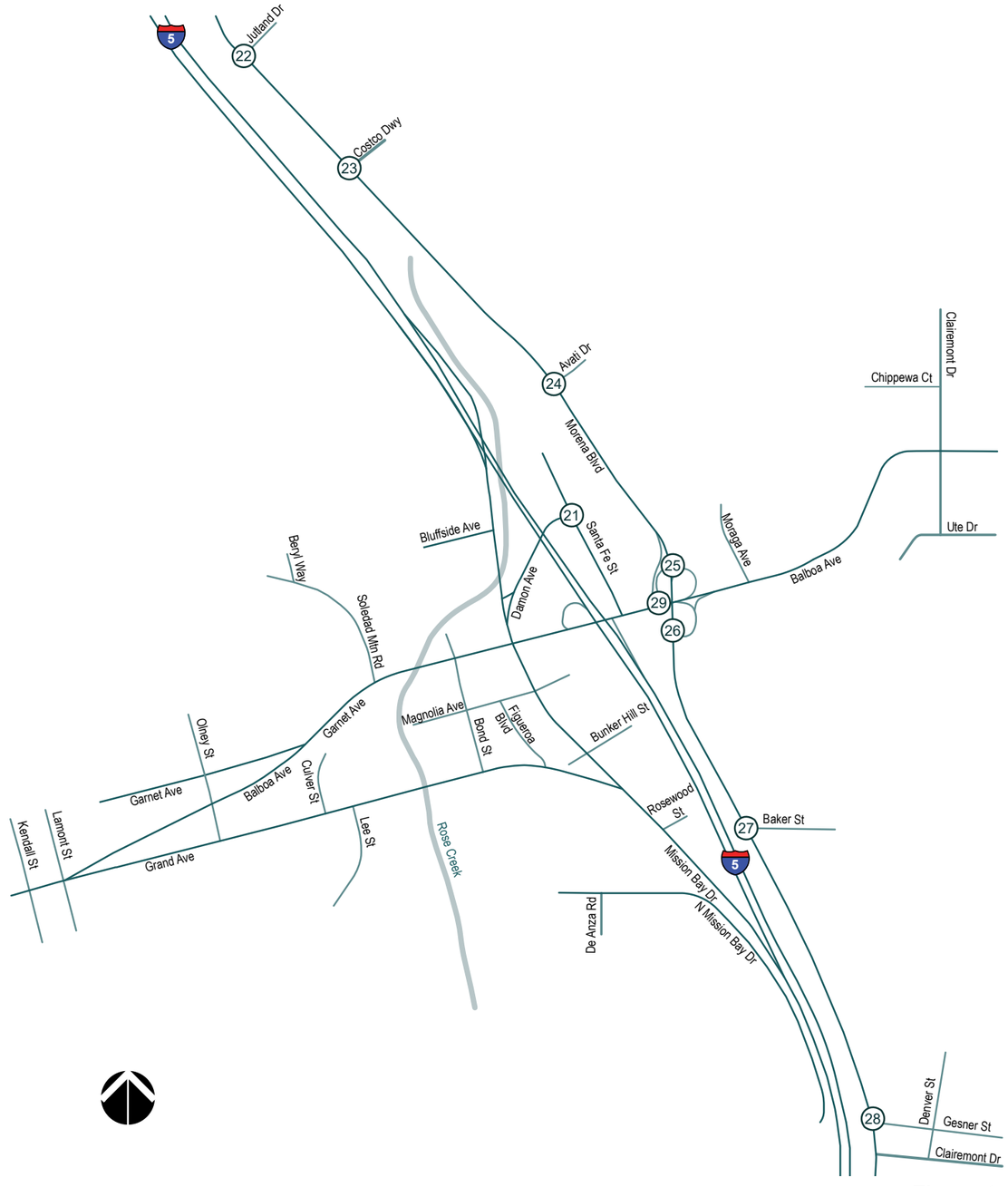


Figure 4-1
Existing Intersection Geometrics





LEGEND

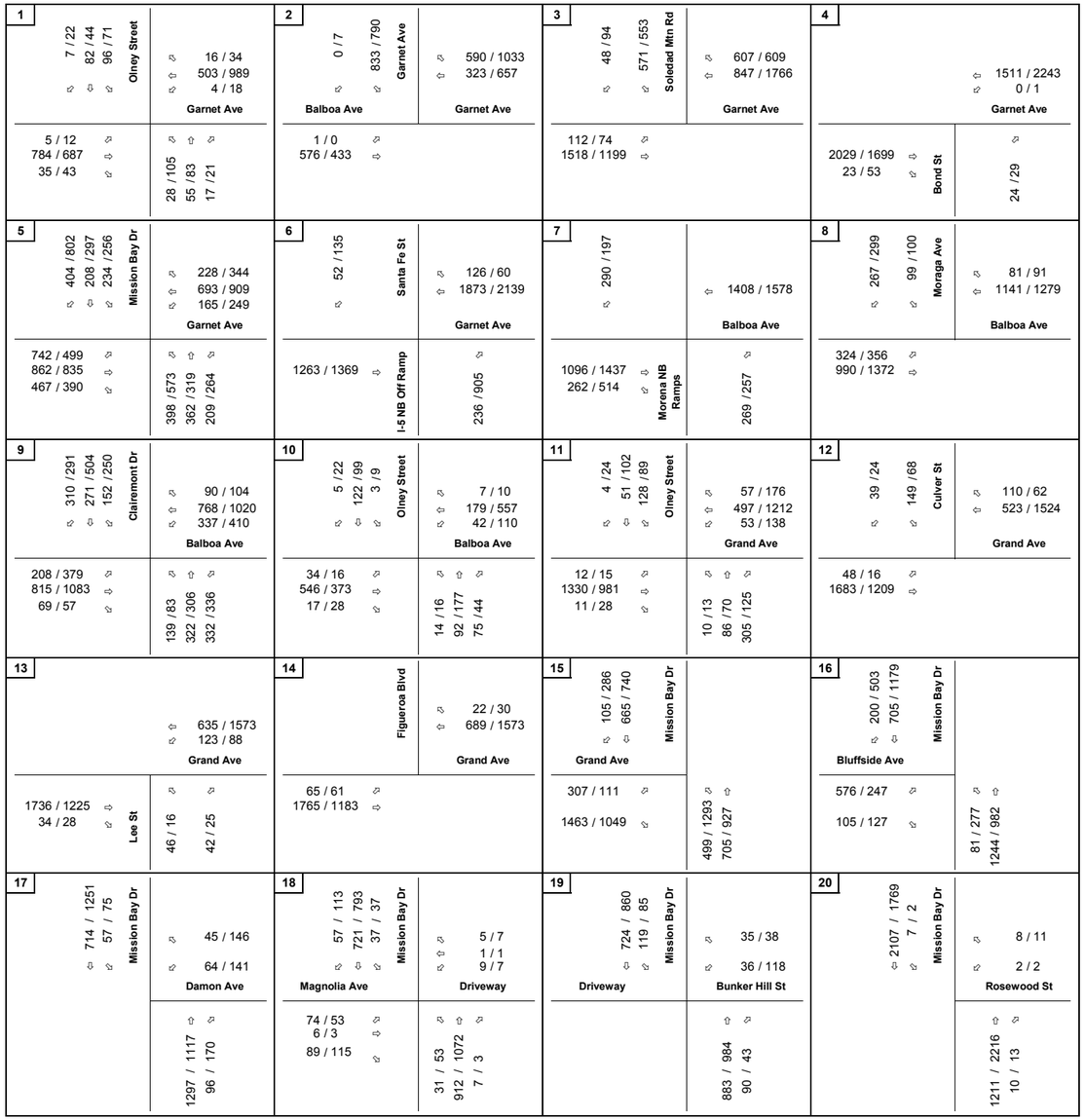
Intersection Control

- 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 4-1
Existing Intersection Geometrics (Cont.)



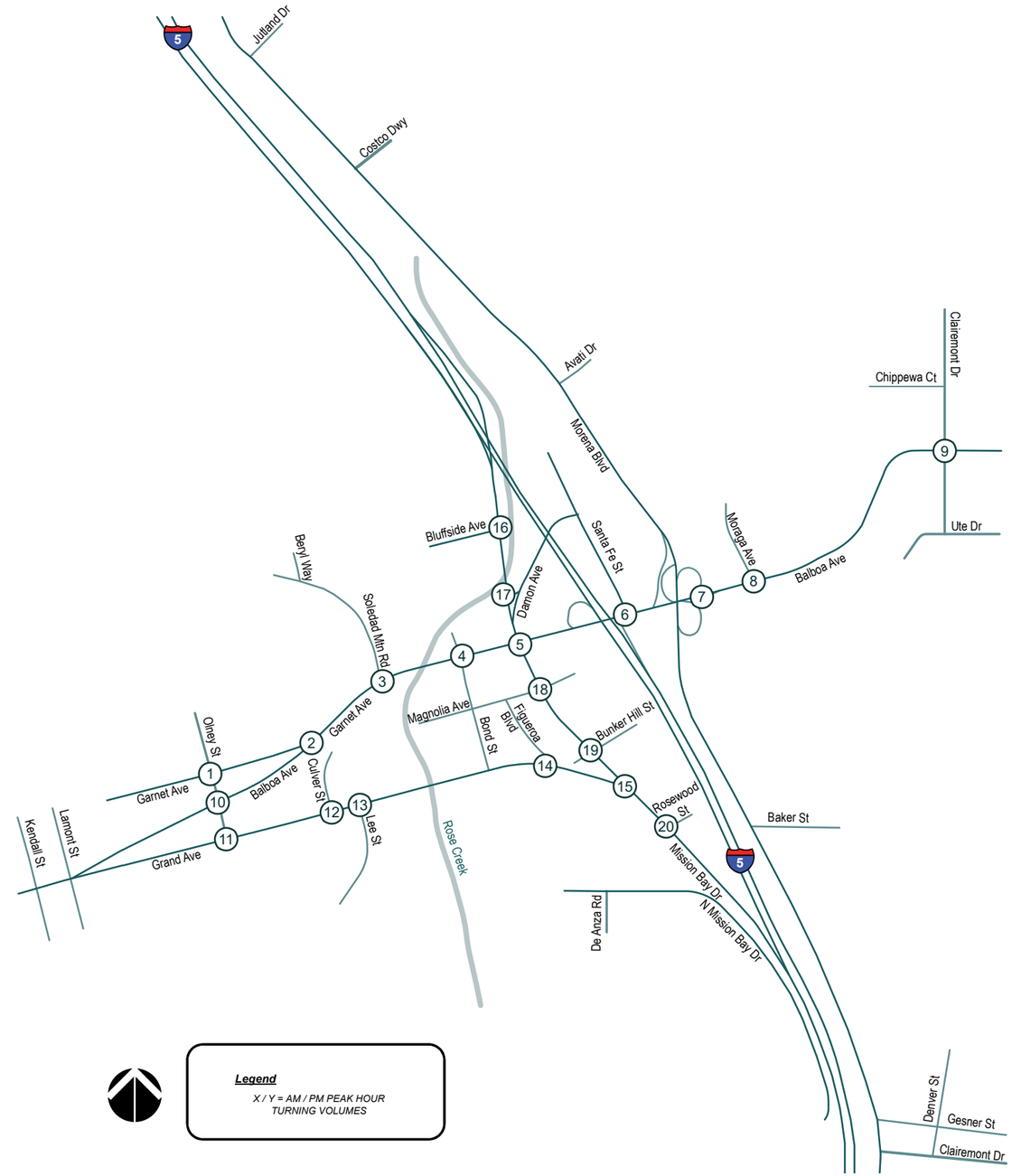


Figure 4-2
Existing Peak Period Volumes

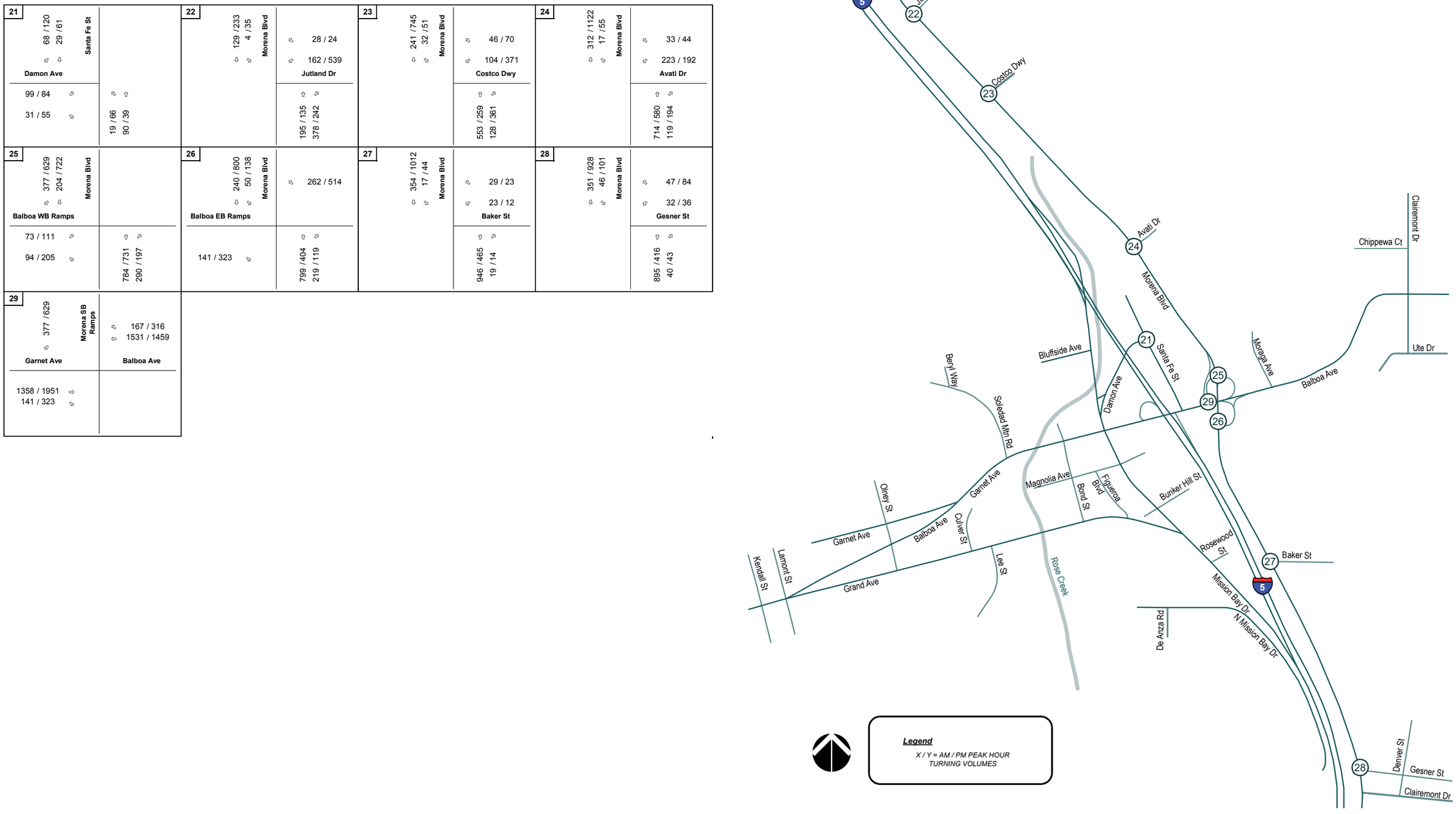


Figure 4-2
Existing Peak Period Volumes (Cont.)

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.

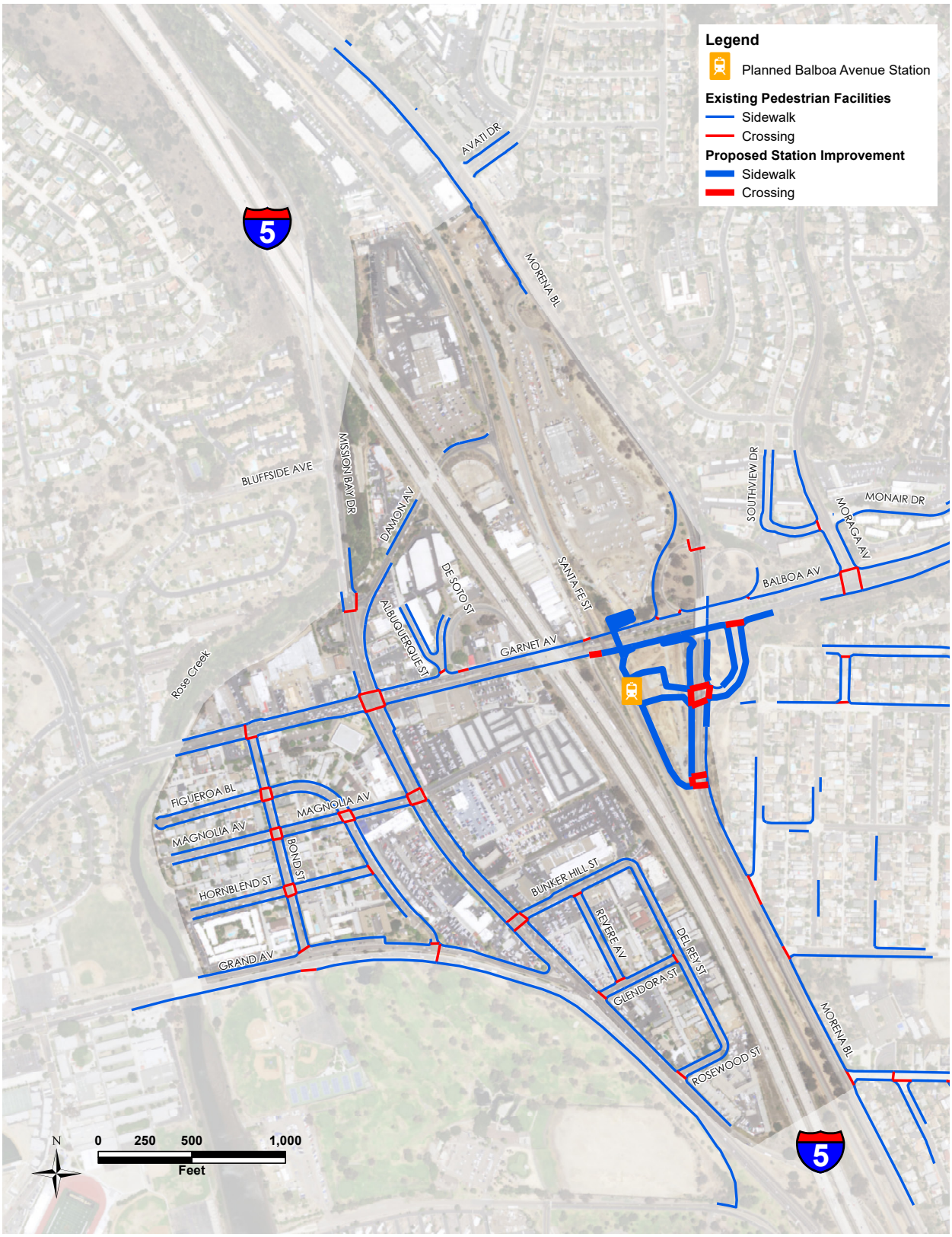


Figure 4-3
Existing Pedestrian Network

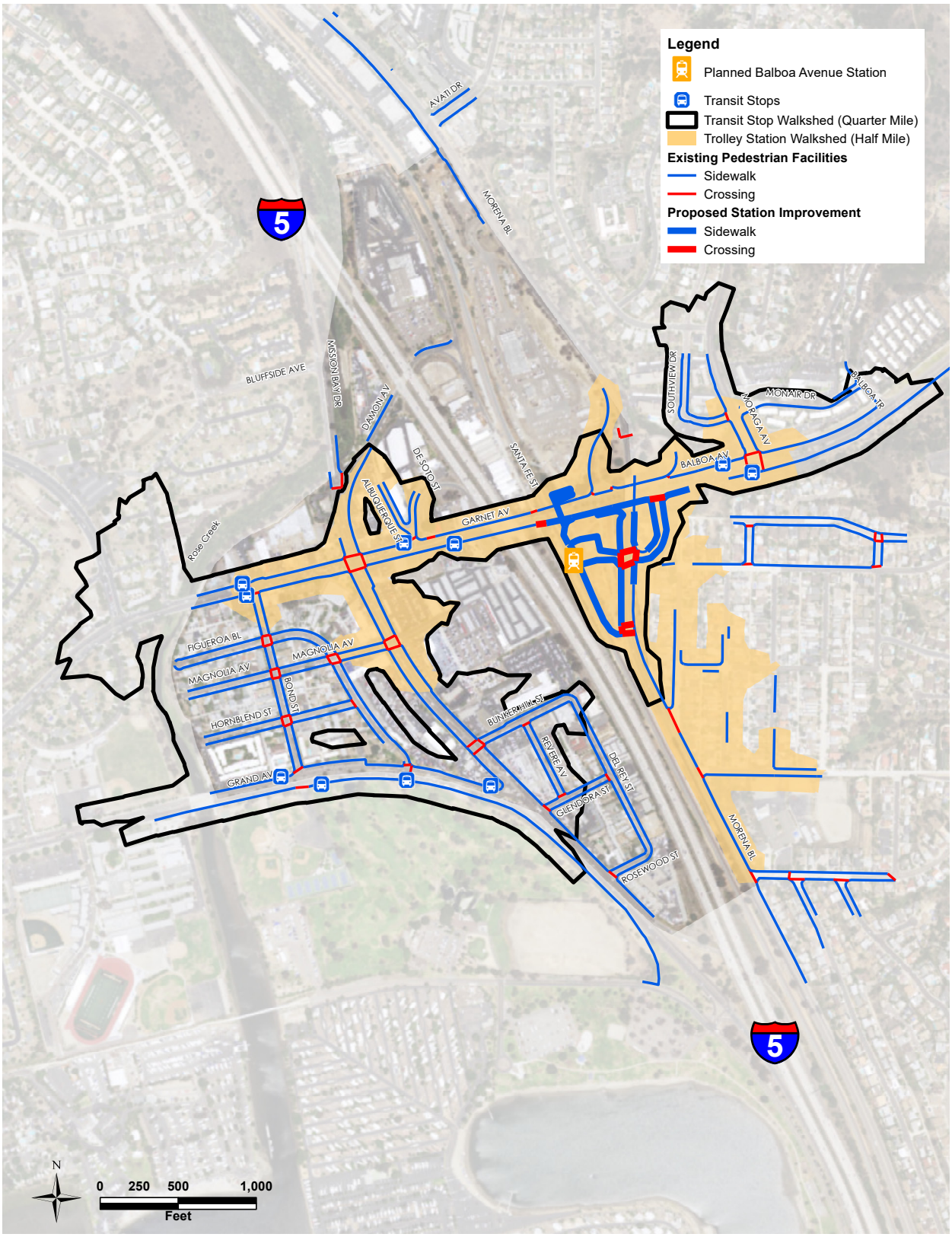


Figure 4-4
Existing Pedestrian Walkshed

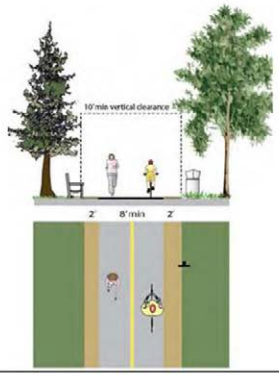
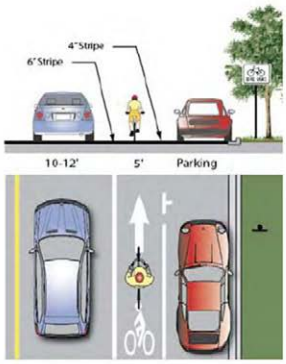
BICYCLE FACILITIES

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.

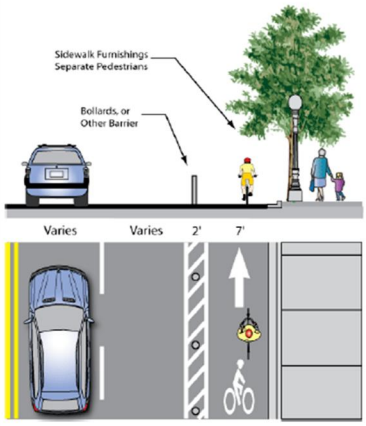
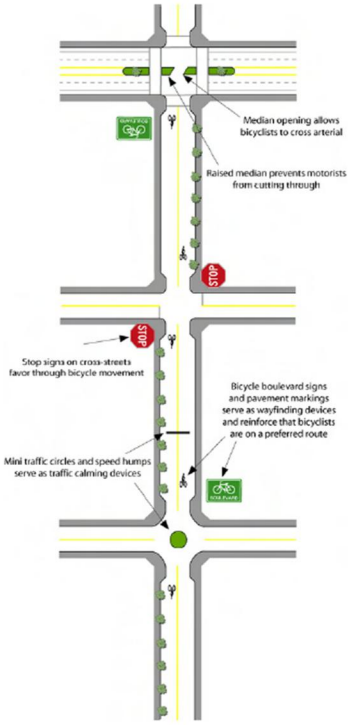
Existing bicycle facilities immediately adjacent to and within the Specific Plan area are shown in **Figure 4-5**. SanGIS, a data source provided by the San Diego Association of Governments (SANDAG), was referenced to provide a baseline for existing bicycle facilities. Updates and modifications to SanGIS 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

Class I – Bike Path 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.	
Class II - Bike Lanes 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.	
Class III - Bike Routes 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.	

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

Table 4-6 Additional Bicycle Facility Classifications

Cycle Tracks 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.	
Bicycle Boulevards 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.	

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.

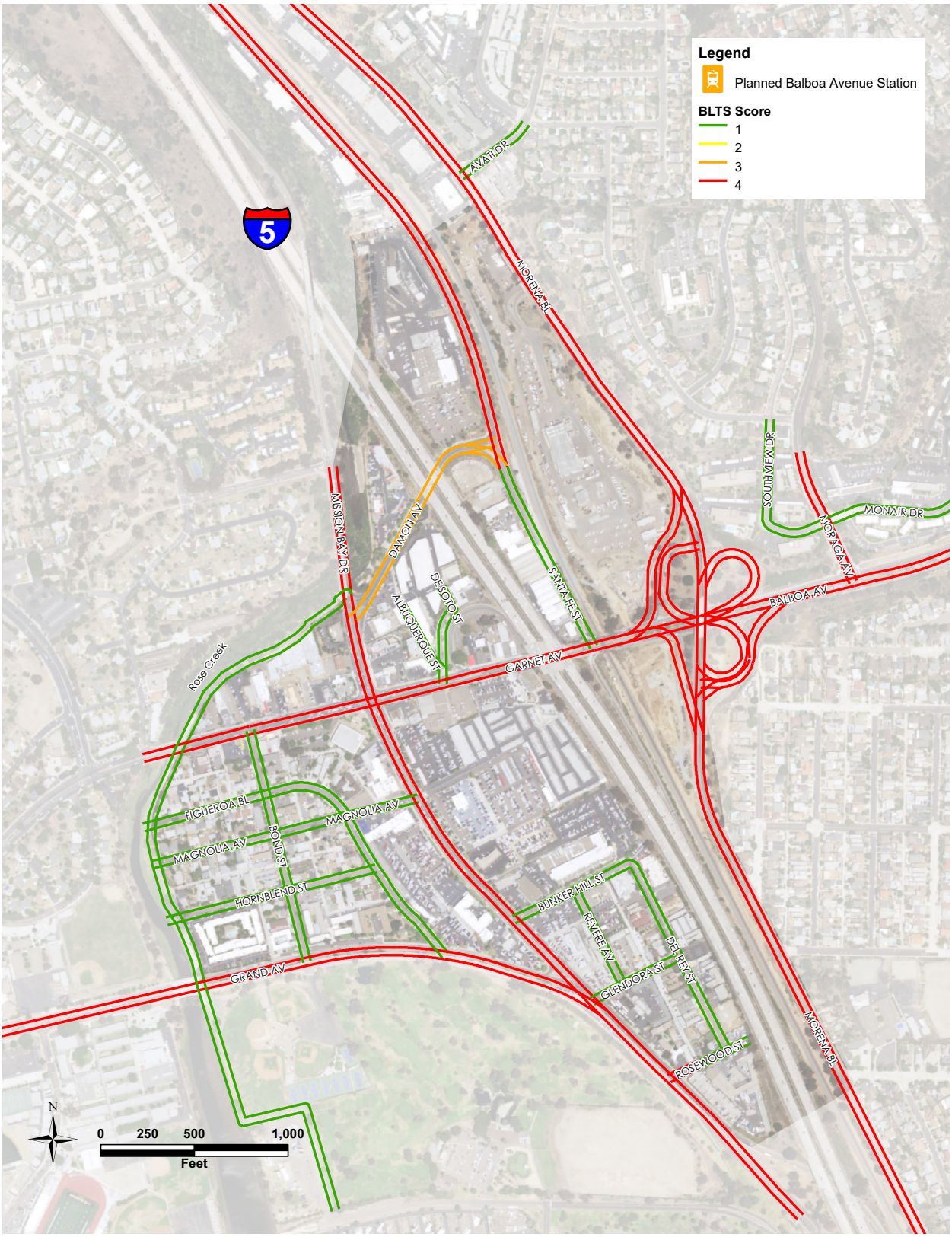


Figure 4-6
Existing BLTS Results

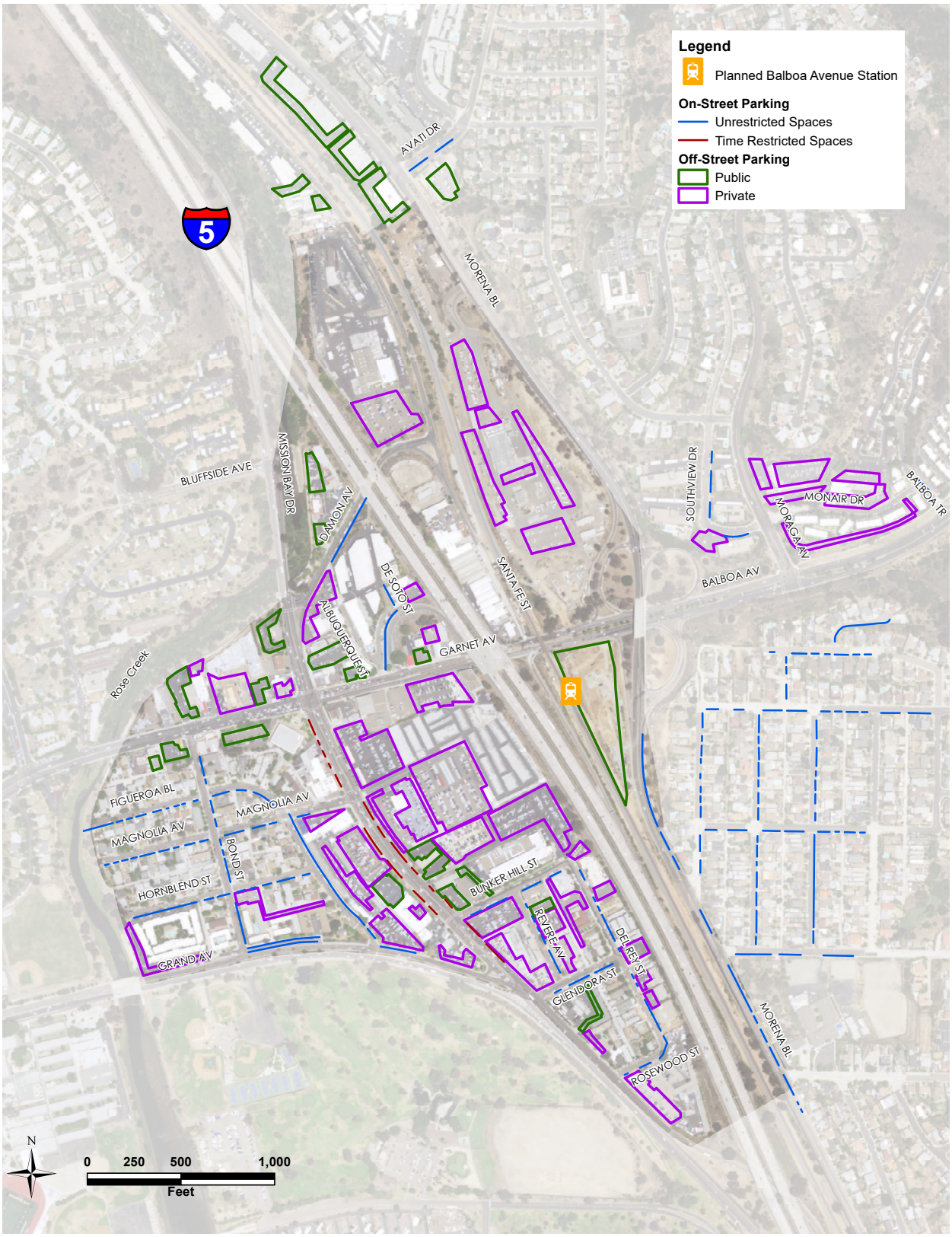


Figure 4-7
Existing Parking Supply

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

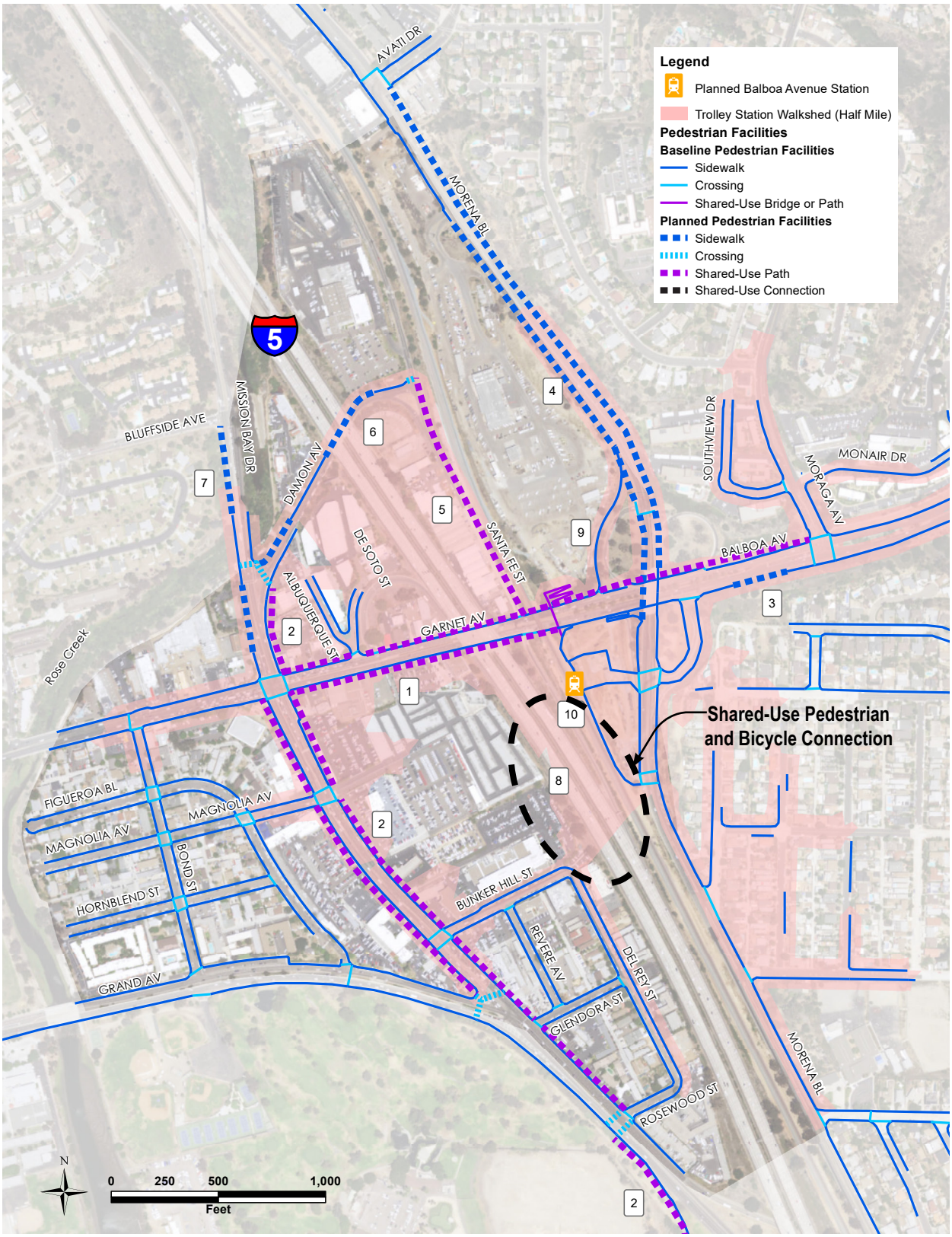


Figure 5-1
Future Planned Pedestrian Network and Station Walkshed



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 buffered bike lanes 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 are 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, 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	53%	12%	21%	14%

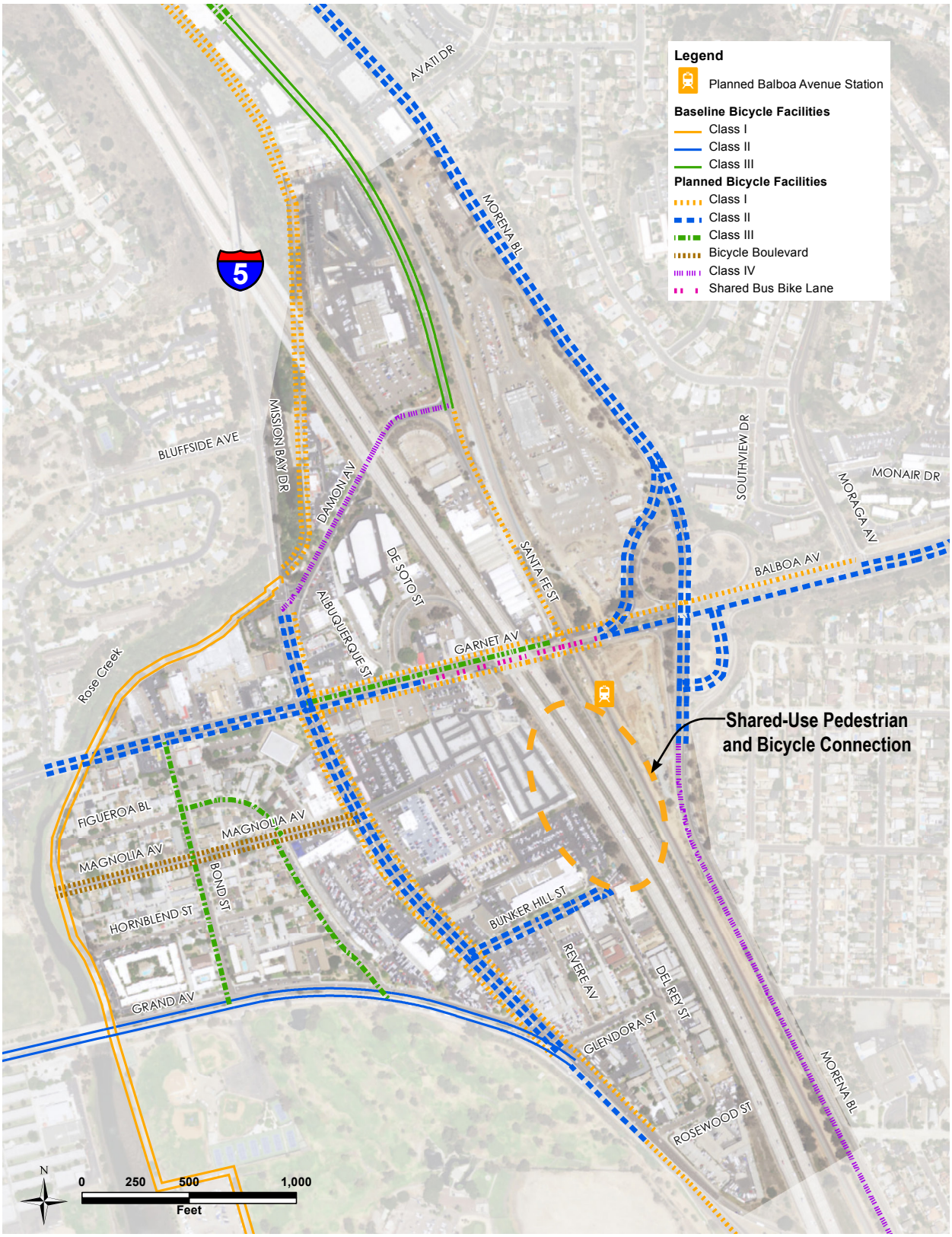


Figure 6-1
Future Planned Bicycle Facilities



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.
- **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

MTS Metropolitan Transit System

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.

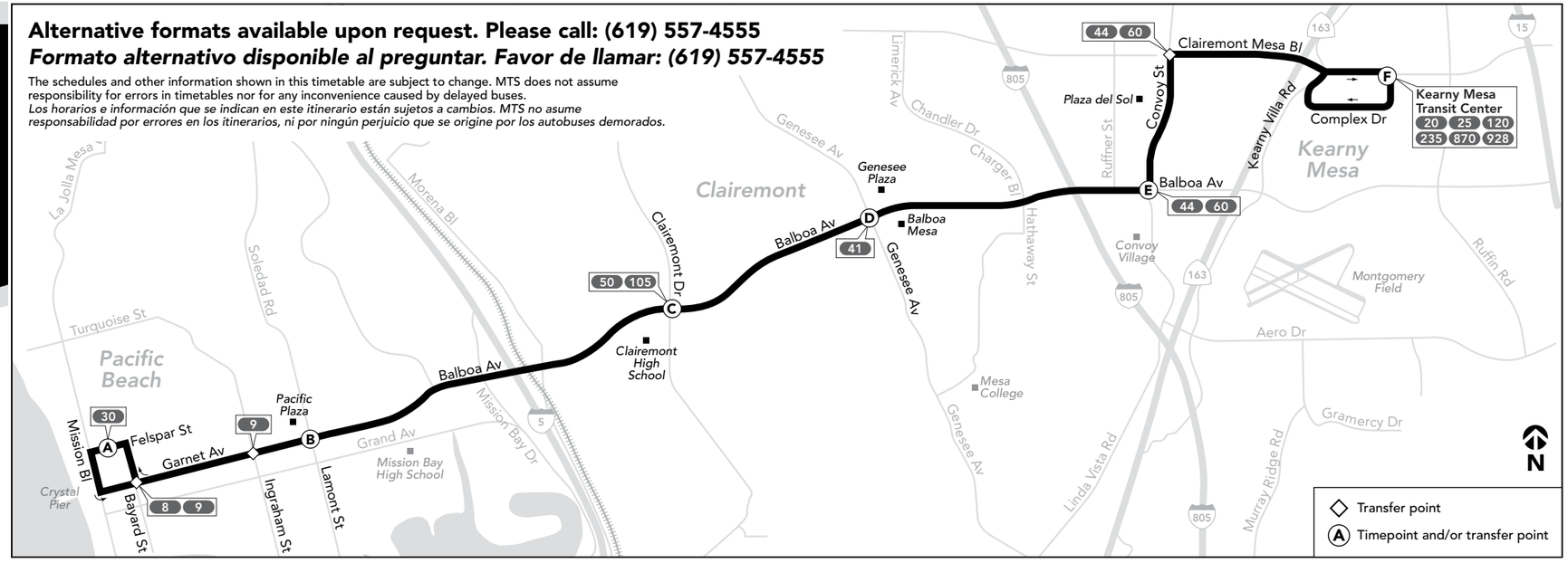


Figure 7-2
Existing Transit Routes - Route 27

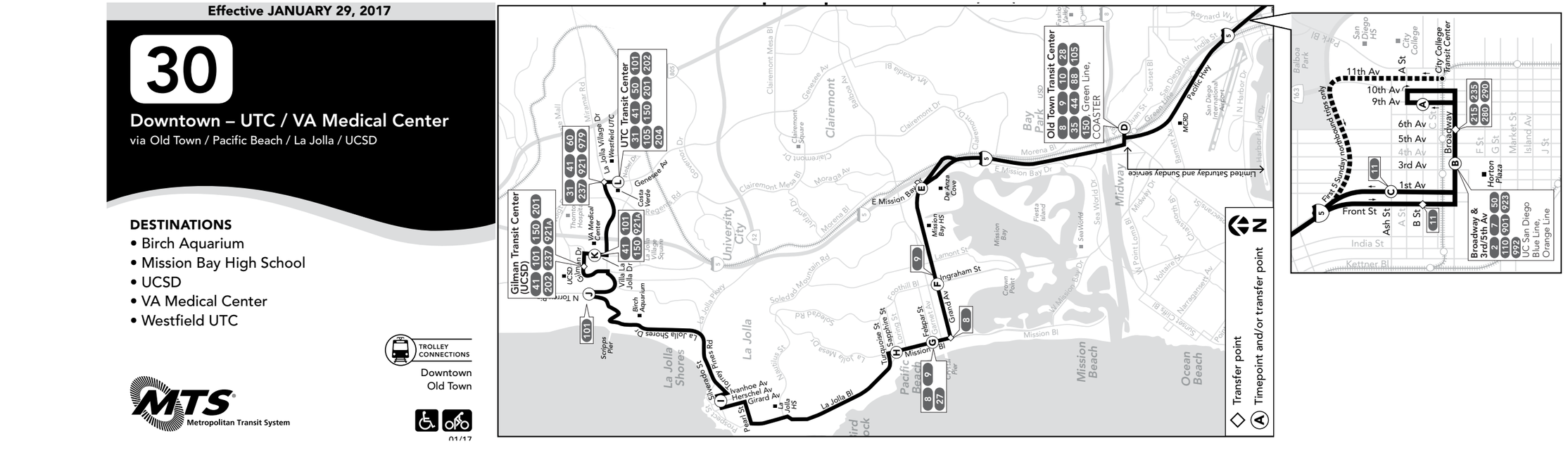


Figure 7-3
Existing Transit Routes - Route 30

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:

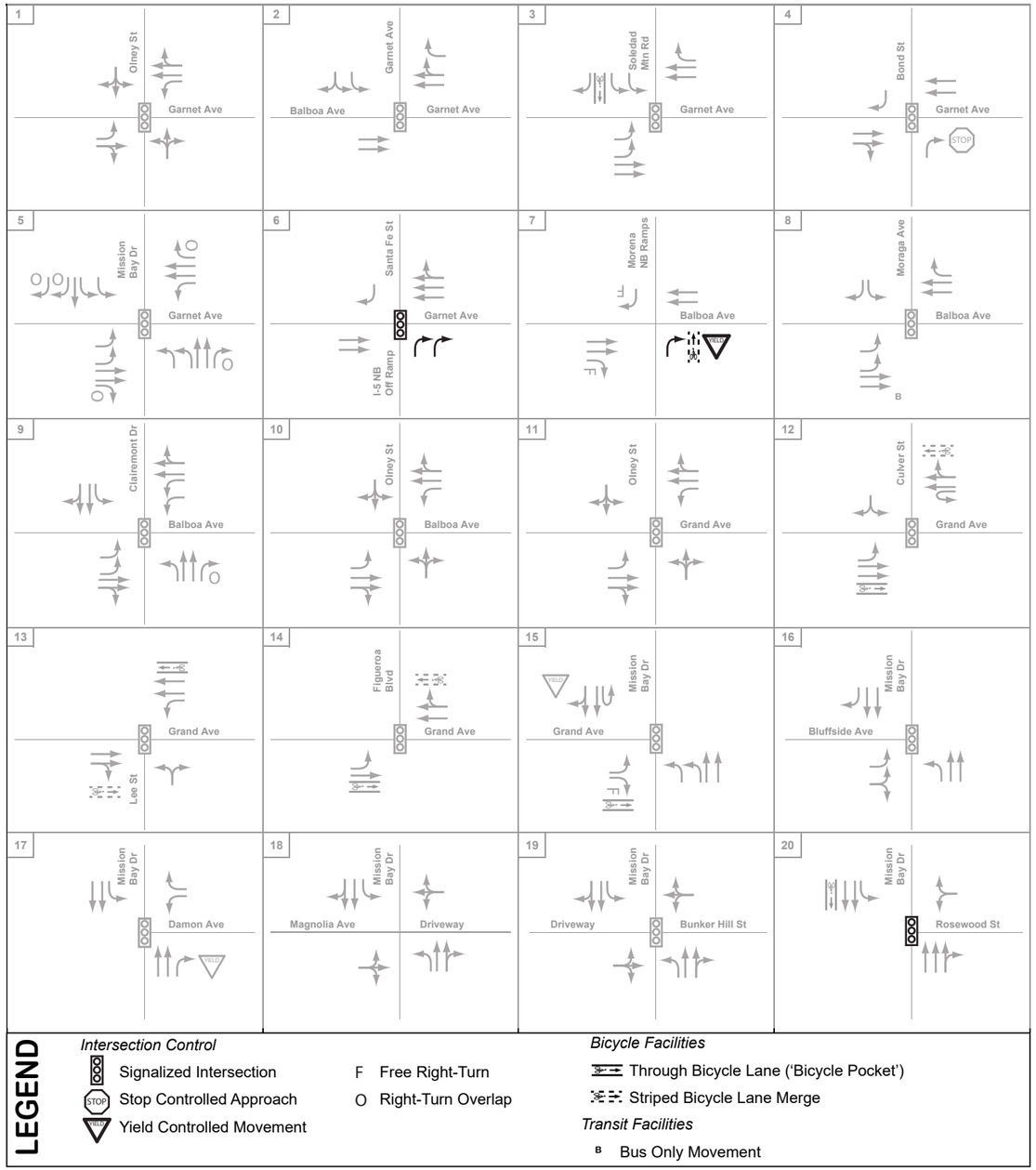
- Olney Street at Garnet Avenue (Int 1) – LOS E in the PM peak period
- Garnet Avenue at Mission Bay Drive (Int 5) – LOS E in the AM and PM peak periods
- Balboa Avenue at Morena Blvd NB Ramps (Int 7) – LOS F in the AM and PM peak periods
- Clairemont Drive at Balboa Avenue (Int 9) – LOS F in the PM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



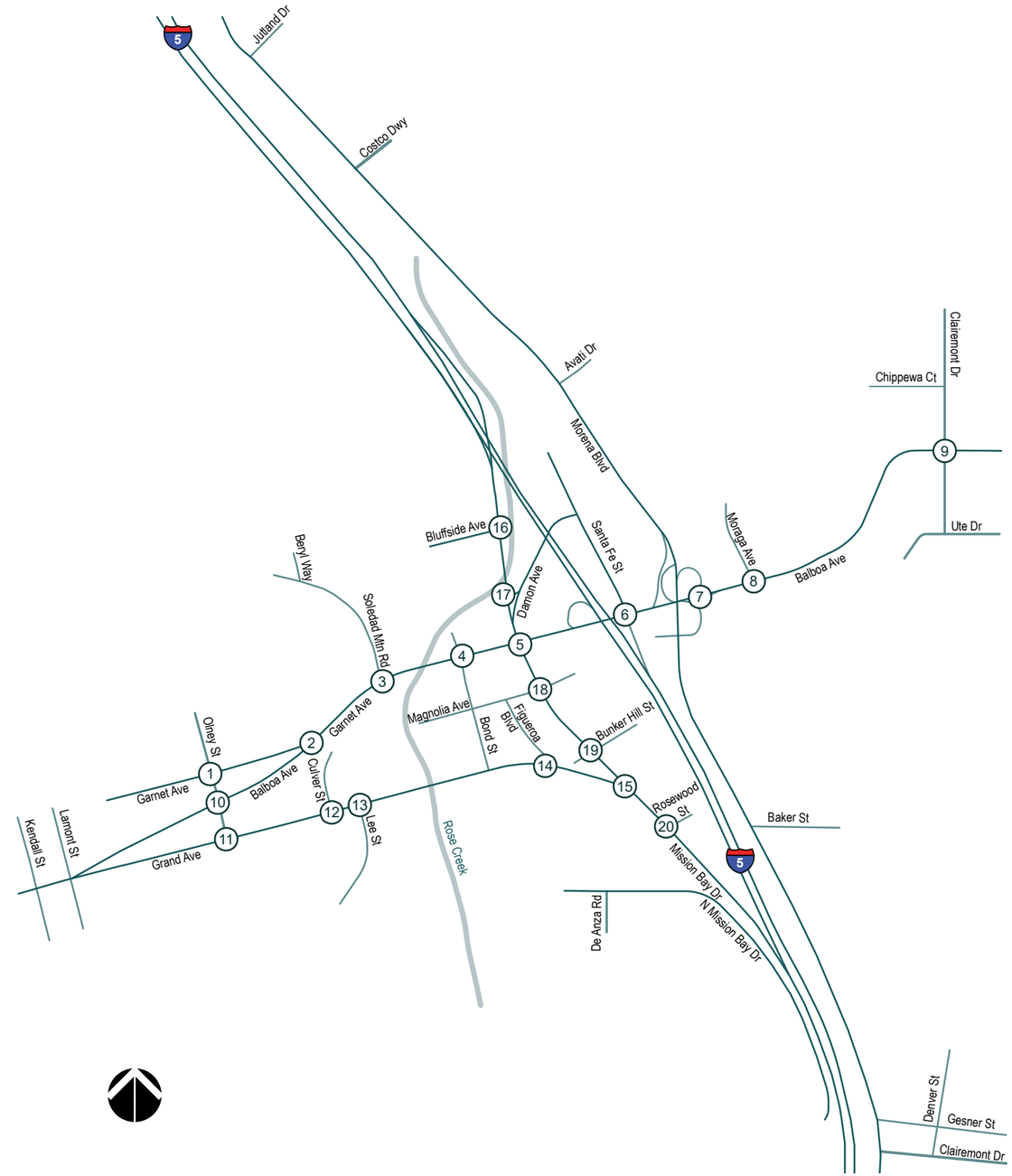
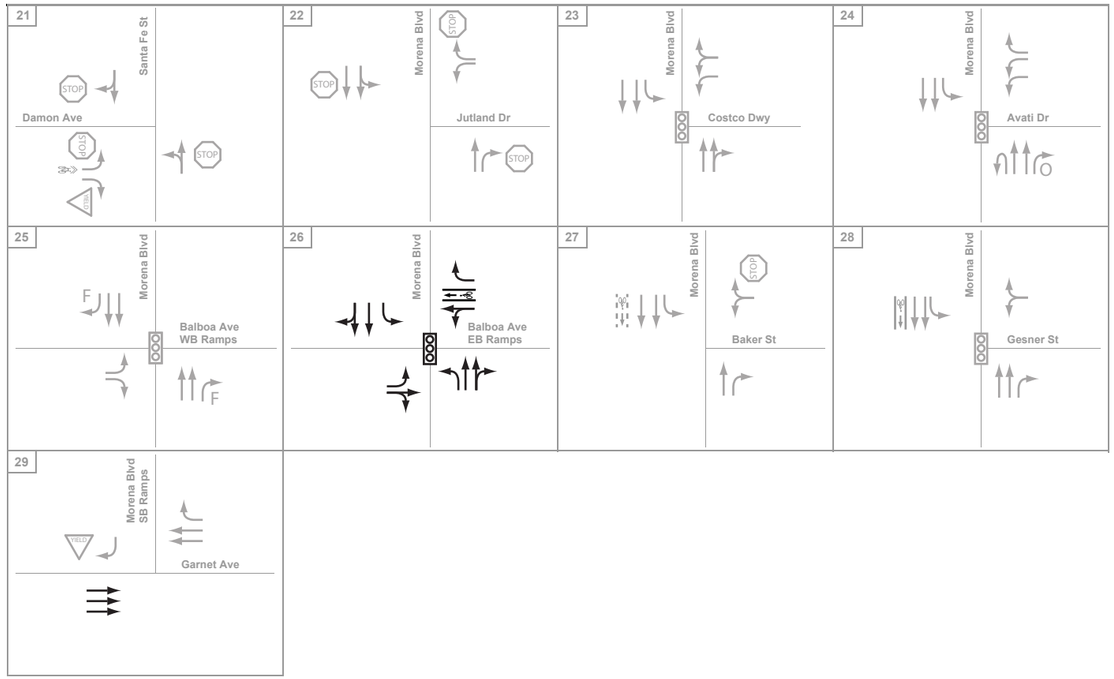
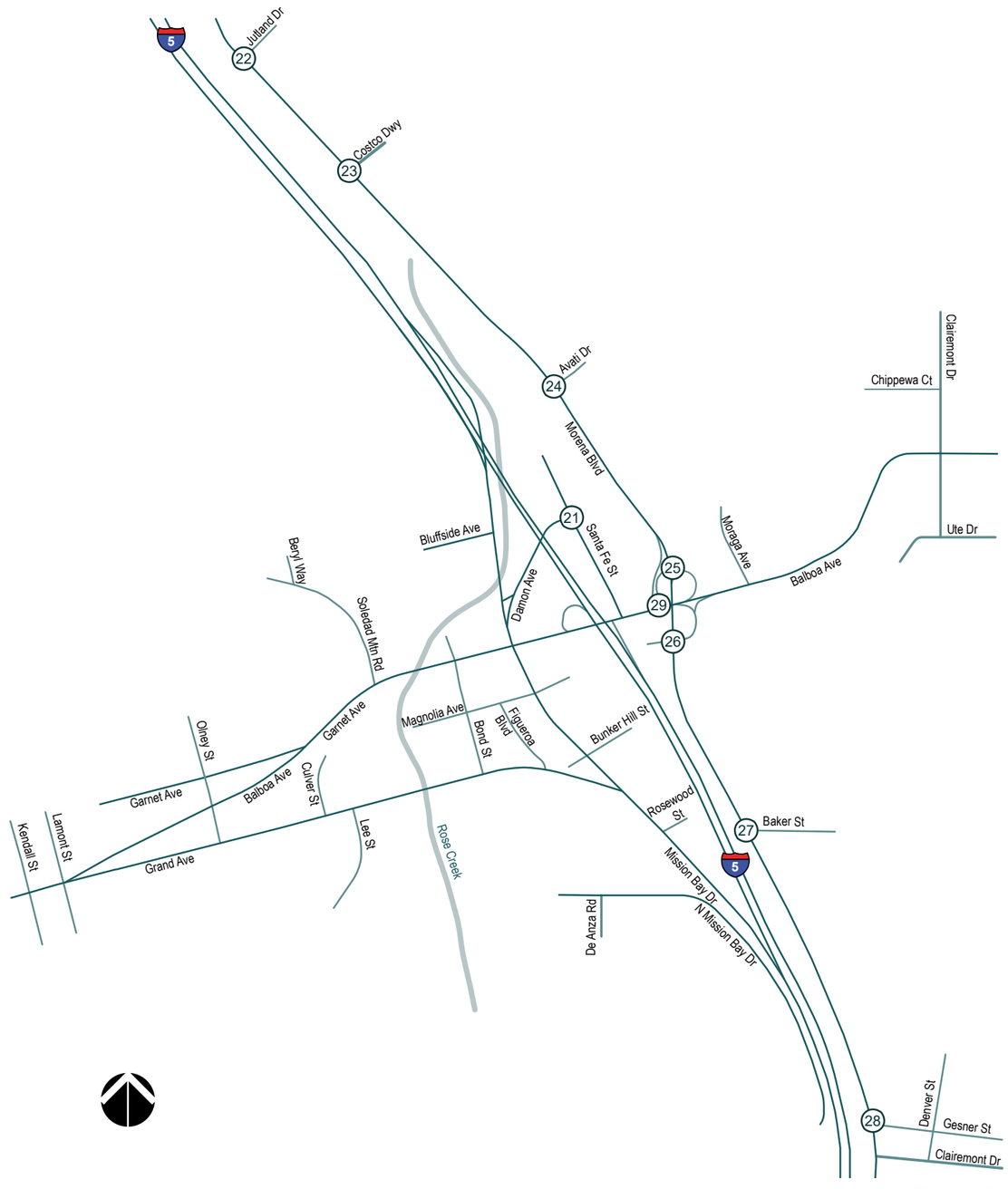


Figure 8-1
Future Adopted Community Plan Intersection Geometrics





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

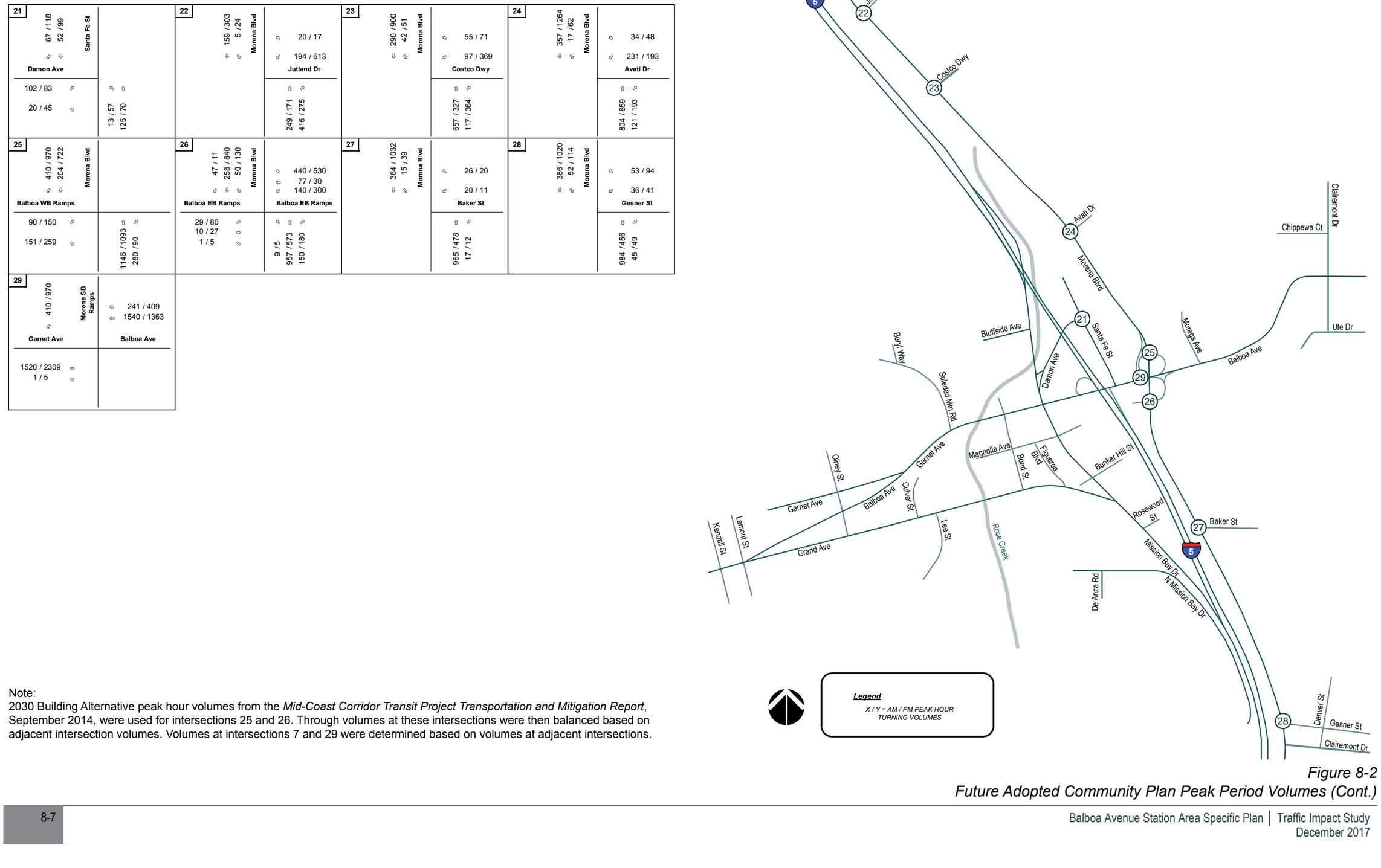
Figure 8-1
Future Adopted Community Plan Intersection Geometrics (Cont.)

1 25 / 57 ⇖ 129 / 65 ⇕ 83 / 56 ⇗ **Olney 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 ⇘ **Balboa 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 ⇖ **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 ⇗ **Olney 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 ⇗ **Olney 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** **Figueroa Blvd** 29 / 45 ⇙ 646 / 1476 ⇘ **Grand Ave** 81 / 70 ⇐ 1654 / 1110 ⇒	**15** 100 / 265 ⇖ 783 / 886 ⇕ **Mission Bay Dr** **Grand Ave** 299 / 102 ⇐ 1400 / 990 ⇔ 460 / 1231 ⇙ 819 / 1071 ⇑	**16** 196 / 496 ⇖ 785 / 1322 ⇕ **Mission Bay Dr** **Bluffside Ave** 584 / 243 ⇐ 120 / 143 ⇔ 94 / 311 ⇙ 1389 / 1093 ⇑
17 819 / 1427 ⇕ 52 / 64 ⇗ **Mission Bay Dr** 42 / 135 ⇙ 73 / 163 ⇘ **Damon Ave** 1465 / 1277 ⇑ 107 / 189 ⇘	**18** 73 / 149 ⇖ 839 / 916 ⇕ 34 / 33 ⇗ **Mission Bay Dr** 5 / 7 ⇙ 1 / 1 ⇑ 8 / 7 ⇘ **Driveway** 100 / 71 ⇐ 8 / 6 ⇔ 106 / 139 ⇘ 39 / 63 ⇙ 1058 / 1247 ⇑ 6 / 2 ⇘	**19** 820 / 984 ⇕ 149 / 105 ⇗ **Mission Bay Dr** 45 / 56 ⇗ 35 / 116 ⇘ **Bunker Hill St** **Driveway** 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



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 Driive; 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?
		GP	HOV		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)	
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, 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 8-9 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



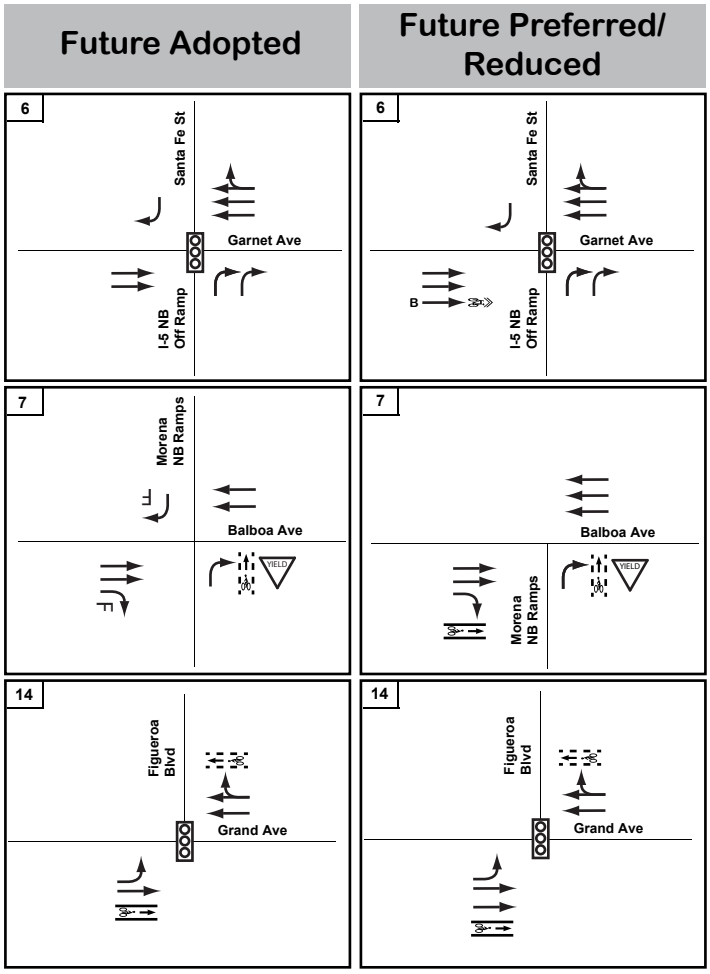
Figure 8-5
Preferred Specific Plan Projects: Balboa Avenue



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



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



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

- B Bus Only Movement

Figure 8-8
Preferred Specific Plan Intersection Geometrics

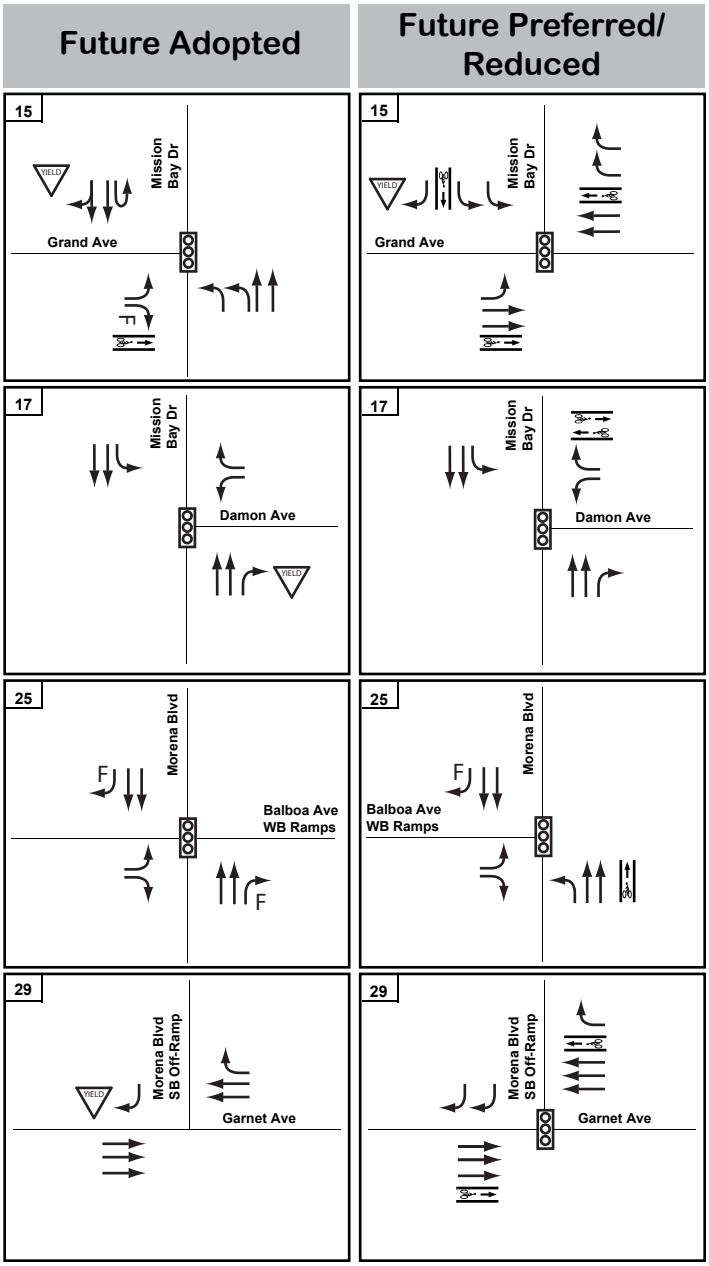


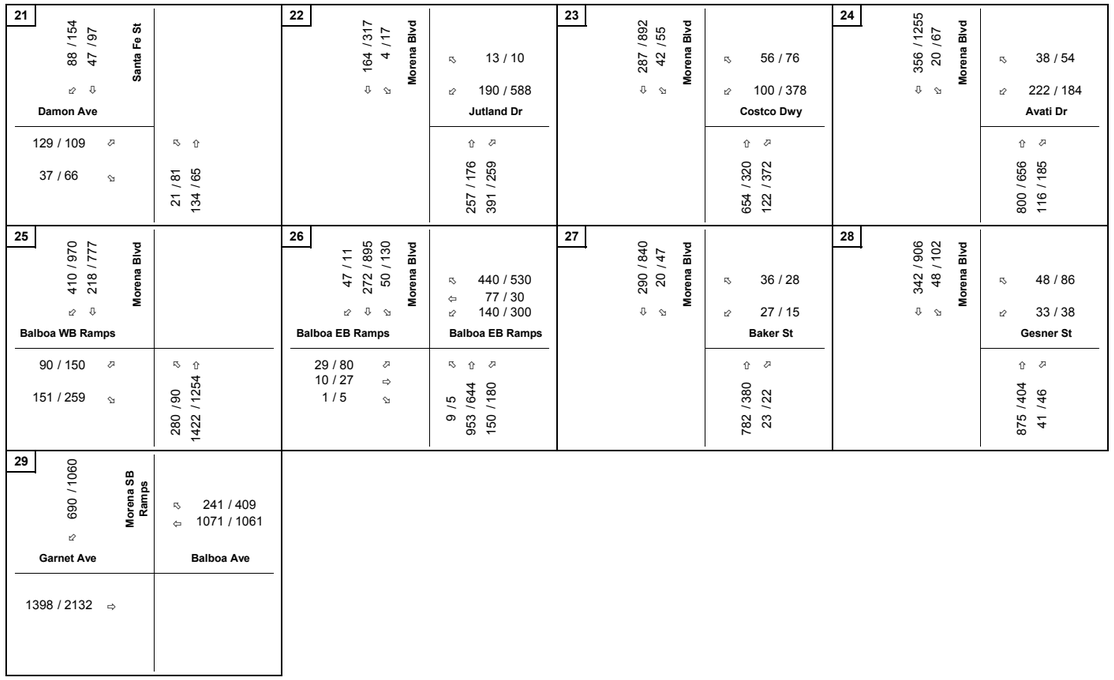
Figure 8-8
Preferred Specific Plan Intersection Geometrics (Cont.)

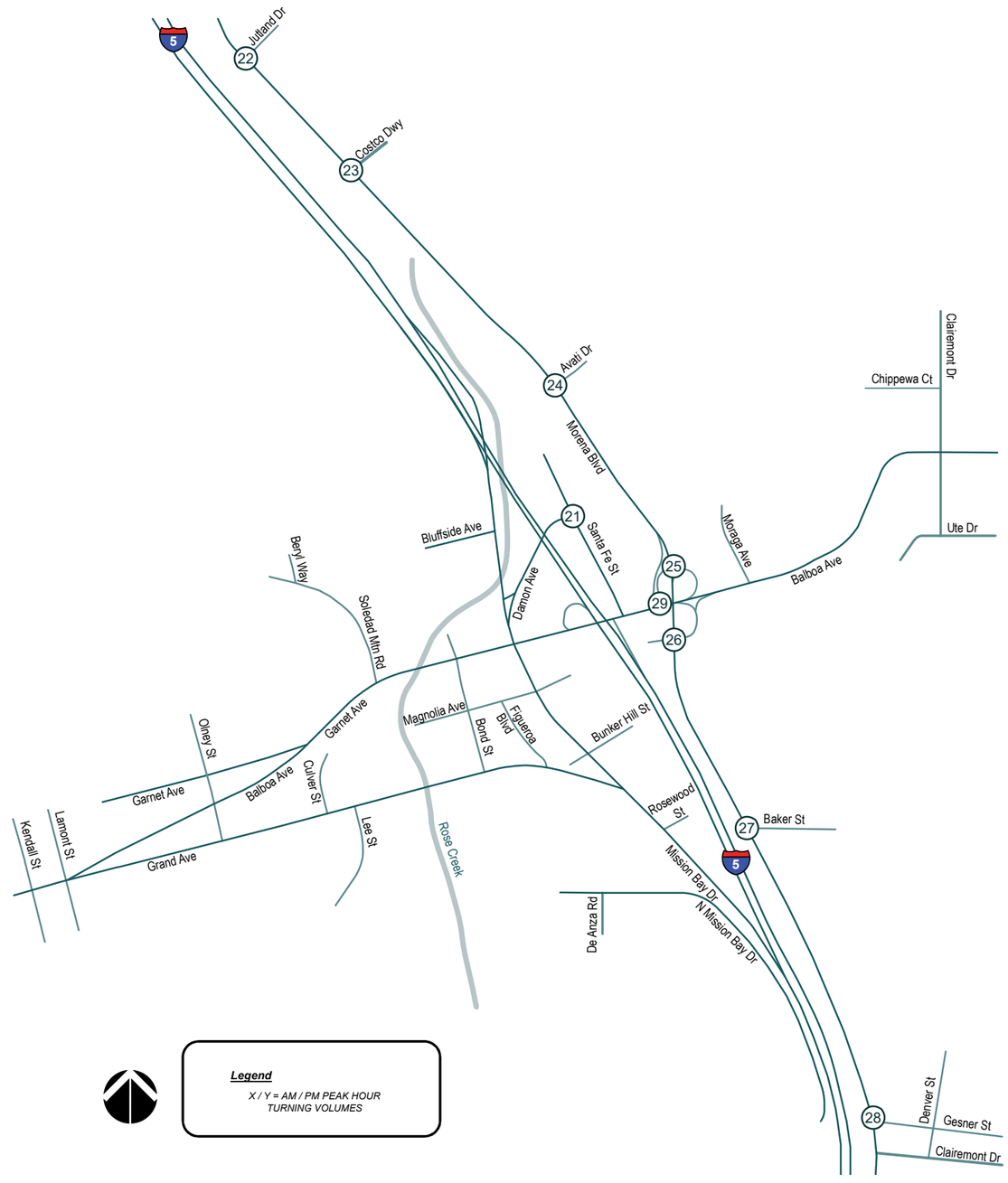
1 26 / 60 ⇦ ⇨ 69 / 48 131 / 66 ⇩ **Olney Street** 9 / 24 ⇦ 679 / 1319 ⇦ ⇨ 7 / 15 ⇨ **Garnet Ave** 13 / 31 ⇦ 1063 / 918 ⇩ 108 / 128 ⇨ 115 / 301 ⇦ ⇧ ⇨ 75 / 110 ⇧ 17 / 18 ⇧	**2** 0 / 140 ⇦ 931 / 796 ⇧ **Garnet Ave** 722 / 1307 ⇦ 328 / 516 ⇨ **Balboa Ave** 46 / 0 ⇦ ⇨ 470 / 387 ⇩	**3** 67 / 129 ⇦ 487 / 456 ⇗ **Soledad Mtn Rd** 512 / 511 ⇦ 815 / 1683 ⇨ **Garnet Ave** 142 / 103 ⇦ 1437 / 1139 ⇩	**4** ⇦ 1384 / 2044 **Garnet Ave** 37 / 46 ⇧ 1796 / 1488 ⇦ ⇨ 37 / 84 ⇗ **Bond St**
5 358 / 731 ⇦ ⇨ 252 / 277 338 / 481 ⇩ **Mission Bay Dr** 247 / 357 ⇦ 526 / 678 ⇦ ⇨ 231 / 331 ⇨ **Garnet Ave** 661 / 445 ⇦ 659 / 630 ⇩ 538 / 443 ⇨ 441 / 653 ⇦ ⇧ ⇨ 568 / 507 ⇧ 282 / 354 ⇧	**6** 74 / 189 ⇦ **Santa Fe St** 174 / 84 ⇦ 1759 / 1986 ⇨ **Garnet Ave** 1193 / 1327 ⇨ **I-5 NB Off Ramp** 205 / 805 ⇧	**7** ⇦ 1312 / 1470 **Balboa Ave** 741 / 1272 ⇦ ⇨ 657 / 860 ⇗ **Morena NB Ramps** 210 / 337 ⇧	**8** 261 / 288 ⇦ 94 / 94 ⇗ **Moraga Ave** 77 / 86 ⇦ 1051 / 1182 ⇨ **Balboa Ave** 311 / 342 ⇦ 909 / 1261 ⇨
9 285 / 253 ⇦ ⇨ 210 / 346 344 / 605 ⇩ **Clairemont Dr** 124 / 160 ⇦ 716 / 954 ⇦ ⇨ 434 / 538 ⇨ **Balboa Ave** 186 / 351 ⇦ 752 / 1004 ⇩ 62 / 50 ⇨ 126 / 72 ⇦ ⇧ ⇨ 406 / 392 ⇧ 440 / 435 ⇧	**10** 14 / 39 ⇦ 236 / 207 ⇩ 11 / 19 ⇗ **Olney Street** 17 / 24 ⇦ 165 / 524 ⇦ ⇨ 46 / 140 ⇨ **Balboa Ave** 57 / 33 ⇦ 521 / 353 ⇩ 20 / 40 ⇗ 19 / 20 ⇦ ⇧ ⇨ 192 / 340 ⇧ 91 / 46 ⇧	**11** 17 / 54 ⇦ 114 / 213 ⇩ 163 / 94 ⇗ **Olney Street** 49 / 216 ⇦ 479 / 1151 ⇦ ⇨ 45 / 134 ⇨ **Grand Ave** 28 / 41 ⇦ 1247 / 930 ⇩ 25 / 57 ⇗ 34 / 30 ⇦ ⇧ ⇨ 193 / 174 ⇧ 361 / 119 ⇧	**12** 48 / 28 ⇦ 171 / 79 ⇗ **Culver St** 120 / 71 ⇦ 496 / 1471 ⇨ **Grand Ave** 64 / 20 ⇦ ⇨ 1611 / 1164 ⇩
13 ⇦ 617 / 1543 130 / 96 ⇨ **Grand Ave** 1698 / 1200 ⇦ ⇨ 48 / 35 ⇗ **Lee St** 52 / 18 ⇦ ⇧ 48 / 28 ⇧	**14** **Figueroa Blvd** 47 / 70 ⇦ 662 / 1515 ⇨ **Grand Ave** 130 / 115 ⇦ ⇨ 1697 / 1138 ⇩	**15** 91 / 233 ⇦ 845 / 980 ⇗ **Mission Bay Dr** ⇦ 897 / 1151 488 / 1323 ⇨ **Grand Ave** 275 / 86 ⇦ ⇨ 1501 / 1050 ⇩	**16** 256 / 650 ⇦ 767 / 1275 ⇩ **Mission Bay Dr** 101 / 329 ⇦ 1354 / 1068 ⇨ **Bluffside Ave** 728 / 322 ⇦ ⇨ 129 / 155 ⇗
17 779 / 1362 ⇦ 75 / 98 ⇗ **Mission Bay Dr** 59 / 190 ⇦ 86 / 189 ⇨ **Damon Ave** 1419 / 1203 ⇦ ⇧ ⇨ 127 / 226 ⇧	**18** 130 / 252 ⇦ 899 / 962 ⇩ 32 / 30 ⇗ **Mission Bay Dr** 5 / 7 ⇦ 2 / 2 ⇦ ⇨ 8 / 6 ⇨ **Driveway** 173 / 132 ⇦ ⇨ 10 / 8 ⇩ 163 / 213 ⇗ 55 / 92 ⇦ ⇧ ⇨ 1153 / 1363 ⇧ 6 / 3 ⇧	**19** 838 / 1007 ⇦ 259 / 188 ⇗ **Mission Bay Dr** 87 / 126 ⇦ 45 / 154 ⇨ **Bunker Hill St** 1076 / 1194 ⇦ ⇧ 110 / 42 ⇧	**20** 2372 / 1993 ⇩ 16 / 5 ⇗ **Mission Bay Dr** 18 / 25 ⇦ 4 / 4 ⇨ **Rosewood St** 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





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	
			PM	12.1	B	58.8	**E**	**Yes**
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**	
			PM	58.0	**E**	66.3	**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**	57.9	**F**	**Yes**
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	
			PM	59.2	**E**	72.1	**E**	**Yes**
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 Bluffside 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 conduted 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 respectie 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 conduted 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 respectie roadway segment's capacity.
(d) Damon Avenue is classified as a local street but functions as a collecotr with in 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	Soutbound	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?
		GP	HOV		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)	
I-5 SB & Mission Bay Drive	AM	2	1	n/a	621				584				
	PM			475	951	476	**60**	11,900	894	419	**53**	10,475	**YES**
I-5 SB & Westbound Balboa Ave	AM	2	0	n/a	253				240				
	PM			542	387	0	0	0	368	0	0	0	NO
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 Southbound 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 8-12 Future Preferred Specific 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	36.2	D	10.3	B	YES	*Remove parking and restripe NB approach to include a left-turn lane.*
		PM	58.8	**E**	16.1	B		
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 SB 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

1 80 / 118 ⇖ 74 / 32 ⇓ 103 / 49 ⇗ **Olney Street** 15 / 30 ⇙ 689 / 1370 ⇔ 3 / 7 ⇘ **Garnet Ave** 45 / 81 ⇙ 1056 / 919 ⇕ 46 / 64 ⇗ 47 / 143 ⇙ 49 / 70 ⇔ 6 / 6 ⇘	**2** 0 / 142 ⇖ 937 / 798 ⇗ **Garnet Ave** 723 / 1315 ⇙ 328 / 514 ⇘ **Balboa Ave** 51 / 0 ⇙ 466 / 386 ⇕	**3** 55 / 109 ⇖ 479 / 453 ⇗ **Soledad Mtn Rd** 508 / 505 ⇙ 828 / 1706 ⇘ **Garnet Ave** 121 / 87 ⇙ 1464 / 1159 ⇕	**4** 1398 / 2065 ⇙ **Garnet Ave** 1824 / 1514 ⇙ 35 / 80 ⇗ **Bond St** 35 /43 ⇘
5 378 /763 ⇖ 329 /467 ⇓ 250 /272 ⇗ **Mission Bay Dr** 242 / 353 ⇙ 528 / 678 ⇔ 214 / 308 ⇘ **Garnet Ave** 692 / 469 ⇙ 656 / 629 ⇕ 533 / 443 ⇗ 440 /647 ⇙ 551 /494 ⇔ 263 /332 ⇘	**6** 74 / 187 ⇖ **Santa Fe St** 175 / 84 ⇙ 1722 / 1948 ⇘ **Garnet Ave** 1186 / 1309 ⇕ **I-5 NB Off Ramp** 209 /819 ⇘	**7** 1299 / 1457 ⇙ **Balboa Ave** 738 / 1268 ⇕ 657 / 860 ⇗ **Morena NB Ramps** 210 /337 ⇘	**8** 256 /287 ⇖ 94 /96 ⇗ **Moraga Ave** 77 / 86 ⇙ 1043 / 1170 ⇘ **Balboa Ave** 309 / 340 ⇙ 902 / 1251 ⇕
9 285 /253 ⇖ 341 /602 ⇓ 210 /346 ⇗ **Clairemont Dr** 123 / 160 ⇙ 710 / 947 ⇔ 431 / 533 ⇘ **Balboa Ave** 187 / 351 ⇙ 746 / 996 ⇕ 61 / 49 ⇗ 125 /71 ⇙ 404 /391 ⇔ 436 /429 ⇘	**10** 15 /38 ⇖ 237 /209 ⇓ 12 /20 ⇗ **Olney Street** 18 / 24 ⇙ 165 / 525 ⇔ 46 / 139 ⇘ **Balboa Ave** 58 / 36 ⇙ 520 / 351 ⇕ 19 / 40 ⇗ 18 /20 ⇙ 192 /341 ⇔ 92 /46 ⇘	**11** 15 /51 ⇖ 114 /212 ⇓ 167 /97 ⇗ **Olney Street** 52 / 223 ⇙ 481 / 1155 ⇔ 46 / 141 ⇘ **Grand Ave** 28 / 38 ⇙ 1250 / 934 ⇕ 25 / 56 ⇗ 34 /29 ⇙ 189 /171 ⇔ 372 /126 ⇘	**12** 48 /28 ⇖ 172 /79 ⇗ **Culver St** 120 / 70 ⇙ 503 / 1489 ⇘ **Grand Ave** 64 / 21 ⇙ 1630 / 1178 ⇕
13 625 / 1560 ⇔ 129 / 95 ⇘ **Grand Ave** 1718 / 1214 ⇙ 46 / 34 ⇗ **Lee St** 51 / 18 ⇙ 48 / 28 ⇘	**14** **Figueroa Blvd** 44 / 65 ⇙ 669 / 1530 ⇘ **Grand Ave** 120 / 106 ⇙ 1715 / 1151 ⇕	**15** 91 / 234 ⇖ 827 / 960 ⇗ **Mission Bay Dr** 881 / 1130 ⇙ 493 / 1334 ⇘ **Grand Ave** 274 / 87 ⇙ 1512 / 1058 ⇕	**16** 240 / 609 ⇖ 774 / 1292 ⇓ **Mission Bay Dr** **Bluffside Ave** 690 / 300 ⇙ 131 / 155 ⇗ 103 / 332 ⇙ 1366 / 1076 ⇘
17 786 / 1376 ⇕ 74 / 98 ⇗ **Mission Bay Dr** 59 / 190 ⇙ 85 / 186 ⇘ **Damon Ave** 1434 / 1217 ⇙ 126 / 223 ⇘	**18** 117 / 230 ⇖ 882 / 946 ⇓ 34 / 31 ⇗ **Mission Bay Dr** 5 / 7 ⇙ 2 / 2 ⇔ 8 / 6 ⇘ **Driveway** 160 / 120 ⇙ 9 / 8 ⇕ 151 / 198 ⇗ 53 / 88 ⇙ 1126 / 1331 ⇔ 7 / 3 ⇘	**19** 827 / 995 ⇕ 239 / 172 ⇗ **Mission Bay Dr** 78 / 114 ⇙ 44 / 147 ⇘ **Driveway** 1058 / 1172 ⇙ 104 / 42 ⇘	**20** 2363 / 1984 ⇕ 9 / 2 ⇗ **Mission Bay Dr** 10 / 14 ⇙ 2 / 2 ⇘ **Rosewood St** 1357 / 2484 ⇙ 12 / 16 ⇘

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.

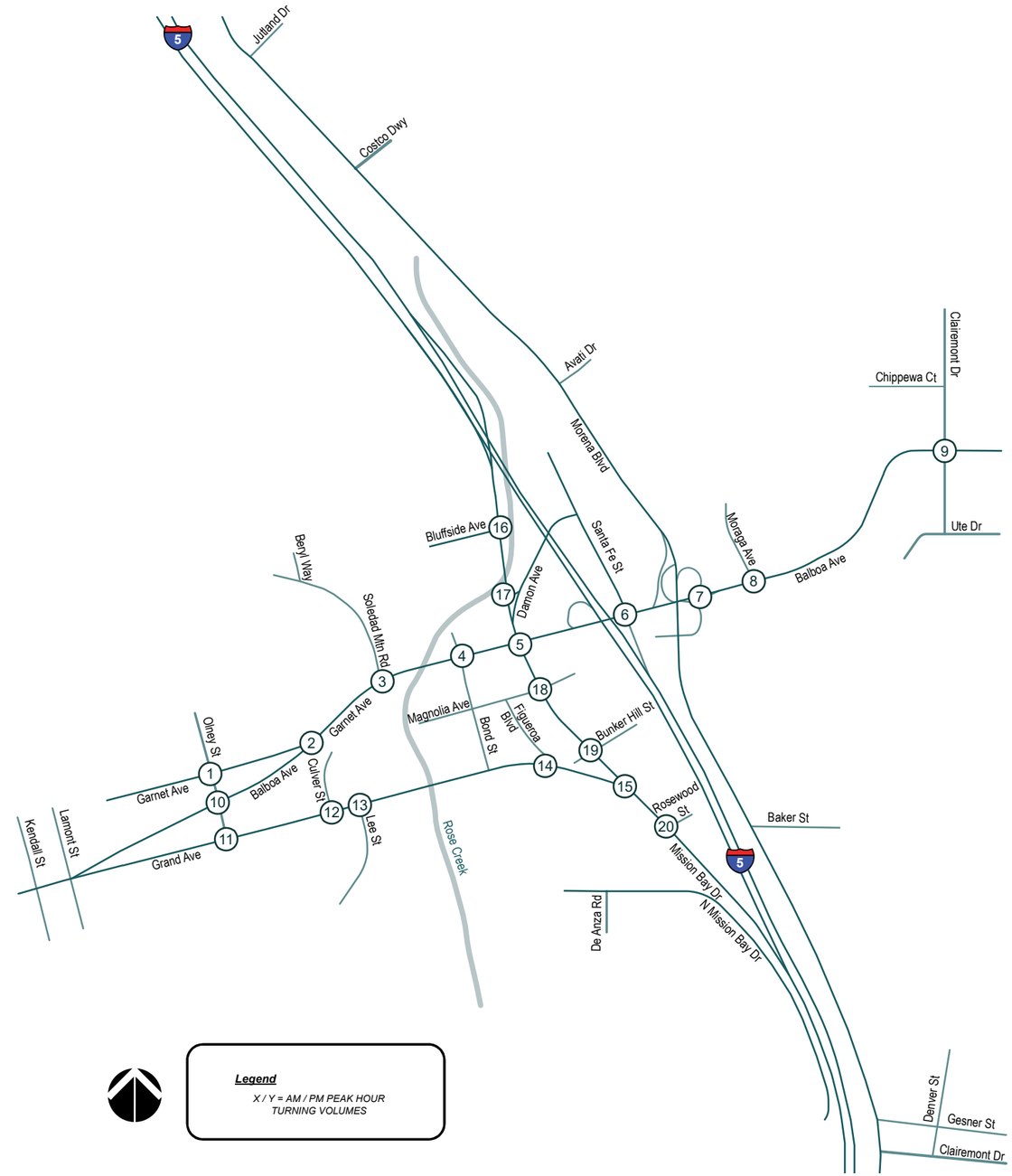
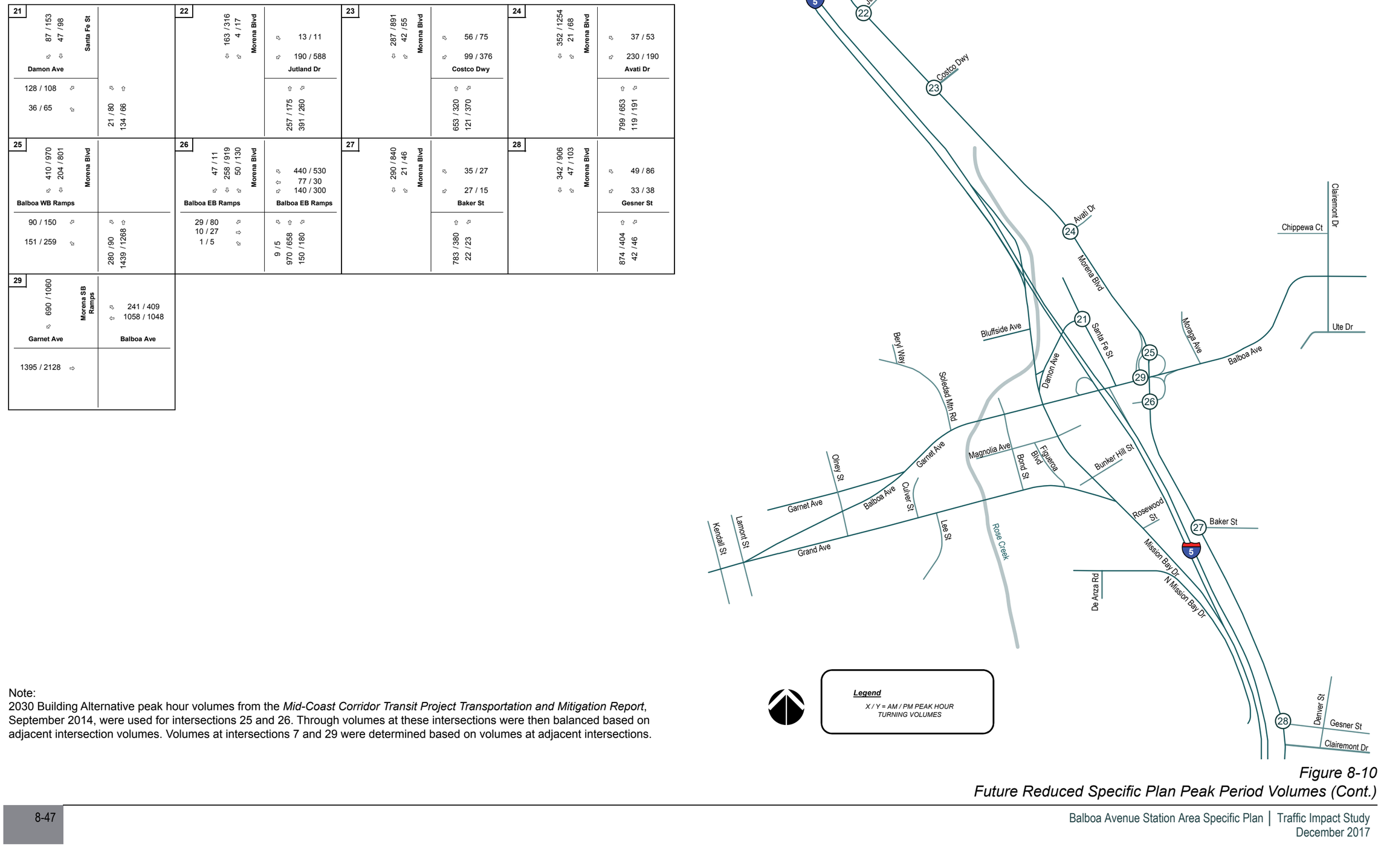


Figure 8-10
Future Reduced Specific Plan Peak Period Volumes



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; andall 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)
- I5 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?
		GP	HOV		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)	
I-5 SB & Mission Bay Drive	AM	2	1	n/a	621				584				
	PM			475	950	475	**60**	11,875	894	419	**53**	10,475	**YES**
I-5 SB & Westbound Balboa Ave	AM	2	0	n/a	246				240				
	PM			542	376	0	0	0	368	0	0	0	NO
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 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 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**	
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**		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																							
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	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 conduted 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 respectie 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 collecotr with in 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 conduted 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 respectie 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 collecotr 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)			Speed (mph) (a)		LOS (b)		
				AM	PM	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?
		GP	HOV		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)		Excess Demand (veh/hr)	Delay (min)	Queue (ft) (b)	
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

Prepared by NDS/ATD

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	38	228	**12:45**			342	1302	313	1285	655	2587
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	37	161	**13:45**			321	1289	299	1223	620	2512
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	35	102	**14:45**			358	1402	369	1401	727	2803
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	25	83	**15:45**			369	1344	371	1442	740	2786
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	47	149	**16:45**			340	1385	336	1385	676	2770
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	174	442	**17:45**			270	1303	336	1382	606	2685
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	396	1147	**18:45**			246	1147	304	1233	550	2380
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	603	2247	**19:45**			184	918	190	815	374	1733
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	601	2442	**20:45**			130	626	140	687	270	1313
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	581	2229	**21:45**			118	536	96	555	214	1091
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	543	2107	**22:45**			82	325	65	315	147	640
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	637	2373	**23:45**			37	206	39	190	76	396
TOTALS				6968		6742		**13710**	**TOTALS**				11783		11913		**23696**
SPLIT %				50.8%		49.2%		**36.7%**	**SPLIT %**				49.7%		50.3%		**63.3%**

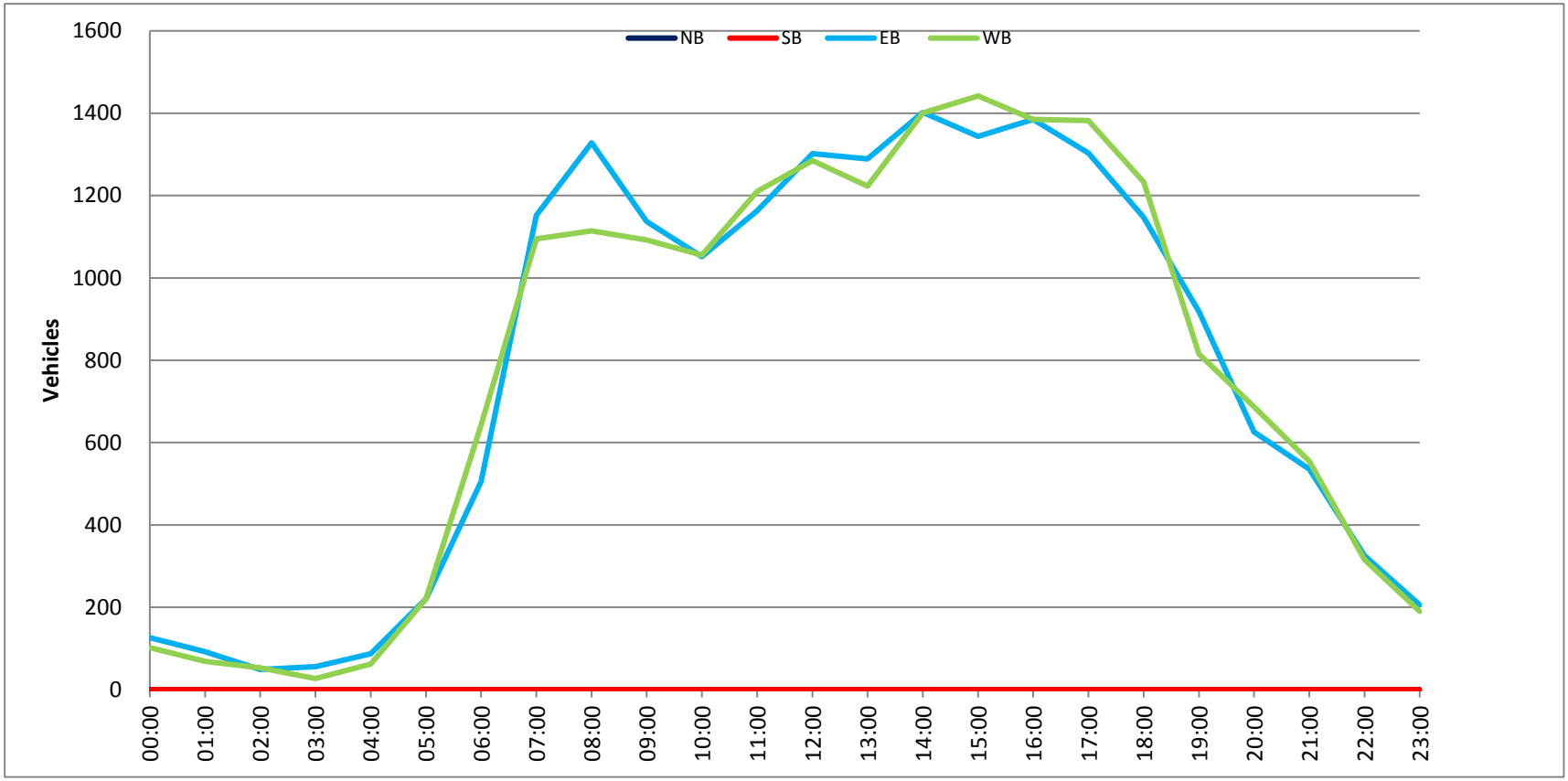
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	18,751	18,655	37,406

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



Prepared by NDS/ATD

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	EB	WB	Total
	0	0	21,485	27,372	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	48	253	**12:45**			396	1527	478	1961	874	3488
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	43	182	**13:45**			348	1476	439	1836	787	3312
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	36	120	**14:45**			409	1625	467	1902	876	3527
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	33	115	**15:45**			415	1512	486	2105	901	3617
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	66	197	**16:45**			379	1561	478	1978	857	3539
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	230	620	**17:45**			317	1495	509	2071	826	3566
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	554	1645	**18:45**			274	1304	437	1728	711	3032
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	870	3099	**19:45**			218	1095	247	1138	465	2233
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	760	3284	**20:45**			160	763	214	955	374	1718
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	765	2921	**21:45**			143	652	133	702	276	1354
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	718	2735	**22:45**			100	397	84	422	184	819
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	816	3028	**23:45**			47	253	51	200	98	453
TOTALS				7825		10374		**18199**	**TOTALS**				13660		16998		**30658**
SPLIT %				43.0%		57.0%		**37.2%**	**SPLIT %**				44.6%		55.4%		**62.8%**

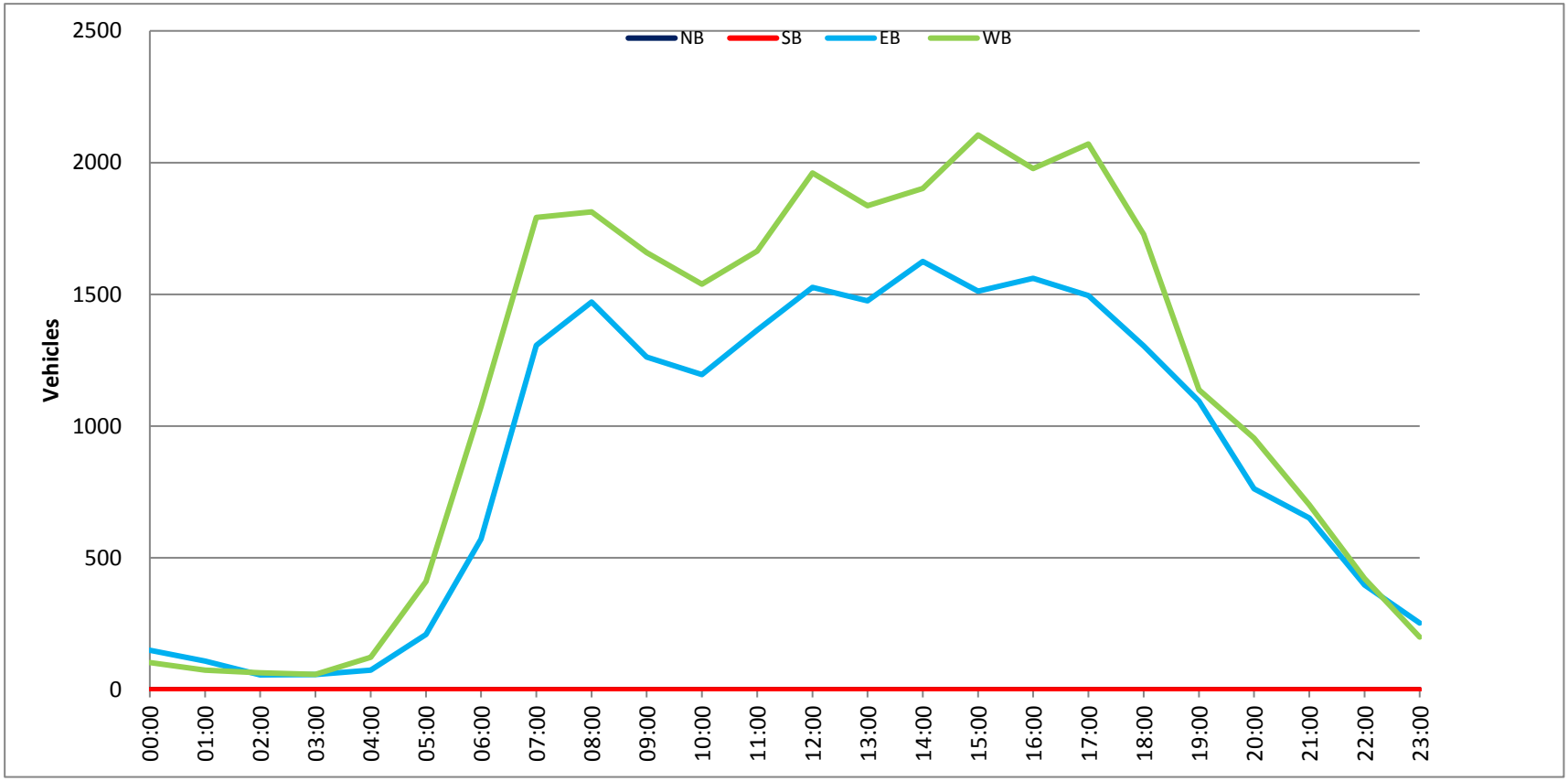
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	21,485	27,372	48,857

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



Prepared by NDS/ATD

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	EB	WB	Total
	0	0	24,660	27,413	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	51	305	**12:45**			430	1662	482	1927	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	47	214	**13:45**			413	1707	453	1832	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	42	156	**14:45**			456	1845	450	1877	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	39	114	**15:45**			488	1825	474	2029	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	77	206	**16:45**			488	1979	461	1903	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	274	707	**17:45**			422	1936	536	2090	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	566	1744	**18:45**			350	1561	443	1719	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	838	3055	**19:45**			259	1242	251	1133	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	774	3297	**20:45**			212	947	214	962	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	785	3029	**21:45**			185	779	139	718	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	753	2896	**22:45**			117	486	84	448	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	880	3183	**23:45**			70	315	47	245	117	560
TOTALS				8376		10530		**18906**	**TOTALS**				16284		16883		**33167**
SPLIT %				44.3%		55.7%		**36.3%**	**SPLIT %**				49.1%		50.9%		**63.7%**

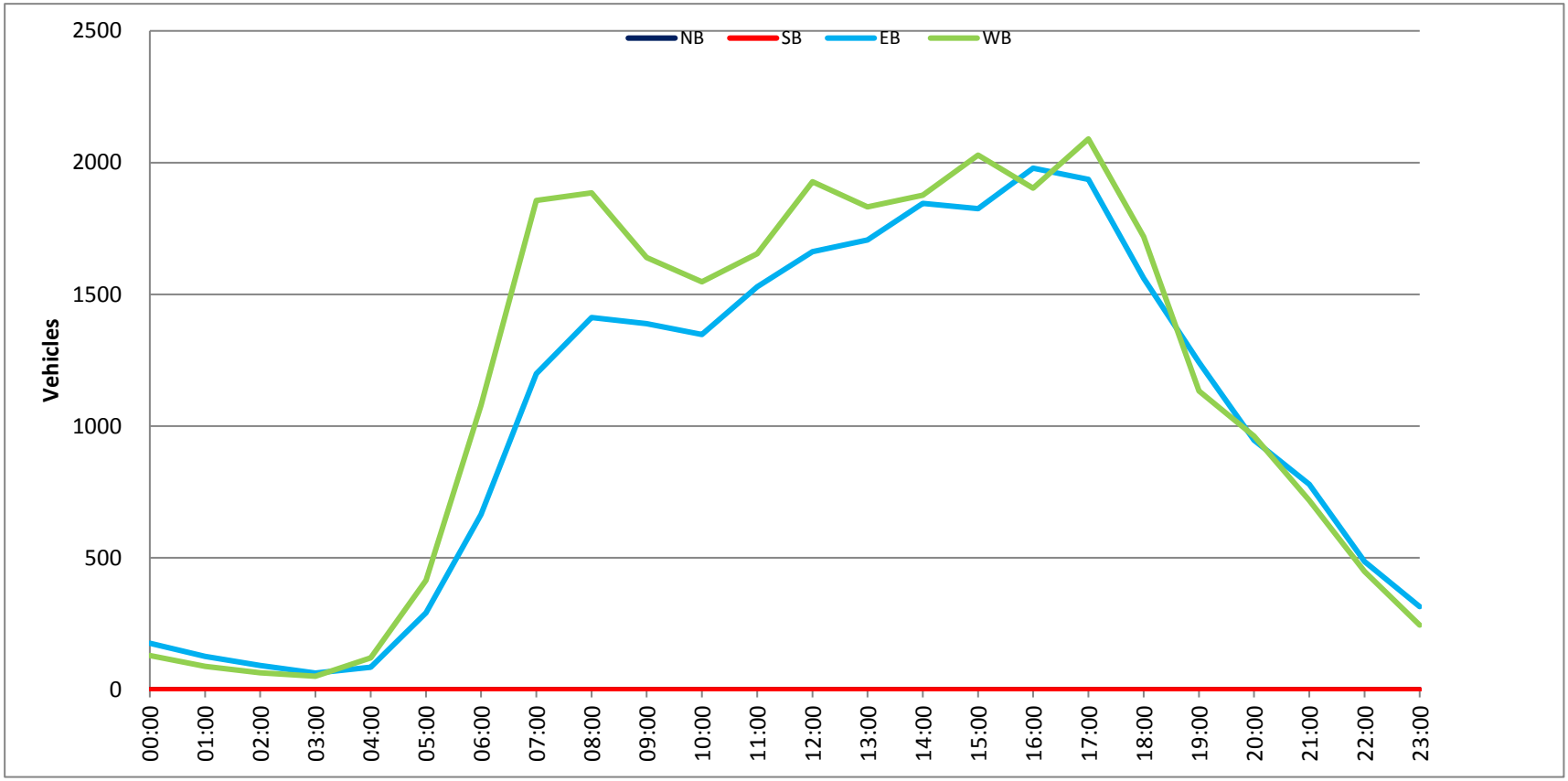
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	24,660	27,413	52,073

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



Prepared by NDS/ATD

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	52	305	**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	46	222	**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	39	153	**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	48	120	**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	74	204	**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	276	724	**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	535	1678	**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	823	2965	**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	782	3158	**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	783	2964	**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	690	2661	**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	810	2930	**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%**

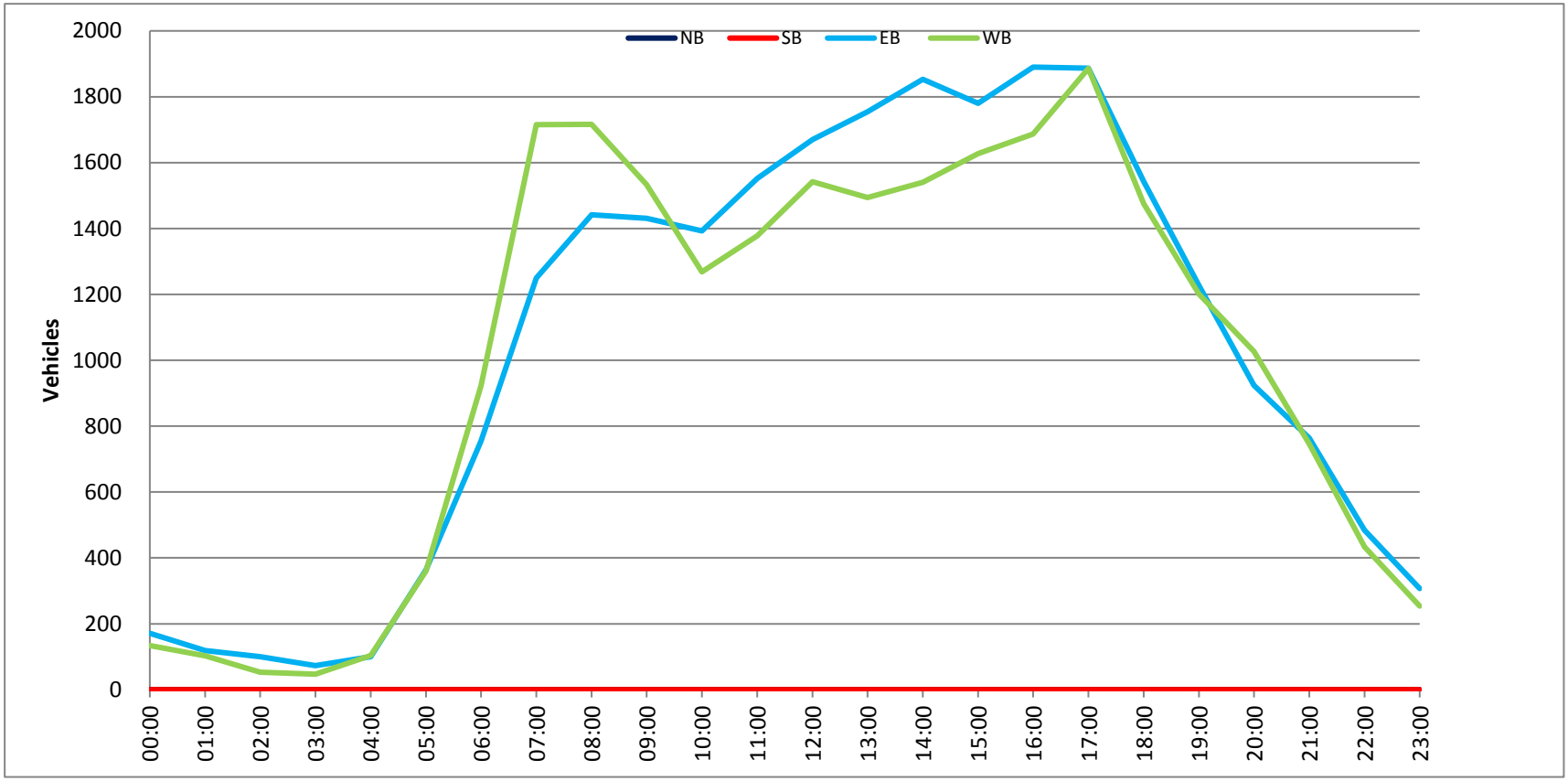
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	24,833	24,246	49,079

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



Prepared by NDS/ATD

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	51	313	**12:45**			351	1360	342	1348	693	2708
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	44	213	**13:45**			313	1369	327	1272	640	2641
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	34	147	**14:45**			397	1487	326	1312	723	2799
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	27	91	**15:45**			406	1530	350	1442	756	2972
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	52	164	**16:45**			442	1650	373	1514	815	3164
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	185	532	**17:45**			369	1664	419	1704	788	3368
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	435	1296	**18:45**			310	1374	326	1317	636	2691
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	743	2632	**19:45**			306	1275	268	1168	574	2443
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	690	2757	**20:45**			234	1069	223	1019	457	2088
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	609	2439	**21:45**			176	818	143	740	319	1558
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	580	2172	**22:45**			112	515	87	433	199	948
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	671	2402	**23:45**			70	324	48	253	118	577
TOTALS				7267		7891		**15158**	**TOTALS**				14435		13522		**27957**
SPLIT %				47.9%		52.1%		**35.2%**	**SPLIT %**				51.6%		48.4%		**64.8%**

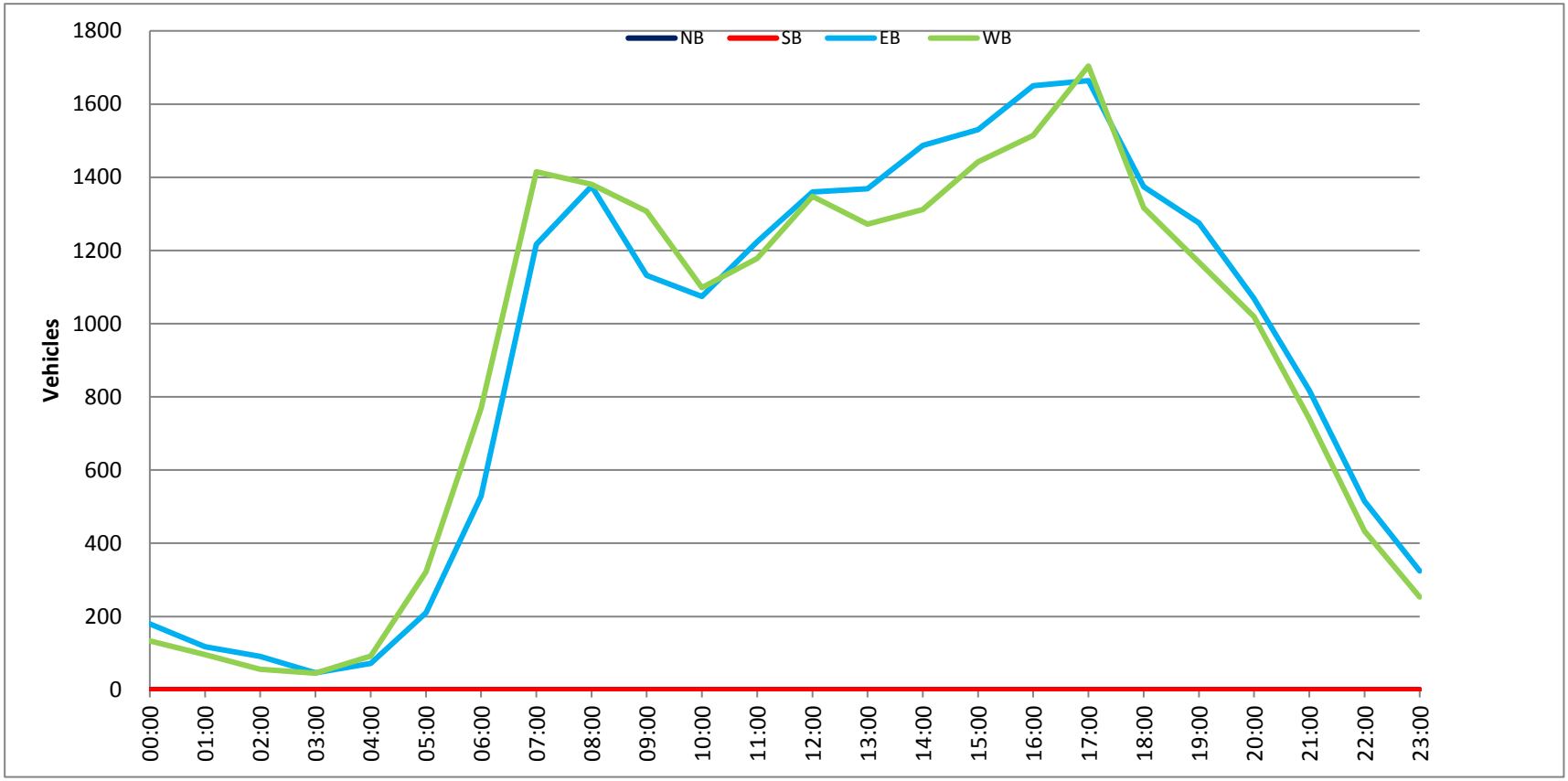
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	21,702	21,413	43,115

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



Prepared by NDS/ATD

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	EB	WB	Total
	15,931	13,771	0	0	29,702

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%**

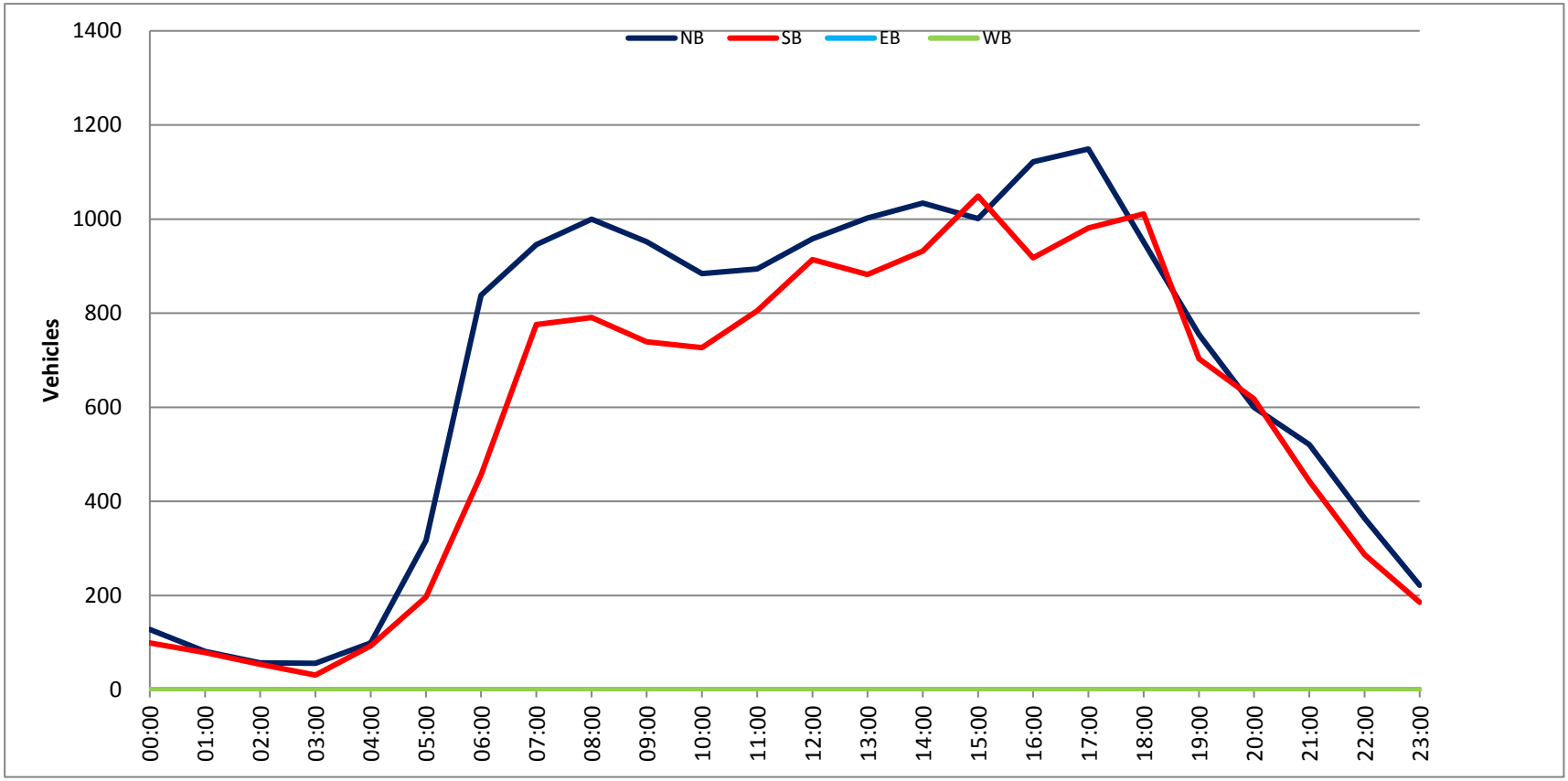
DAILY TOTALS	NB	SB	EB	WB	Total
	15,931	13,771	0	0	29,702

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



Prepared by NDS/ATD

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	213	**12:45**	255	966	210	900			465	1866
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	147	**13:45**	254	992	235	896			489	1888
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	119	**14:45**	252	1067	266	966			518	2033
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	85	**15:45**	271	1020	250	1043			521	2063
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	180	**16:45**	321	1162	230	902			551	2064
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	506	**17:45**	285	1159	248	963			533	2122
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	1316	**18:45**	220	1000	231	992			451	1992
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	1702	**19:45**	185	771	170	696			355	1467
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	1798	**20:45**	148	599	130	611			278	1210
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	1702	**21:45**	102	523	78	432			180	955
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	1614	**22:45**	89	362	58	285			147	647
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	1737	**23:45**	42	213	27	182			69	395
TOTALS		6249		4870				**11119**	**TOTALS**		9834		8868				**18702**
SPLIT %		56.2%		43.8%				**37.3%**	**SPLIT %**		52.6%		47.4%				**62.7%**

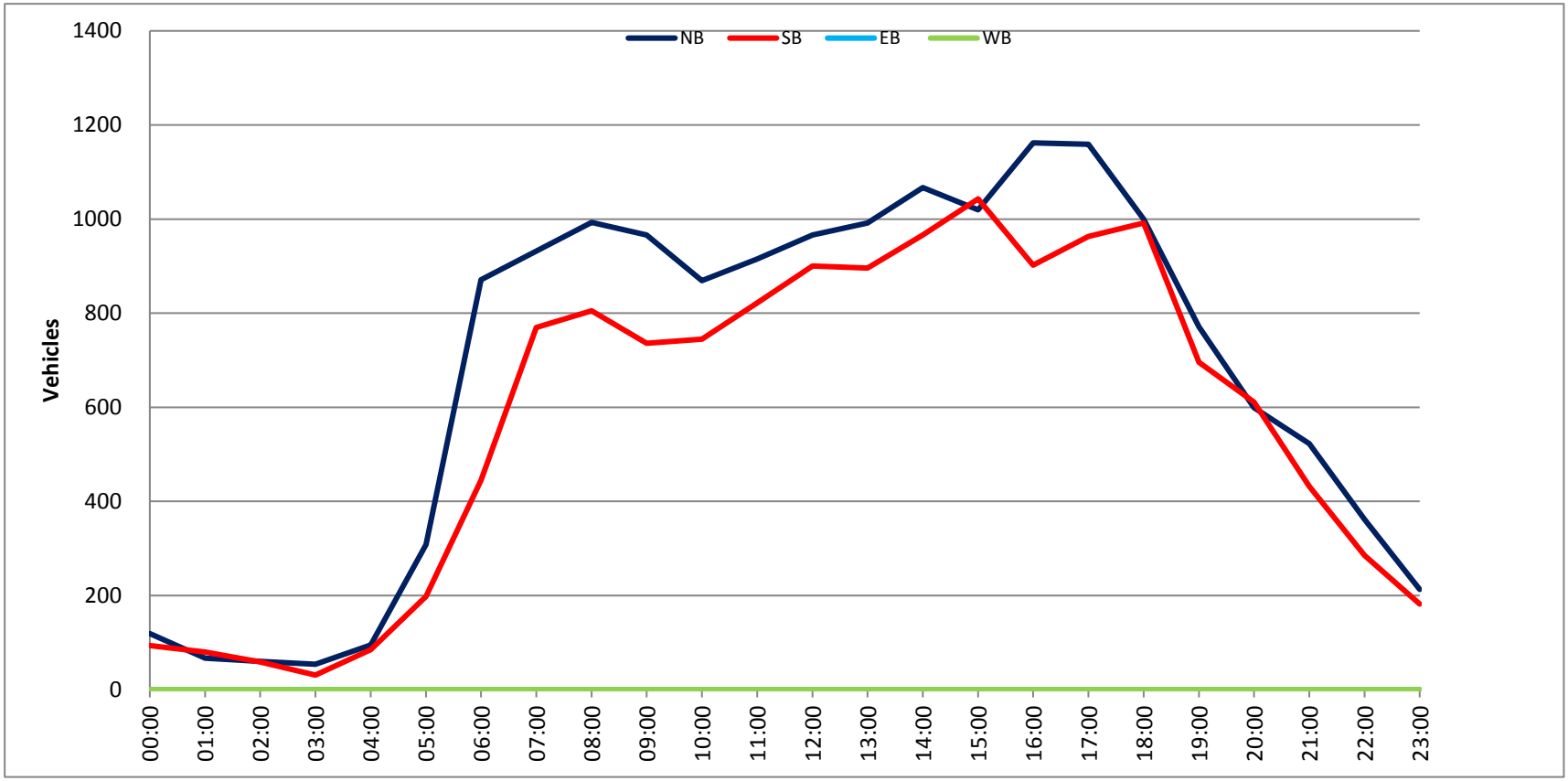
DAILY TOTALS	NB	SB	EB	WB	Total
	16,083	13,738	0	0	29,821

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



Prepared by NDS/ATD

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	74	445	**12:45**			468	1939	449	1928	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	75	304	**13:45**			475	1891	490	1878	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	38	177	**14:45**			500	1930	521	1909	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	51	178	**15:45**			447	1833	535	2147	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	85	271	**16:45**			432	1687	534	2153	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	339	856	**17:45**			428	1664	559	2244	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	680	2257	**18:45**			405	1617	562	2232	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	899	3488	**19:45**			301	1363	417	1776	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	867	3608	**20:45**			239	1092	308	1447	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	955	3404	**21:45**			180	927	251	1205	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	816	3171	**22:45**			149	627	166	742	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	913	3516	**23:45**			82	390	83	398	165	788
TOTALS				11762		9913		**21675**	**TOTALS**				16960		20059		**37019**
SPLIT %				54.3%		45.7%		**36.9%**	**SPLIT %**				45.8%		54.2%		**63.1%**

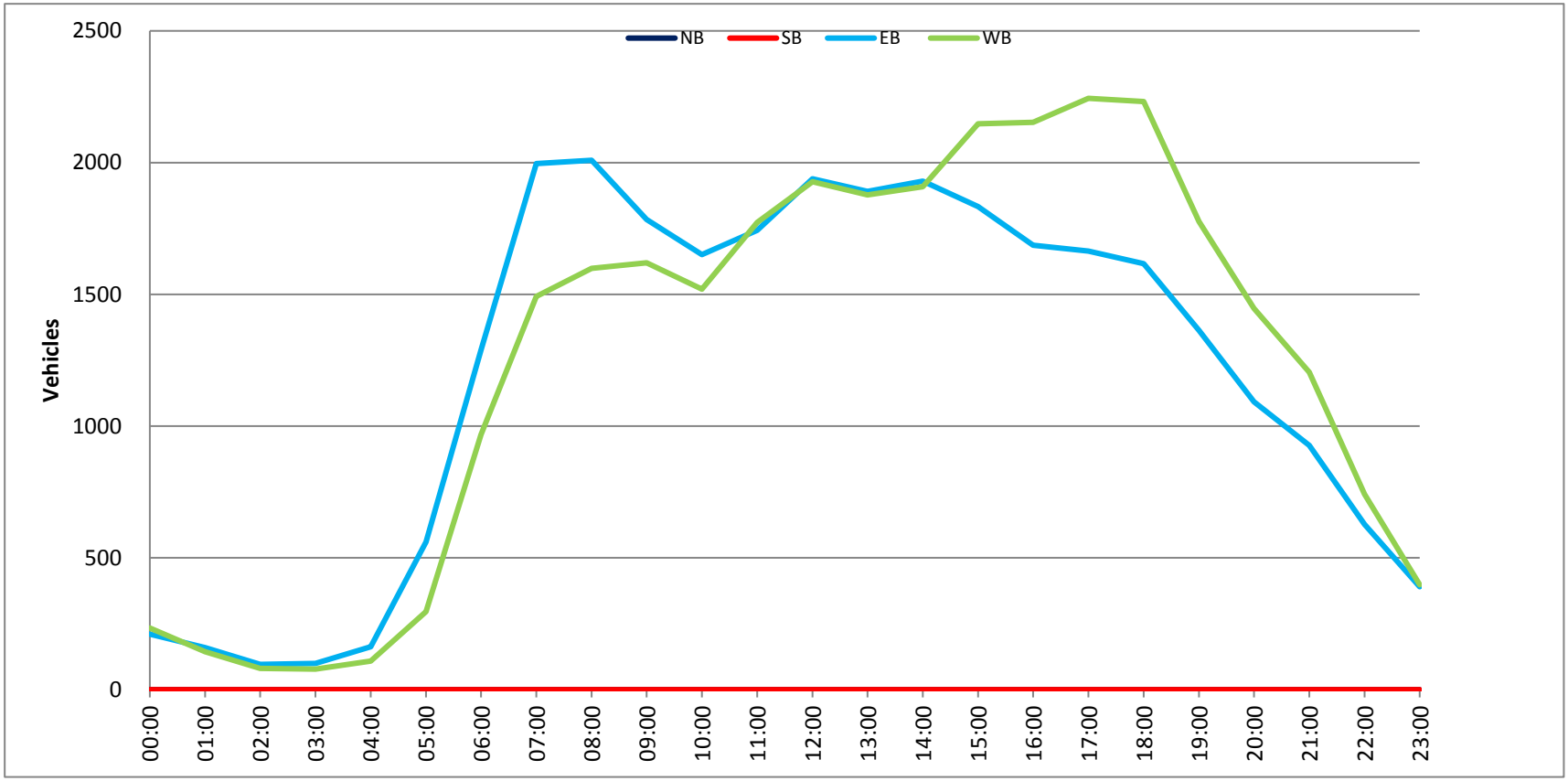
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	28,722	29,972	58,694

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



Prepared by NDS/ATD

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	77	422	**12:45**			250	1010	240	986	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	64	260	**13:45**			268	985	301	1070	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	23	188	**14:45**			310	1257	294	1175	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	30	130	**15:45**			326	1319	319	1275	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	78	204	**16:45**			311	1313	375	1412	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	190	534	**17:45**			298	1326	397	1631	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	475	1415	**18:45**			253	1068	348	1441	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	640	2464	**19:45**			246	974	245	1055	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	532	2254	**20:45**			178	781	217	888	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	484	1944	**21:45**			161	675	266	958	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	459	1803	**22:45**			142	579	174	767	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	456	1830	**23:45**			74	382	82	427	156	809
TOTALS				8314		5134		**13448**	**TOTALS**				11669		13085		**24754**
SPLIT %				61.8%		38.2%		**35.2%**	**SPLIT %**				47.1%		52.9%		**64.8%**

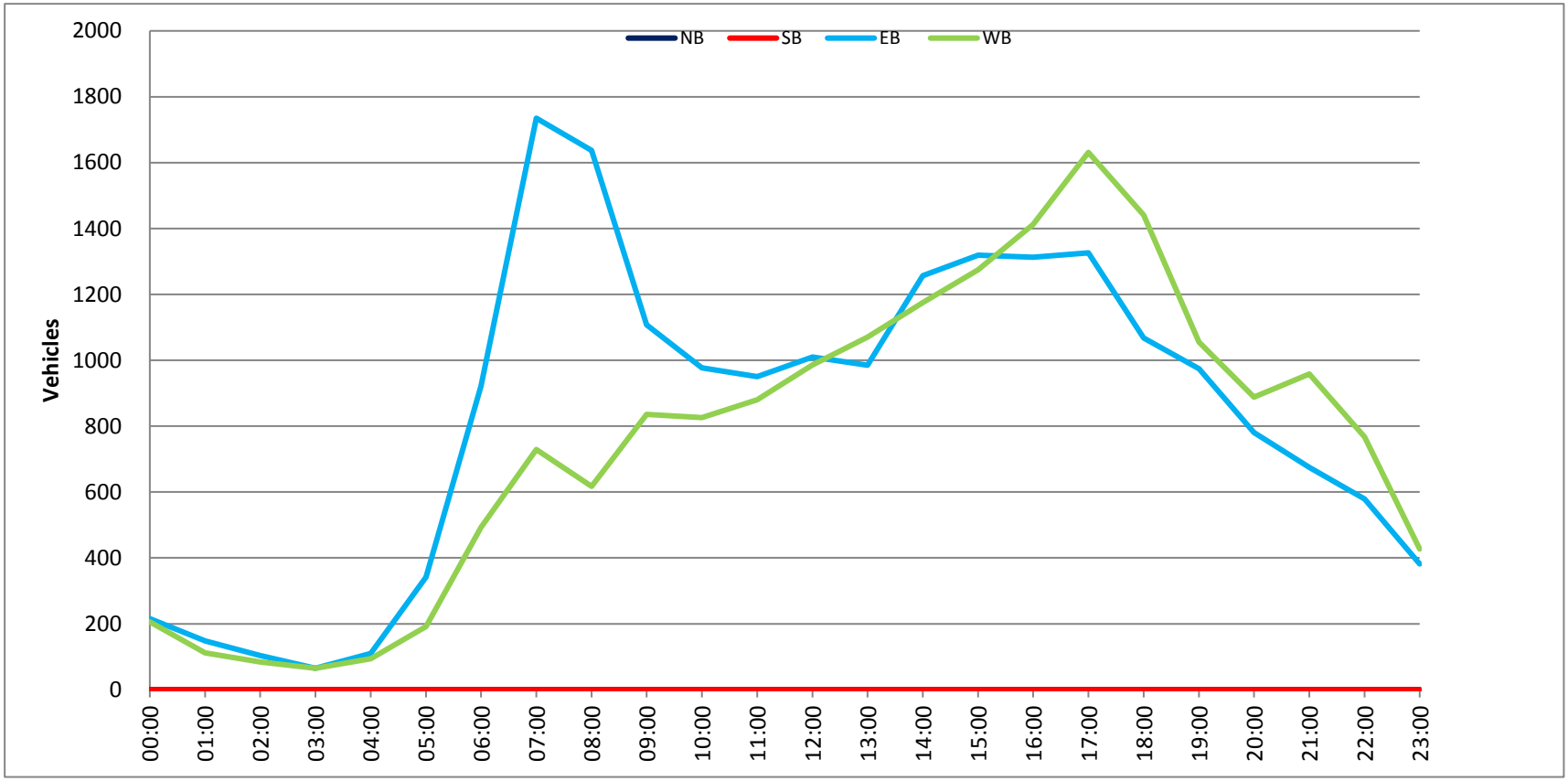
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	19,983	18,219	38,202

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



Prepared by NDS/ATD

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	EB	WB	Total
	15,626	13,376	0	0	29,002

AM Period	NB		SB		EB		WB		TOTAL	
00:00	36		30						66	
00:15	32		21						53	
00:30	28		24						52	
00:45	17	113	18	93					35	206
01:00	26		24						50	
01:15	13		20						33	
01:30	22		13						35	
01:45	21	82	14	71					35	153
02:00	9		19						28	
02:15	19		8						27	
02:30	18		13						31	
02:45	14	60	18	58					32	118
03:00	10		5						15	
03:15	12		9						21	
03:30	20		9						29	
03:45	15	57	8	31					23	88
04:00	15		14						29	
04:15	17		15						32	
04:30	27		17						44	
04:45	35	94	42	88					77	182
05:00	46		34						80	
05:15	52		38						90	
05:30	86		38						124	
05:45	138	322	99	209					237	531
06:00	157		84						241	
06:15	197		113						310	
06:30	244		110						354	
06:45	274	872	133	440					407	1312
07:00	254		161						415	
07:15	205		217						422	
07:30	194		179						373	
07:45	255	908	188	745					443	1653
08:00	266		154						420	
08:15	231		188						419	
08:30	252		183						435	
08:45	281	1030	211	736					492	1766
09:00	264		162						426	
09:15	198		185						383	
09:30	240		159						399	
09:45	226	928	197	703					423	1631
10:00	207		166						373	
10:15	204		168						372	
10:30	225		201						426	
10:45	225	861	181	716					406	1577
11:00	191		172						363	
11:15	218		202						420	
11:30	236		234						470	
11:45	258	903	216	824					474	1727
TOTALS		6230		4714						**10944**
SPLIT %		56.9%		43.1%						**37.7%**

PM Period	NB		SB		EB		WB		TOTAL	
12:00	224		203						427	
12:15	229		218						447	
12:30	209		227						436	
12:45	236	898	206	854					442	1752
13:00	239		176						415	
13:15	231		237						468	
13:30	252		212						464	
13:45	265	987	223	848					488	1835
14:00	253		213						466	
14:15	298		203						501	
14:30	258		230						488	
14:45	250	1059	257	903					507	1962
15:00	247		257						504	
15:15	234		248						482	
15:30	208		225						433	
15:45	259	948	257	987					516	1935
16:00	273		216						489	
16:15	257		232						489	
16:30	272		236						508	
16:45	281	1083	226	910					507	1993
17:00	276		219						495	
17:15	279		221						500	
17:30	282		278						560	
17:45	265	1102	251	969					516	2071
18:00	274		264						538	
18:15	213		256						469	
18:30	229		251						480	
18:45	218	934	237	1008					455	1942
19:00	190		196						386	
19:15	176		177						353	
19:30	190		146						336	
19:45	182	738	173	692					355	1430
20:00	144		167						311	
20:15	160		156						316	
20:30	143		151						294	
20:45	138	585	129	603					267	1188
21:00	142		124						266	
21:15	139		115						254	
21:30	125		102						227	
21:45	106	512	80	421					186	933
22:00	94		76						170	
22:15	94		82						176	
22:30	72		70						142	
22:45	75	335	55	283					130	618
23:00	67		67						134	
23:15	57		43						100	
23:30	43		43						86	
23:45	48	215	31	184					79	399
TOTALS		9396		8662						**18058**
SPLIT %		52.0%		48.0%						**62.3%**

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

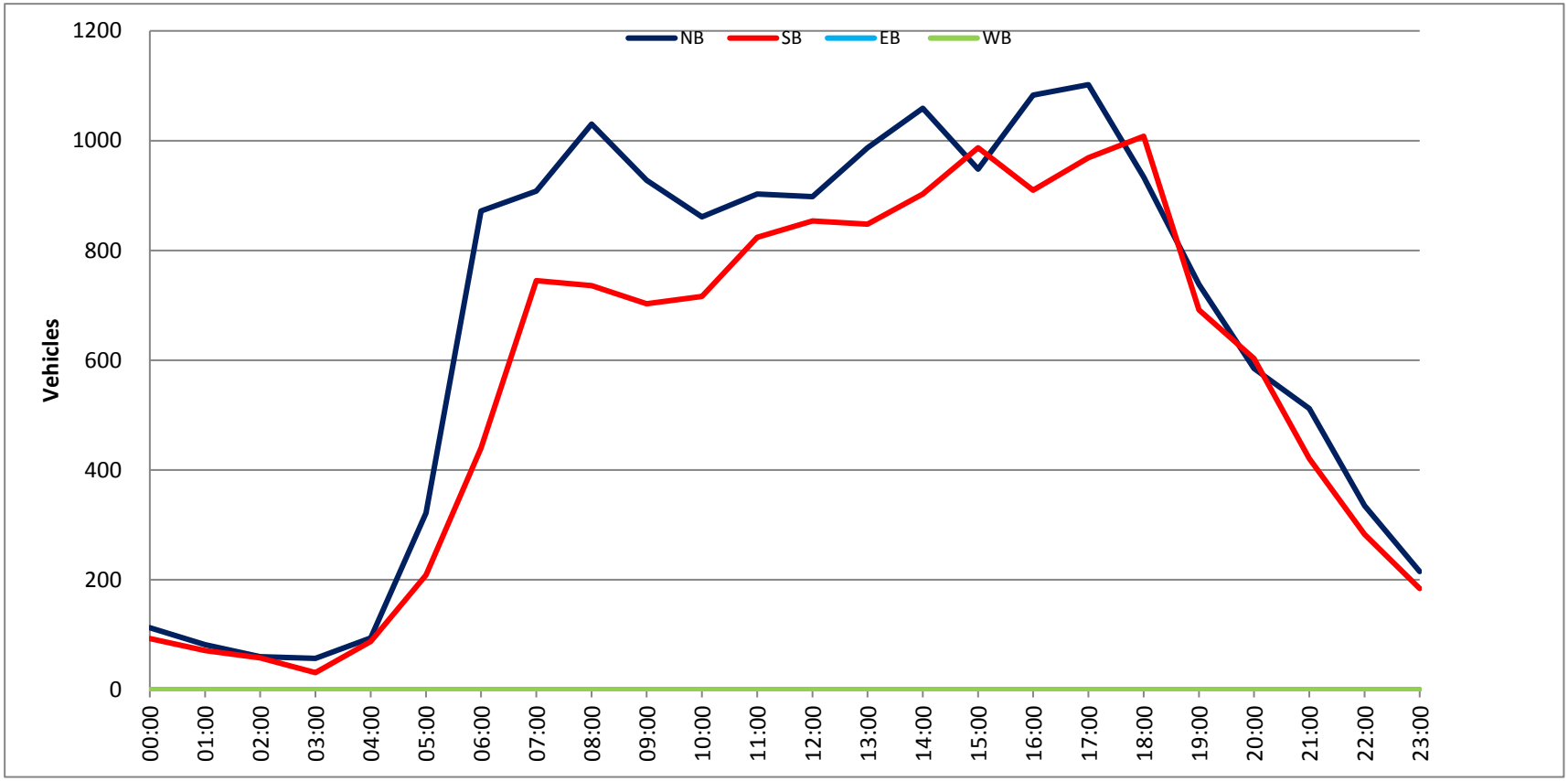
AM Peak Hour	08:00	11:30			**11:30**
AM Pk Volume	1030	871			**1818**
Pk Hr Factor	0.916	0.931			**0.959**
7 - 9 Volume	1938	1481	0	0	**3419**
7 - 9 Peak Hour	08:00	07:00			**08:00**
7 - 9 Pk Volume	1030	745	0	0	**1766**
Pk Hr Factor	0.916	0.858	0.000	0.000	**0.897**

PM Peak Hour	16:45	17:30			**17:15**
PM Pk Volume	1118	1049			**2114**
Pk Hr Factor	0.991	0.943			**0.944**
4 - 6 Volume	2185	1879	0	0	**4064**
4 - 6 Peak Hour	16:45	17:00			**17:00**
4 - 6 Pk Volume	1118	969	0	0	**2071**
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



Prepared by NDS/ATD

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%**

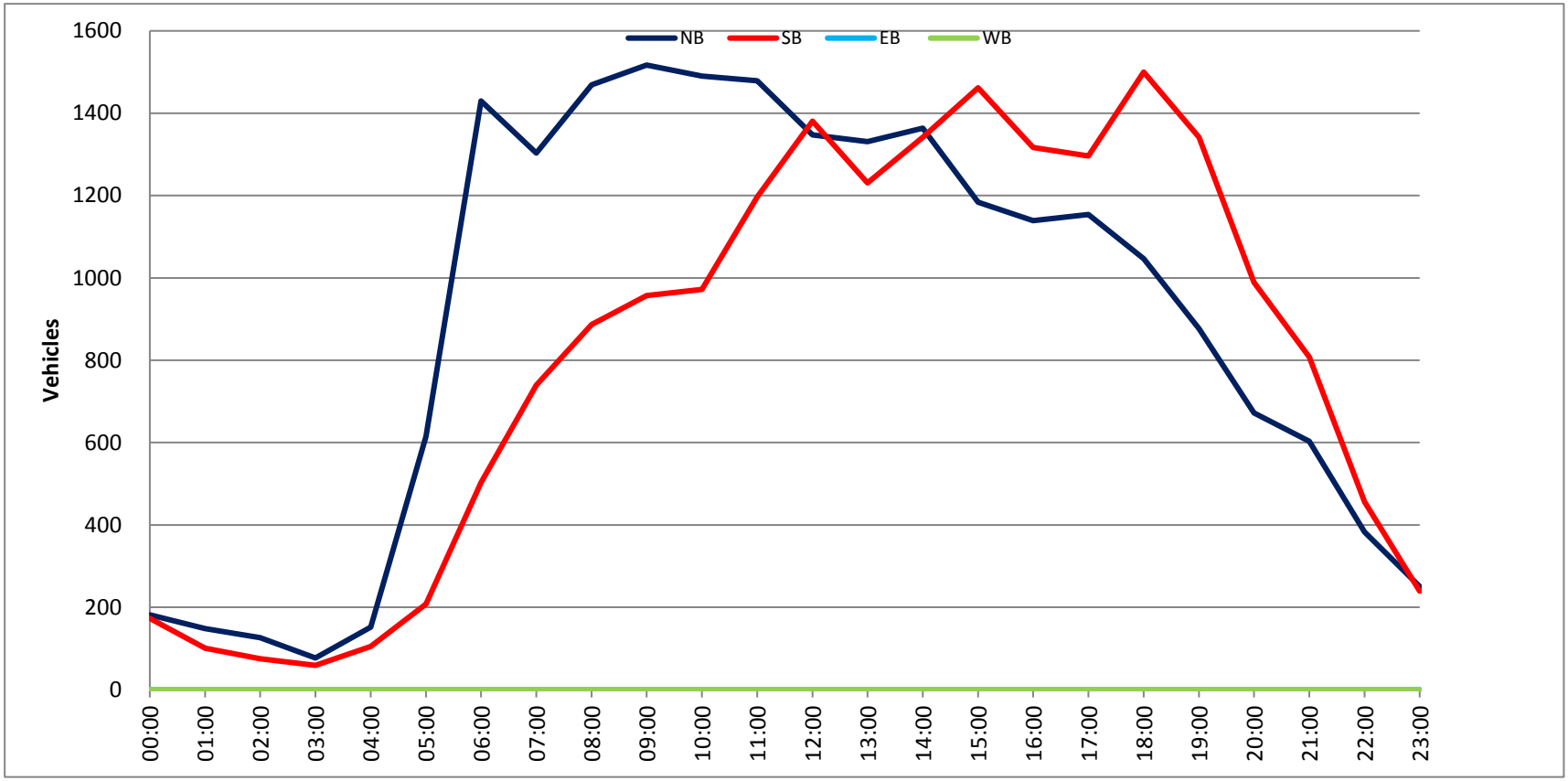
DAILY TOTALS	NB	SB	EB	WB	Total
	21,340	19,340	0	0	40,680

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



Prepared by NDS/ATD

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	
00:00	52		43						95	
00:15	44		37						81	
00:30	32		41						73	
00:45	19	147	16	137					35	284
01:00	23		25						48	
01:15	29		26						55	
01:30	24		15						39	
01:45	30	106	21	87					51	193
02:00	26		20						46	
02:15	24		14						38	
02:30	32		16						48	
02:45	23	105	11	61					34	166
03:00	13		17						30	
03:15	15		10						25	
03:30	14		8						22	
03:45	15	57	14	49					29	106
04:00	23		14						37	
04:15	31		17						48	
04:30	29		29						58	
04:45	38	121	24	84					62	205
05:00	55		17						72	
05:15	85		34						119	
05:30	165		69						234	
05:45	181	486	76	196					257	682
06:00	185		94						279	
06:15	248		114						362	
06:30	366		115						481	
06:45	352	1151	148	471					500	1622
07:00	339		163						502	
07:15	328		158						486	
07:30	318		160						478	
07:45	327	1312	184	665					511	1977
08:00	345		208						553	
08:15	330		196						526	
08:30	316		182						498	
08:45	262	1253	205	791					467	2044
09:00	299		196						495	
09:15	312		206						518	
09:30	291		203						494	
09:45	304	1206	220	825					524	2031
10:00	267		213						480	
10:15	288		209						497	
10:30	316		224						540	
10:45	290	1161	225	871					515	2032
11:00	290		244						534	
11:15	302		276						578	
11:30	302		294						596	
11:45	281	1175	297	1111					578	2286
TOTALS		8280		5348						**13628**
SPLIT %		60.8%		39.2%						**38.3%**

PM Period	NB		SB		EB		WB		TOTAL	
12:00	257		331						588	
12:15	299		295						594	
12:30	349		271						620	
12:45	327	1232	327	1224					654	2456
13:00	314		236						550	
13:15	331		304						635	
13:30	283		302						585	
13:45	312	1240	291	1133					603	2373
14:00	310		283						593	
14:15	305		302						607	
14:30	342		314						656	
14:45	321	1278	334	1233					655	2511
15:00	312		333						645	
15:15	293		337						630	
15:30	292		286						578	
15:45	273	1170	314	1270					587	2440
16:00	249		277						526	
16:15	306		223						529	
16:30	245		190						435	
16:45	293	1093	222	912					515	2005
17:00	300		132						432	
17:15	260		148						408	
17:30	322		197						519	
17:45	296	1178	215	692					511	1870
18:00	263		193						456	
18:15	272		328						600	
18:30	248		344						592	
18:45	237	1020	328	1193					565	2213
19:00	238		343						581	
19:15	219		351						570	
19:30	211		260						471	
19:45	192	860	248	1202					440	2062
20:00	166		228						394	
20:15	158		205						363	
20:30	155		254						409	
20:45	161	640	185	872					346	1512
21:00	167		205						372	
21:15	165		179						344	
21:30	144		160						304	
21:45	105	581	156	700					261	1281
22:00	99		123						222	
22:15	102		113						215	
22:30	88		94						182	
22:45	74	363	91	421					165	784
23:00	69		66						135	
23:15	63		63						126	
23:30	56		45						101	
23:45	47	235	36	210					83	445
TOTALS		10890		11062						**21952**
SPLIT %		49.6%		50.4%						**61.7%**

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

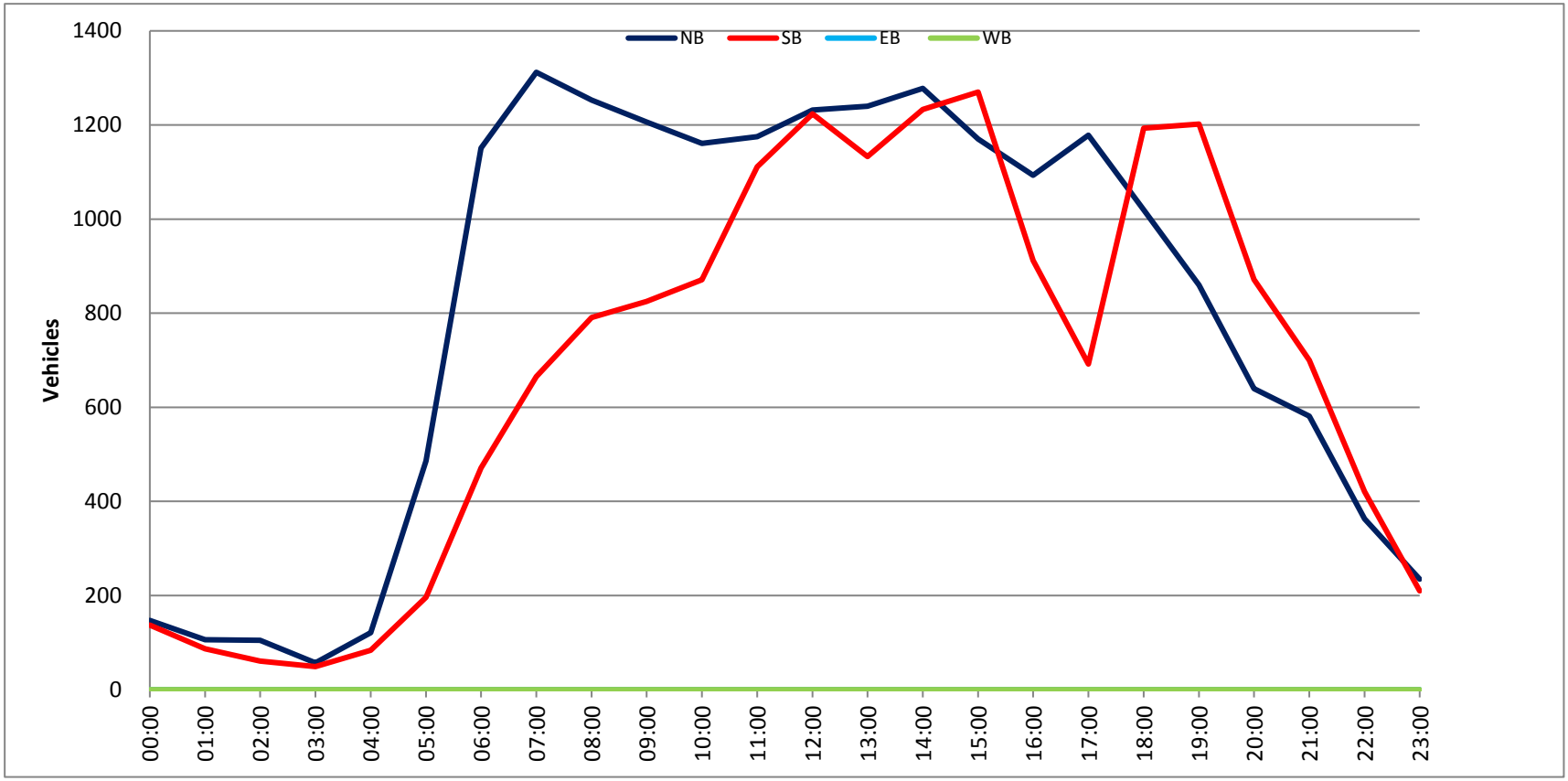
AM Peak Hour	06:30	11:30			**11:45**
AM Pk Volume	1385	1217			**2380**
Pk Hr Factor	0.946	0.919			**0.960**
7 - 9 Volume	2565	1456	0	0	**4021**
7 - 9 Peak Hour	07:30	08:00			**07:45**
7 - 9 Pk Volume	1320	791	0	0	**2088**
Pk Hr Factor	0.957	0.951	0.000	0.000	**0.944**

PM Peak Hour	12:30	18:30			**14:30**
PM Pk Volume	1321	1366			**2586**
Pk Hr Factor	0.946	0.973			**0.986**
4 - 6 Volume	2271	1604	0	0	**3875**
4 - 6 Peak Hour	17:00	16:00			**16:00**
4 - 6 Pk Volume	1178	912	0	0	**2005**
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



Prepared by NDS/ATD

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	66	379	12:45			267	1076	227	915	494	1991
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	59	226	13:45			281	1066	263	977	544	2043
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	22	172	14:45			351	1408	257	1064	608	2472
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	23	113	15:45			370	1438	302	1149	672	2587
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	68	195	16:45			362	1411	420	1455	782	2866
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	178	517	17:45			321	1476	384	1598	705	3074
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	419	1341	18:45			267	1154	276	1239	543	2393
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	653	2731	19:45			258	1040	200	905	458	1945
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	571	2485	20:45			196	861	180	701	376	1562
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	535	2070	21:45			172	736	141	593	313	1329
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	429	1908	22:45			148	614	74	406	222	1020
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	469	1818	23:45			85	422	64	256	149	678
TOTALS				8352		5603		13955	TOTALS				12702		11258		23960
SPLIT %				59.8%		40.2%		36.8%	SPLIT %				53.0%		47.0%		63.2%

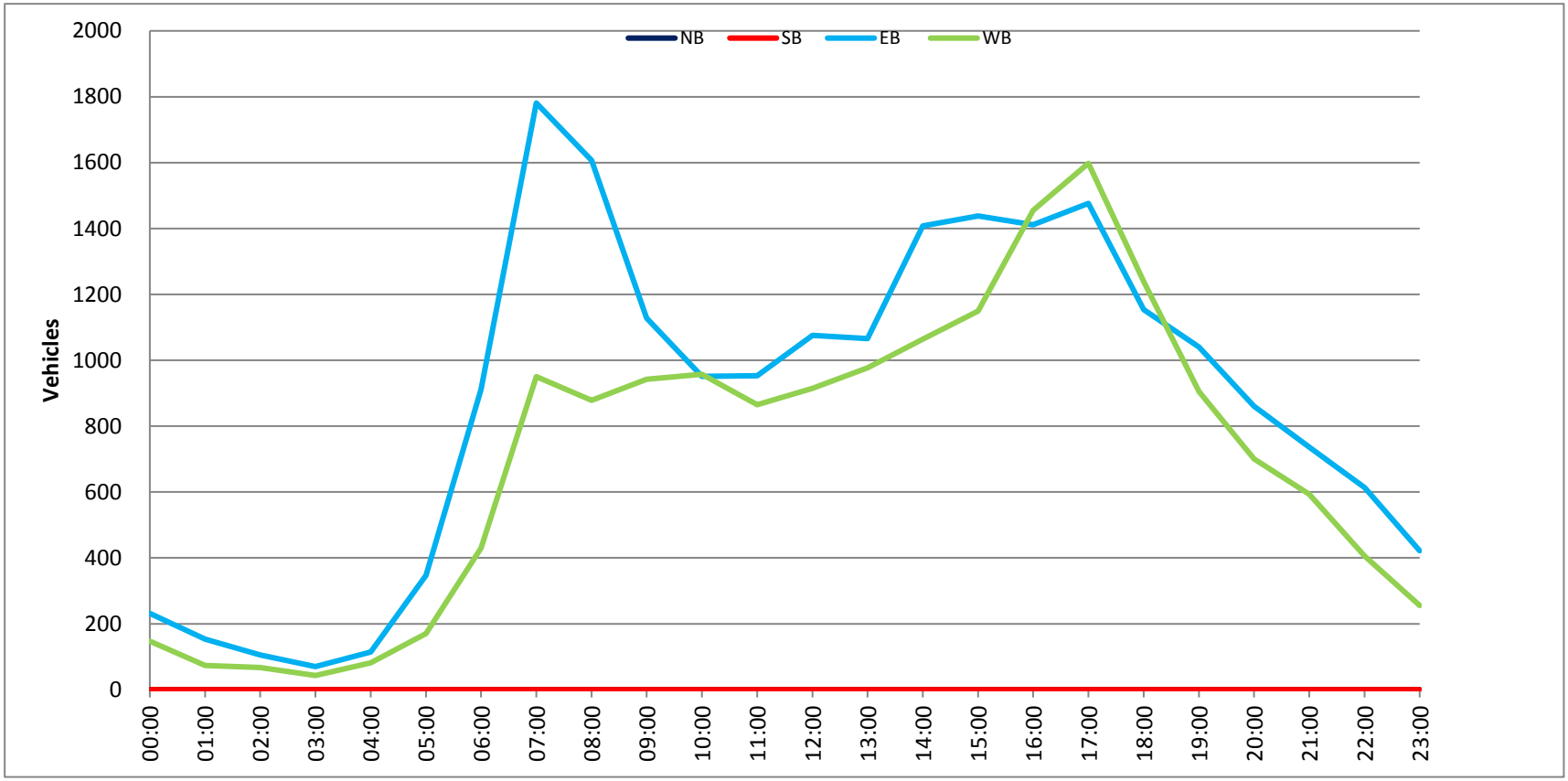
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	21,054	16,861	37,915

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



Prepared by NDS/ATD

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%**

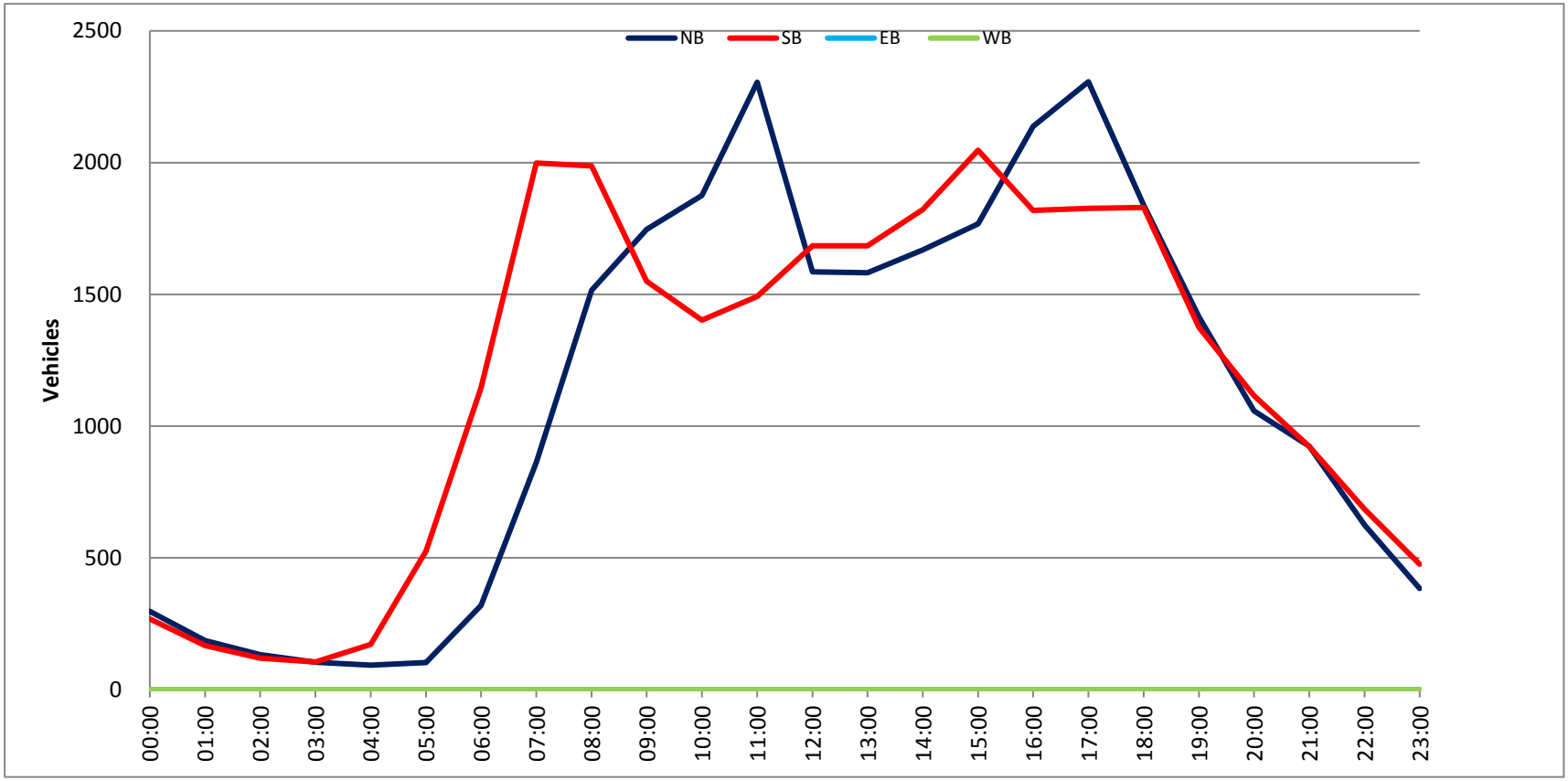
DAILY TOTALS	NB	SB	EB	WB	Total
	26,832	28,219	0	0	55,051

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



Prepared by NDS/ATD

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	4	14	**12:45**			54	204	39	174	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	2	15	**13:45**			42	176	42	160	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	11	22	**14:45**			51	196	35	157	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	1	23	**15:45**			38	153	37	164	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	5	32	**16:45**			27	128	52	175	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	63	138	**17:45**			26	121	35	203	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	57	241	**18:45**			29	108	37	146	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	60	218	**19:45**			10	61	17	73	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	73	258	**20:45**			13	41	8	63	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	72	256	**21:45**			7	42	11	51	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	60	236	**22:45**			3	29	2	24	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	80	268	**23:45**			3	16	5	29	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



Prepared by NDS/ATD

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	EB	WB	Total
	0	0	7,612	6,651	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	**12:45**			111	433	111	436	222	869
01:00			16		13		29		**13:00**			107		97		204	
01:15			6		12		18		**13:15**			121		95		216	
01:30			13		6		19		**13:30**			114		88		202	
01:45			10	45	11	42	21	87	**13:45**			124	466	102	382	226	848
02:00			7		8		15		**14:00**			122		94		216	
02:15			7		11		18		**14:15**			113		107		220	
02:30			7		3		10		**14:30**			109		111		220	
02:45			5	26	3	25	8	51	**14:45**			106	450	113	425	219	875
03:00			6		3		9		**15:00**			94		103		197	
03:15			6		4		10		**15:15**			112		92		204	
03:30			4		3		7		**15:30**			100		124		224	
03:45			6	22	7	17	13	39	**15:45**			122	428	134	453	256	881
04:00			12		3		15		**16:00**			108		141		249	
04:15			10		4		14		**16:15**			119		156		275	
04:30			11		12		23		**16:30**			121		116		237	
04:45			21	54	13	32	34	86	**16:45**			95	443	124	537	219	980
05:00			18		9		27		**17:00**			88		133		221	
05:15			33		12		45		**17:15**			112		169		281	
05:30			68		14		82		**17:30**			113		144		257	
05:45			67	186	15	50	82	236	**17:45**			116	429	134	580	250	1009
06:00			69		17		86		**18:00**			114		148		262	
06:15			101		30		131		**18:15**			103		156		259	
06:30			161		45		206		**18:30**			85		138		223	
06:45			125	456	44	136	169	592	**18:45**			100	402	144	586	244	988
07:00			146		42		188		**19:00**			99		138		237	
07:15			161		61		222		**19:15**			83		118		201	
07:30			133		54		187		**19:30**			82		108		190	
07:45			136	576	53	210	189	786	**19:45**			83	347	103	467	186	814
08:00			144		52		196		**20:00**			72		90		162	
08:15			156		65		221		**20:15**			74		98		172	
08:30			120		71		191		**20:30**			70		84		154	
08:45			119	539	77	265	196	804	**20:45**			69	285	84	356	153	641
09:00			132		85		217		**21:00**			68		72		140	
09:15			128		63		191		**21:15**			68		54		122	
09:30			128		84		212		**21:30**			57		47		104	
09:45			131	519	90	322	221	841	**21:45**			53	246	60	233	113	479
10:00			99		87		186		**22:00**			52		54		106	
10:15			135		76		211		**22:15**			47		54		101	
10:30			115		65		180		**22:30**			43		51		94	
10:45			115	464	83	311	198	775	**22:45**			29	171	58	217	87	388
11:00			99		79		178		**23:00**			29		45		74	
11:15			113		80		193		**23:15**			22		38		60	
11:30			90		83		173		**23:30**			29		33		62	
11:45			133	435	115	357	248	792	**23:45**			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%**

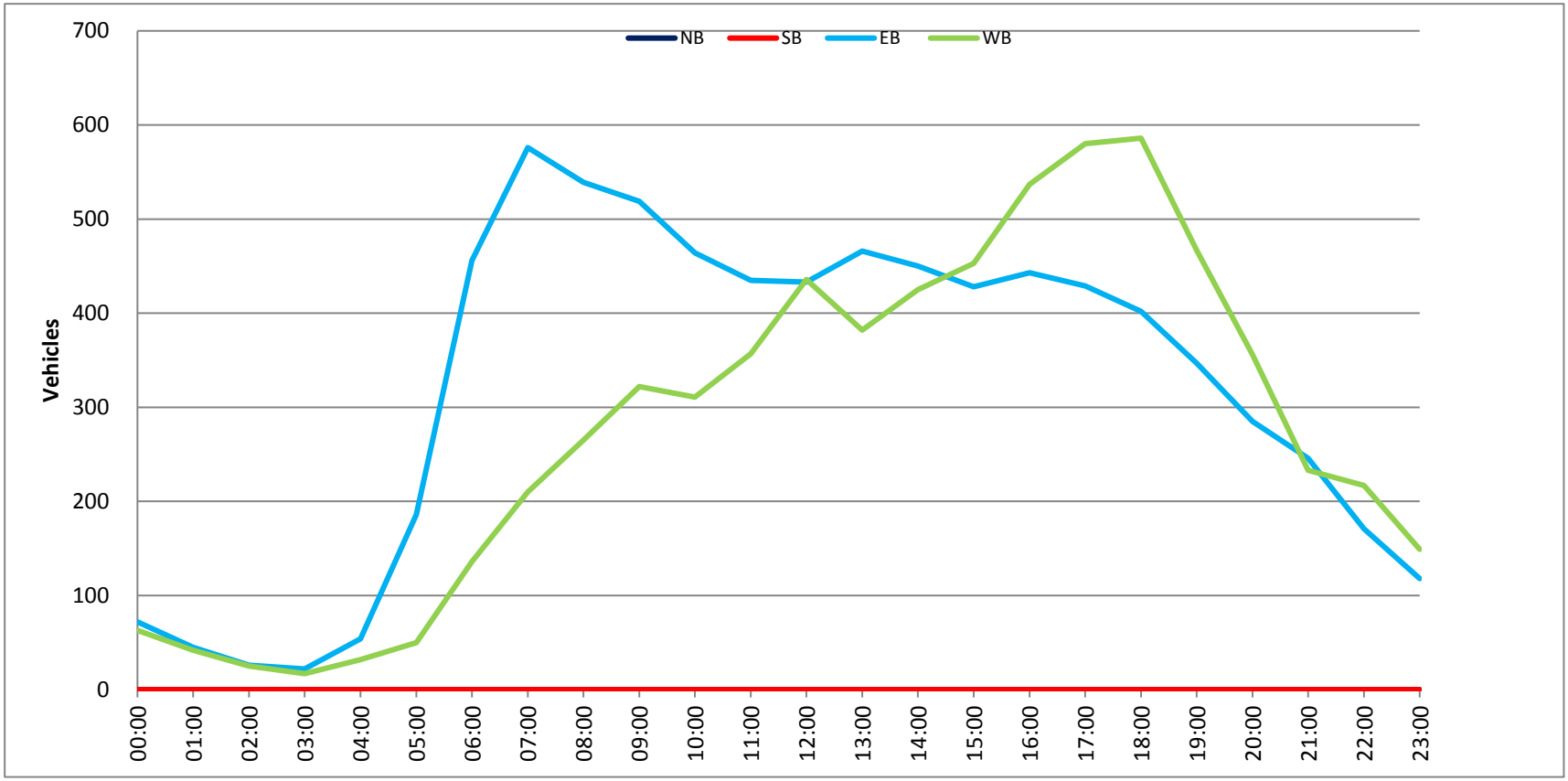
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,612	6,651	14,263

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



Prepared by NDS/ATD

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%**

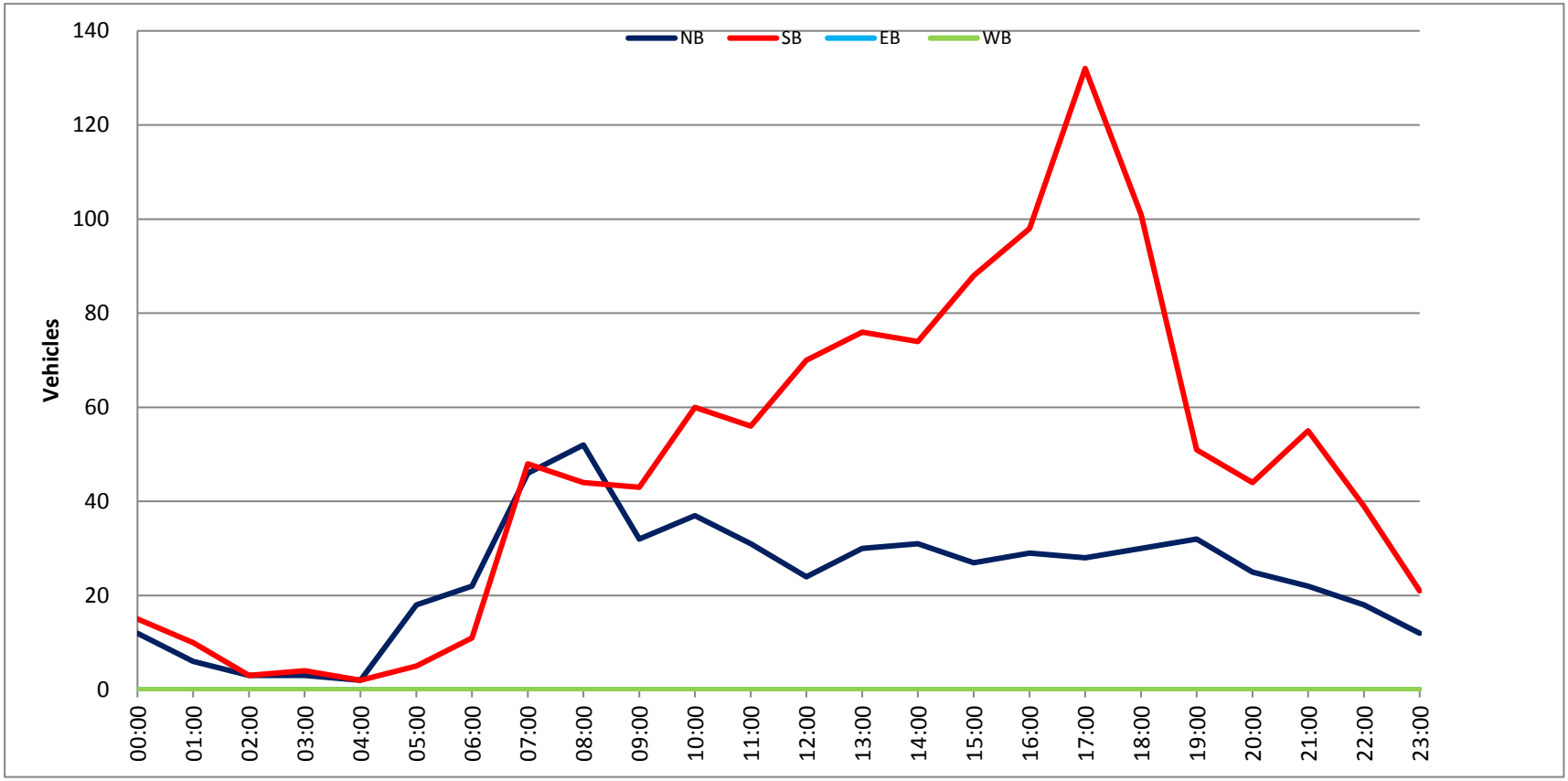
DAILY TOTALS	NB	SB	EB	WB	Total
	572	1,150	0	0	1,722

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



Prepared by NDS/ATD

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%

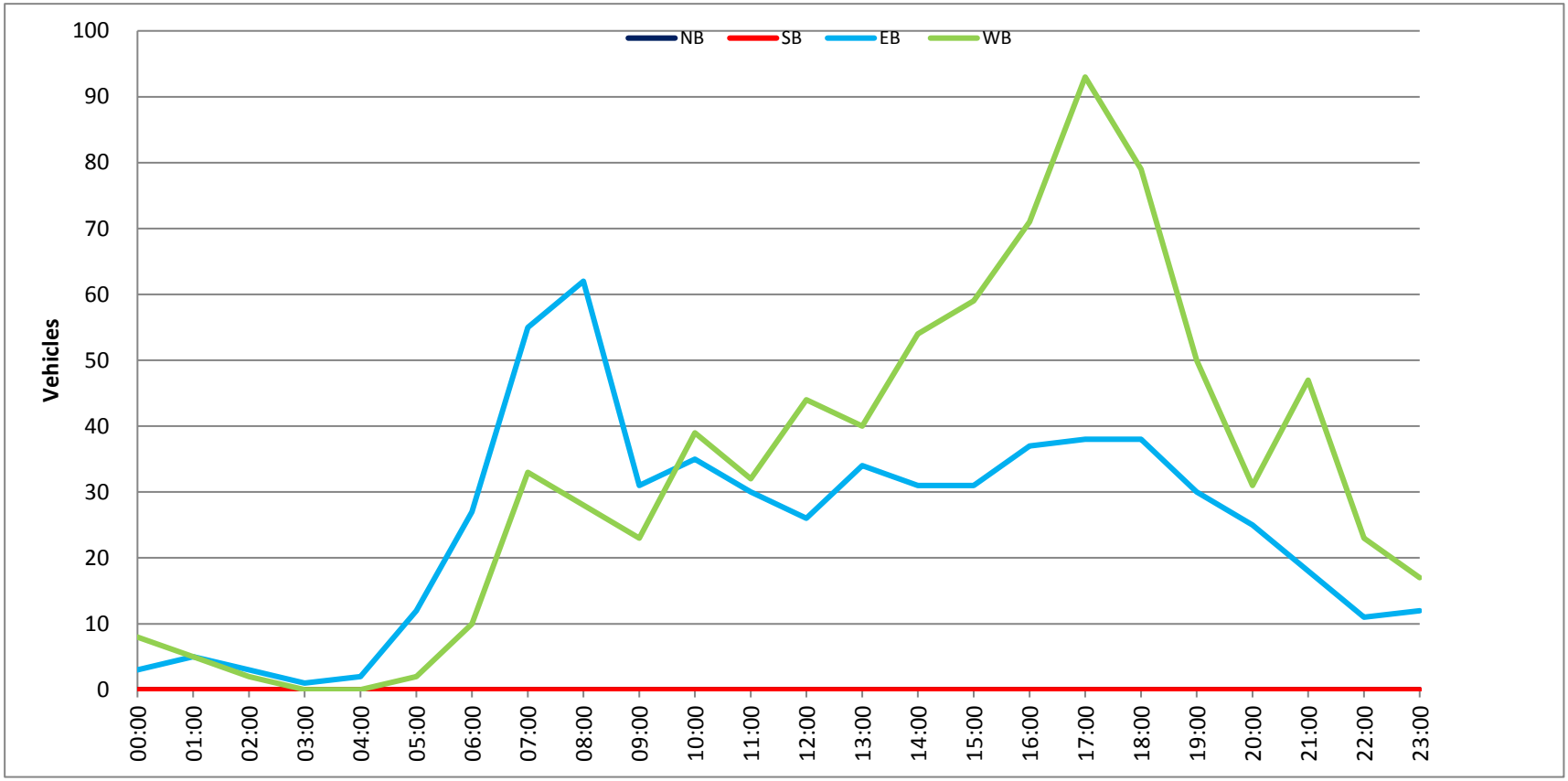
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	597	790	1,387

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



Prepared by NDS/ATD

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	EB	WB	Total
	1,022	57	0	0	1,079

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%

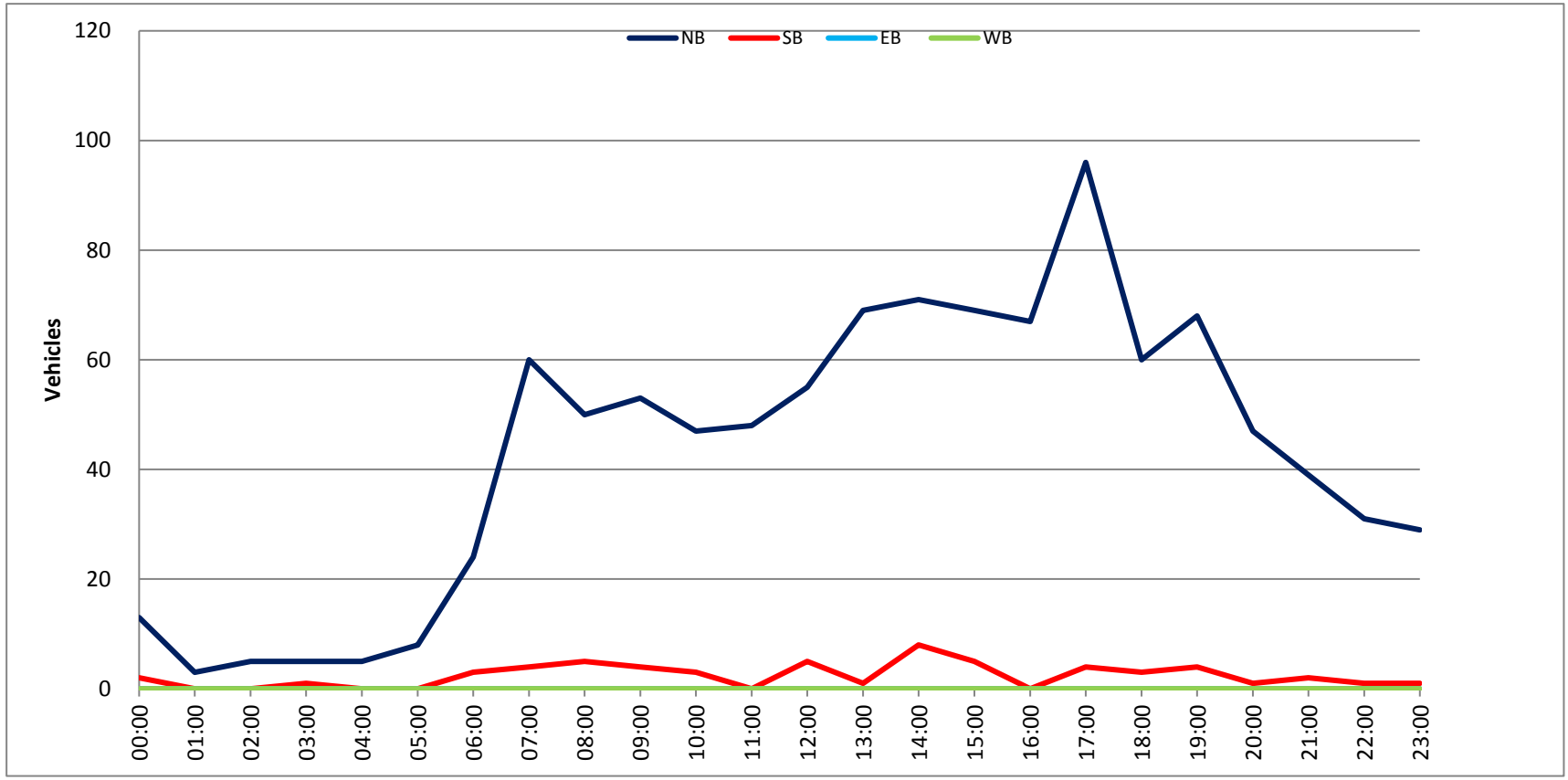
DAILY TOTALS	NB	SB	EB	WB	Total
	1,022	57	0	0	1,079

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



Prepared by NDS/ATD

VOLUME

Morena Blvd S/O Jutland Dr

Day: Tuesday
Date: 5/10/2016

City: San Diego
Project #: CA16_4124_020

DAILY TOTALS	NB	SB	EB	WB	Total
	5,392	6,162	0	0	11,554

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%**

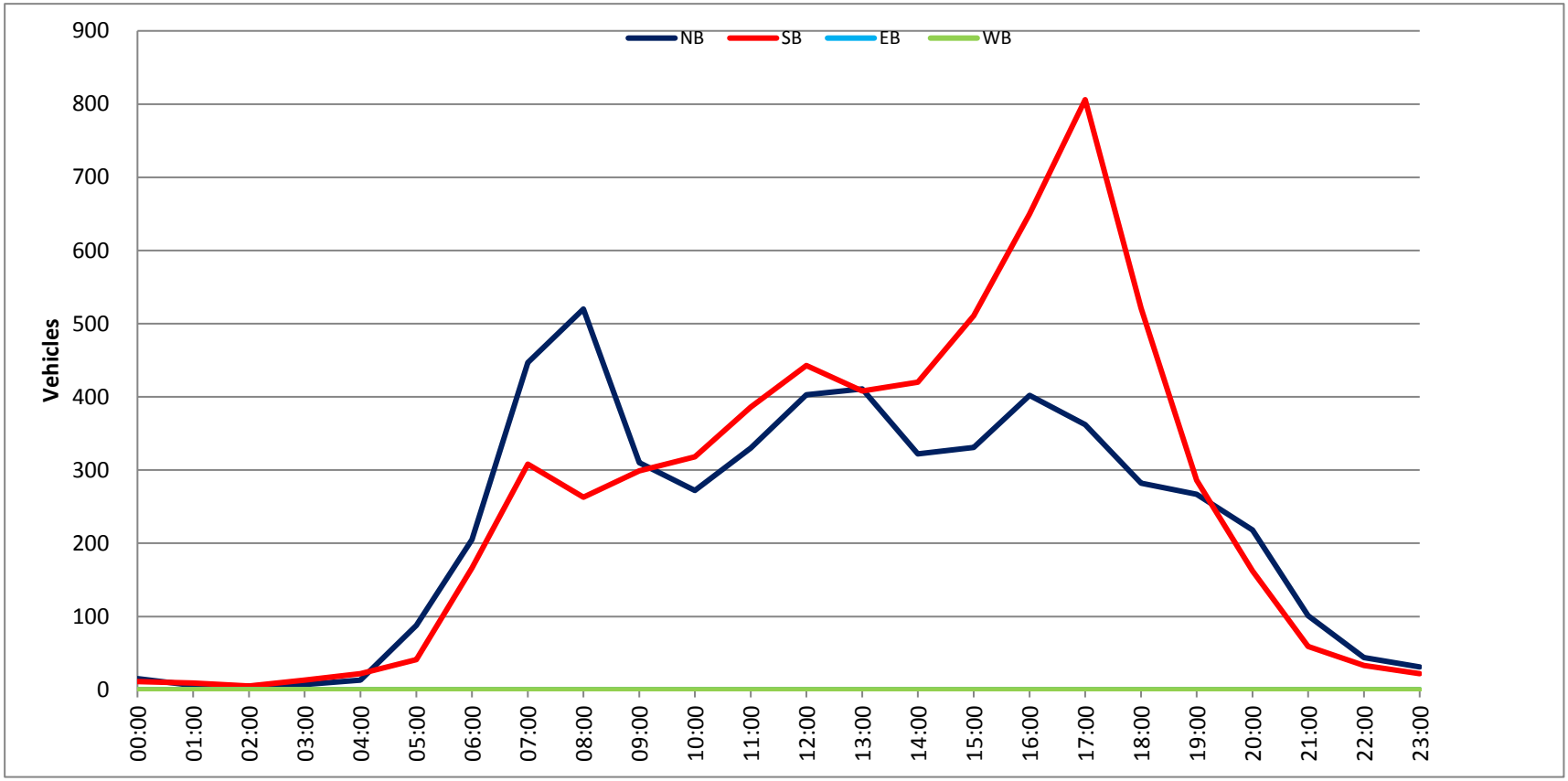
DAILY TOTALS	NB	SB	EB	WB	Total
	5,392	6,162	0	0	11,554

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



Prepared by NDS/ATD

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	108	593	**12:45**			382	1508	397	1485	779	2993
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	111	434	**13:45**			391	1536	383	1465	774	3001
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	31	242	**14:45**			412	1674	368	1604	780	3278
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	43	182	**15:45**			495	1840	497	1715	992	3555
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	115	274	**16:45**			441	1750	480	1814	921	3564
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	273	737	**17:45**			423	1631	551	1991	974	3622
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	523	1741	**18:45**			384	1492	501	2003	885	3495
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	592	2486	**19:45**			368	1461	340	1554	708	3015
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	628	2657	**20:45**			303	1202	300	1244	603	2446
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	700	2668	**21:45**			283	1121	305	1100	588	2221
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	667	2610	**22:45**			207	880	246	1034	453	1914
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	792	2828	**23:45**			139	660	112	562	251	1222
TOTALS				10336		7116		**17452**	**TOTALS**				16755		17571		**34326**
SPLIT %				59.2%		40.8%		**33.7%**	**SPLIT %**				48.8%		51.2%		**66.3%**

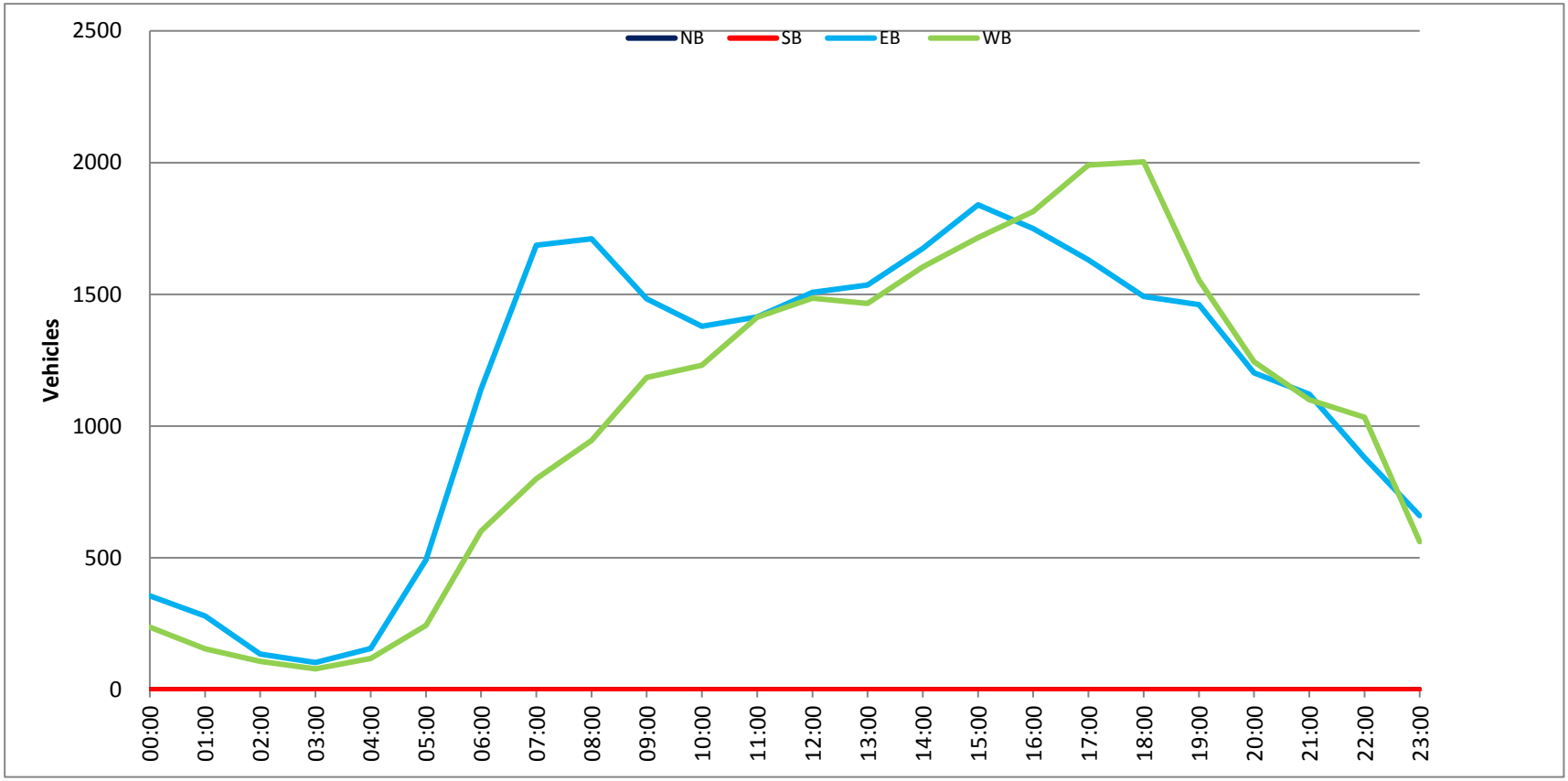
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	27,091	24,687	51,778

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



Prepared by NDS/ATD

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	EB	WB	Total
	8,435	7,149	0	0	15,584

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%

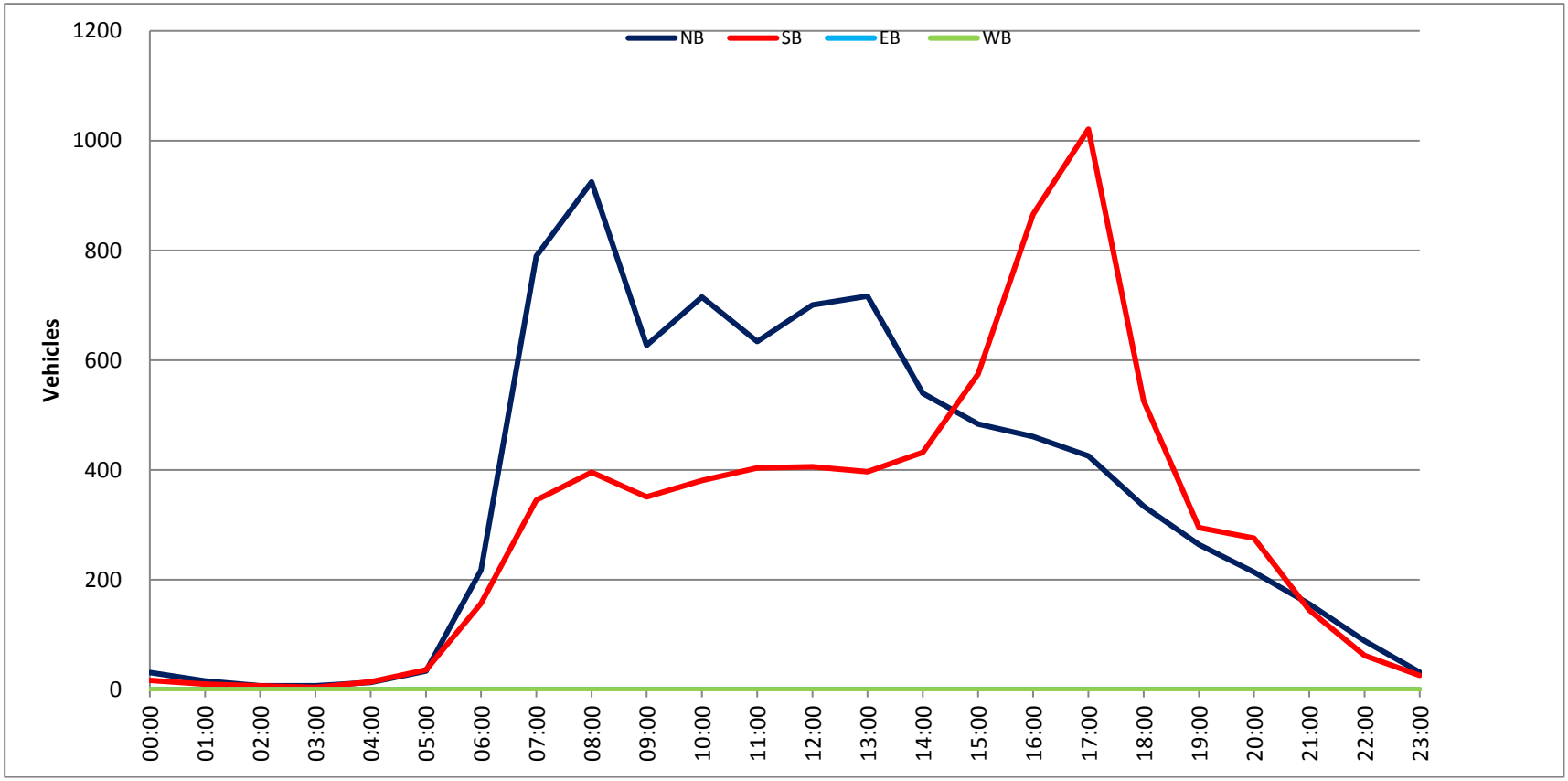
DAILY TOTALS	NB	SB	EB	WB	Total
	8,435	7,149	0	0	15,584

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



Prepared by NDS/ATD

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	29	172	**12:45**			222	788	267	1120	489	1908
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	24	101	**13:45**			235	831	290	1162	525	1993
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	18	73	**14:45**			322	1061	232	1069	554	2130
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	19	61	**15:45**			331	1324	304	1011	635	2335
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	59	157	**16:45**			317	1298	238	993	555	2291
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	195	531	**17:45**			303	1327	252	915	555	2242
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	394	1222	**18:45**			262	1107	187	910	449	2017
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	487	1940	**19:45**			201	908	144	616	345	1524
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	561	2156	**20:45**			148	664	119	490	267	1154
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	413	1791	**21:45**			121	522	69	357	190	879
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	465	1758	**22:45**			66	384	44	221	110	605
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	465	1817	**23:45**			41	190	23	115	64	305
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



Prepared by NDS/ATD

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	EB	WB	Total
	1,154	1,277	0	0	2,431

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%**

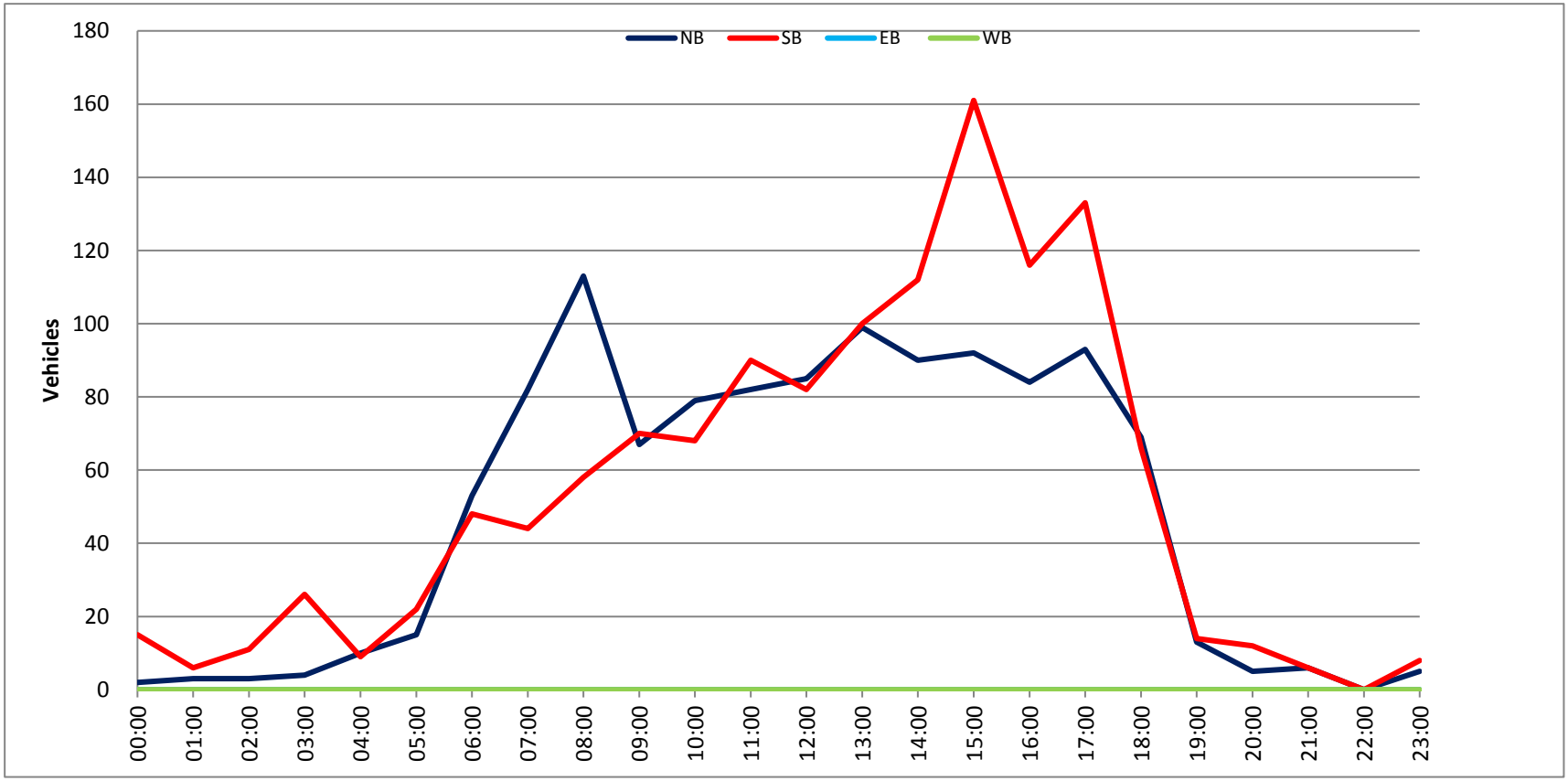
DAILY TOTALS	NB	SB	EB	WB	Total
	1,154	1,277	0	0	2,431

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



Prepared by NDS/ATD

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	33	180	**12:45**			260	1034	281	1072	541	2106
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	19	81	**13:45**			262	1044	295	1145	557	2189
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	15	72	**14:45**			312	1199	298	1066	610	2265
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	18	58	**15:45**			348	1342	294	1201	642	2543
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	49	124	**16:45**			330	1385	319	1355	649	2740
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	141	424	**17:45**			347	1355	327	1305	674	2660
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	366	1092	**18:45**			281	1059	281	1233	562	2292
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	648	2322	**19:45**			235	970	169	833	404	1803
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	644	2434	**20:45**			144	743	172	710	316	1453
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	483	1950	**21:45**			120	550	111	532	231	1082
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	526	2060	**22:45**			56	356	49	281	105	637
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	511	2019	**23:45**			40	184	21	133	61	317
TOTALS				6259		6557		**12816**	**TOTALS**				11221		10866		**22087**
SPLIT %				48.8%		51.2%		**36.7%**	**SPLIT %**				50.8%		49.2%		**63.3%**

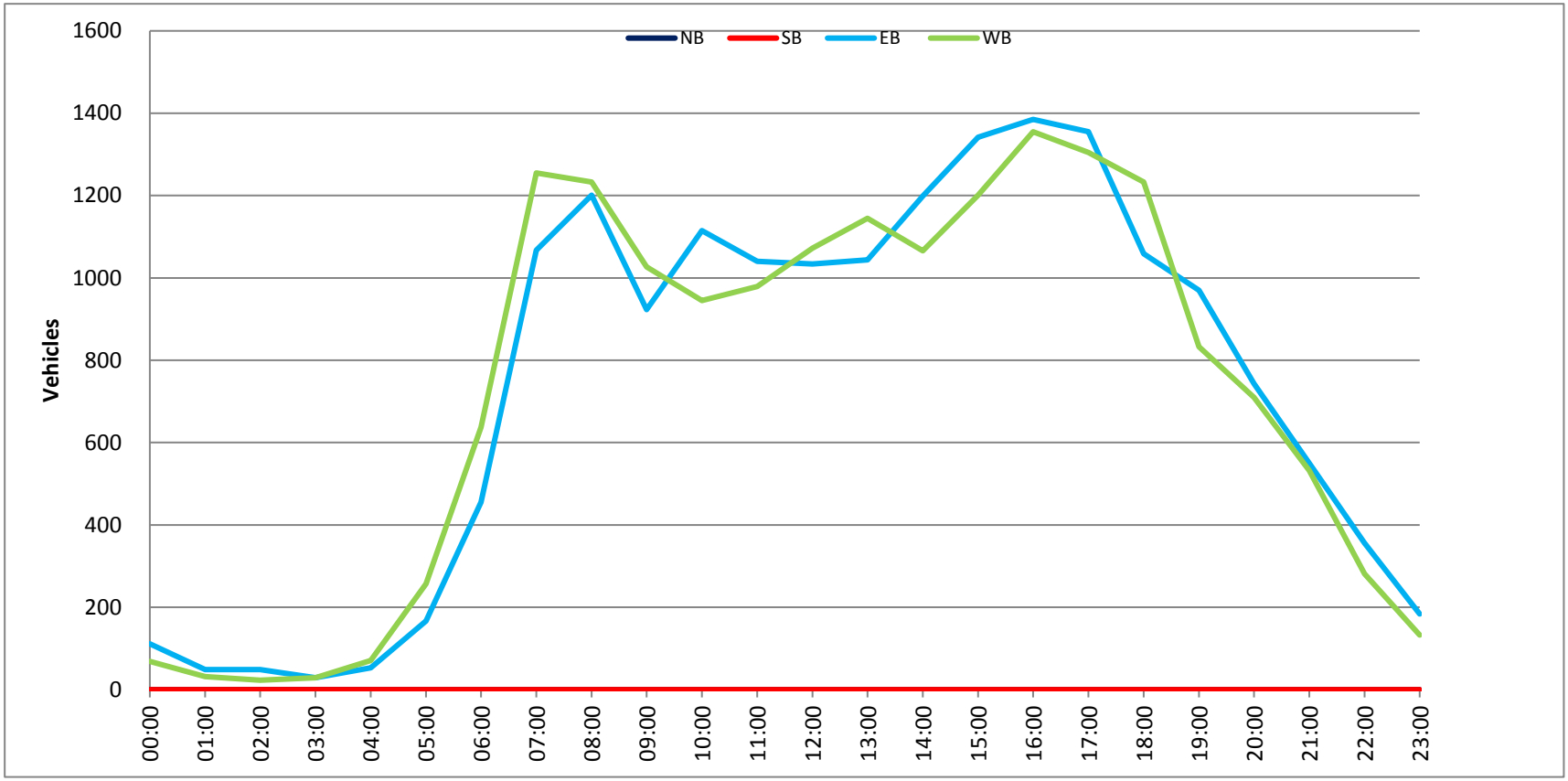
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	17,480	17,423	34,903

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



Prepared by NDS/ATD

VOLUME

Balboa Ave E/O Clairemont Dr

Day: Tuesday
Date: 5/10/2016

City: San Diego
Project #: CA16_4124_027

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	18,841	18,542	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	32	168	**12:45**			293	1108	329	1211	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	17	82	**13:45**			279	1097	310	1196	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	18	72	**14:45**			304	1248	321	1254	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	22	52	**15:45**			438	1496	328	1328	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	56	133	**16:45**			413	1625	374	1510	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	114	372	**17:45**			393	1558	337	1448	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	402	1100	**18:45**			250	1124	272	1317	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	707	2556	**19:45**			227	961	205	910	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	706	2699	**20:45**			153	697	185	759	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	485	2136	**21:45**			112	492	117	549	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	570	2143	**22:45**			46	323	40	288	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	504	2086	**23:45**			29	143	29	142	58	285
TOTALS				6969		6630		**13599**	**TOTALS**				11872		11912		**23784**
SPLIT %				51.2%		48.8%		**36.4%**	**SPLIT %**				49.9%		50.1%		**63.6%**

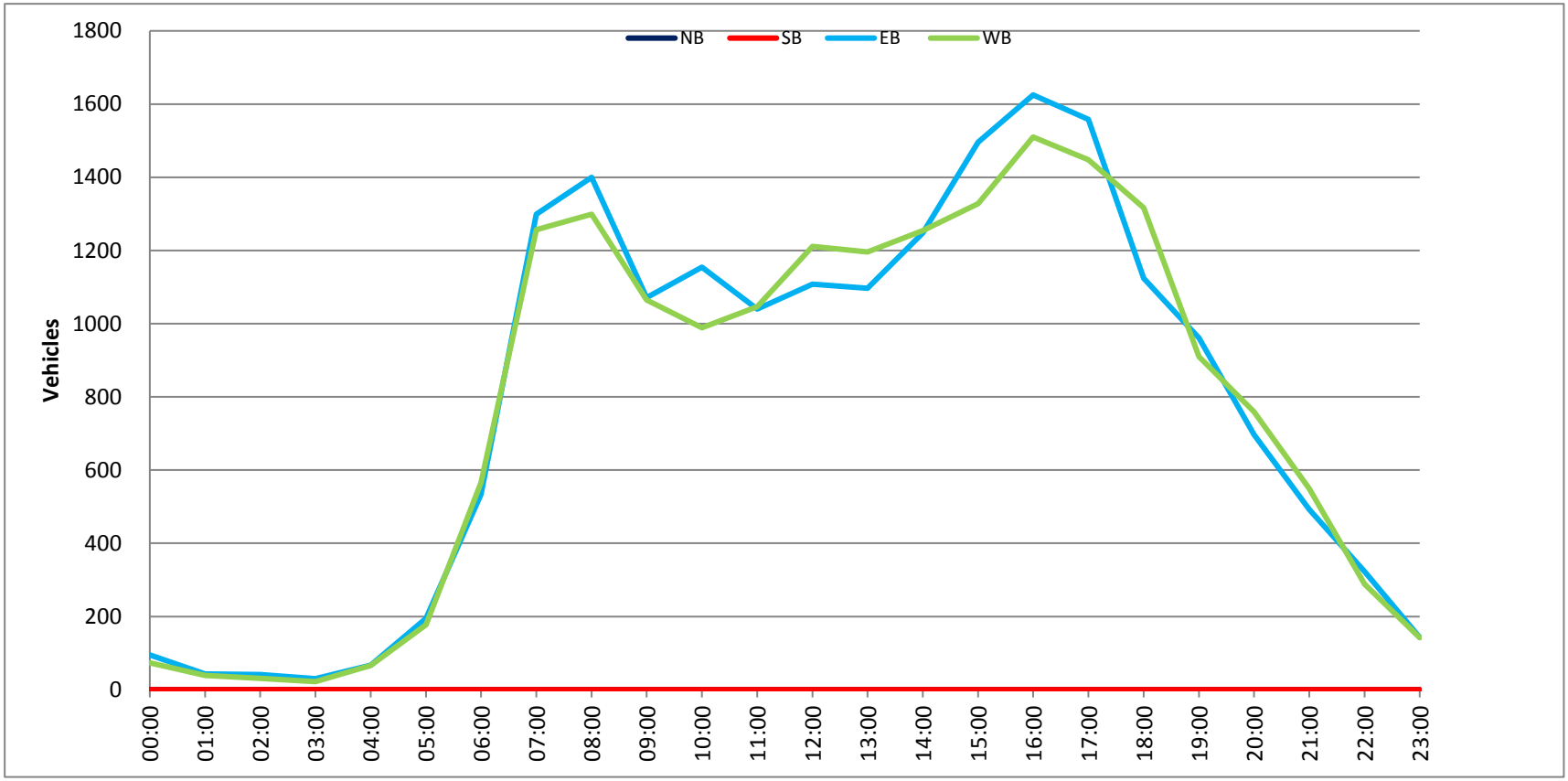
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	18,841	18,542	37,383

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



Prepared by NDS/ATD

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%

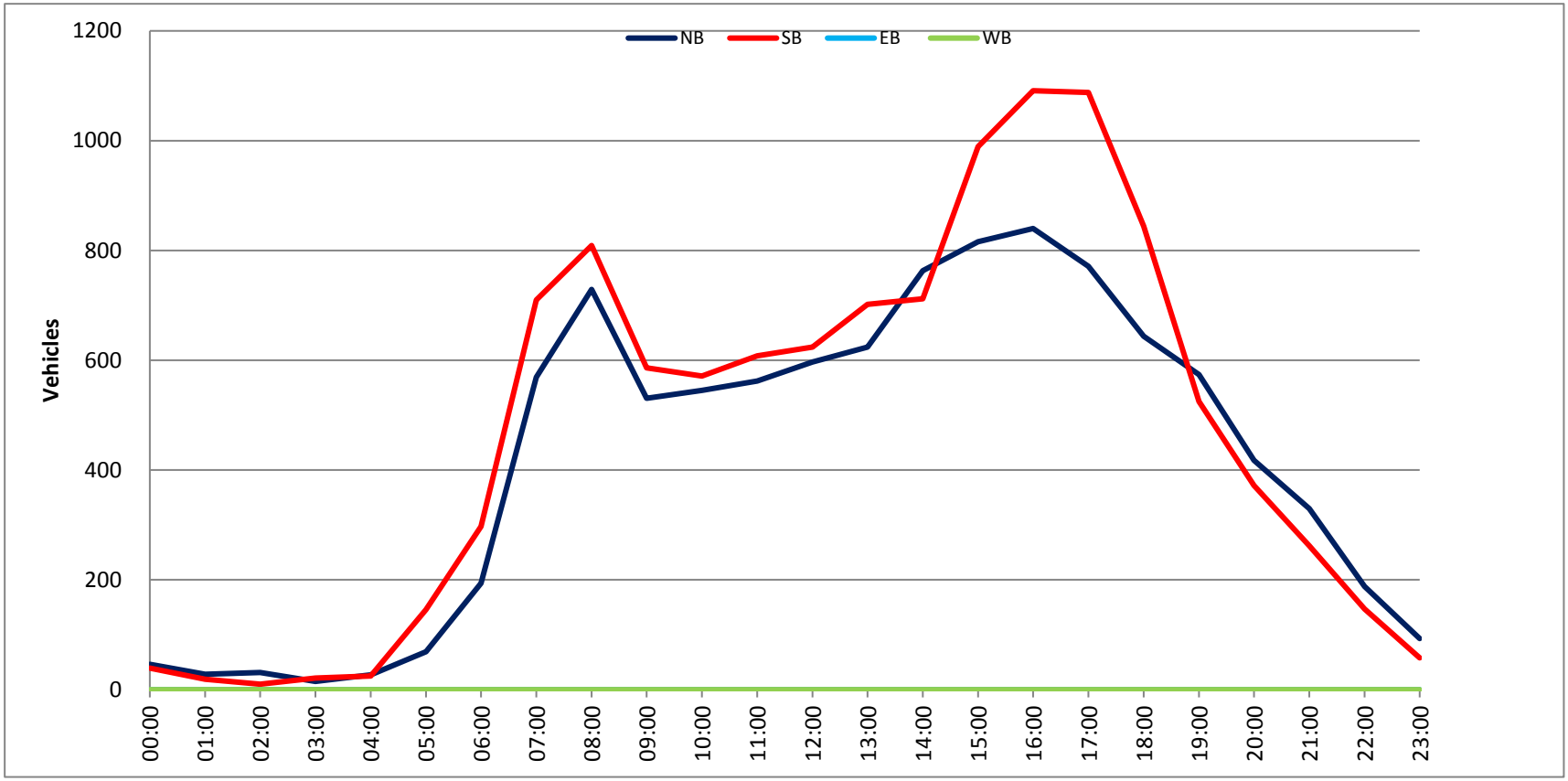
DAILY TOTALS	NB	SB	EB	WB	Total
	10,004	11,255	0	0	21,259

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



Prepared by NDS/ATD

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	2	23	**12:45**			15	73	16	91	31	164
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	1	4	**13:45**			35	101	30	117	65	218
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	2	2	**14:45**			17	89	24	95	41	184
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	0	6	**15:45**			26	92	31	105	57	197
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	8	13	**16:45**			24	95	22	99	46	194
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	8	17	**17:45**			19	82	41	119	60	201
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	10	41	**18:45**			14	78	20	107	34	185
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	29	78	**19:45**			17	86	18	64	35	150
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	16	81	**20:45**			19	102	13	45	32	147
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	25	99	**21:45**			9	41	15	38	24	79
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	36	138	**22:45**			7	24	7	28	14	52
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	33	158	**23:45**			5	10	3	15	8	25
TOTALS				308		352		**660**	**TOTALS**				873		923		**1796**
SPLIT %				46.7%		53.3%		**26.9%**	**SPLIT %**				48.6%		51.4%		**73.1%**

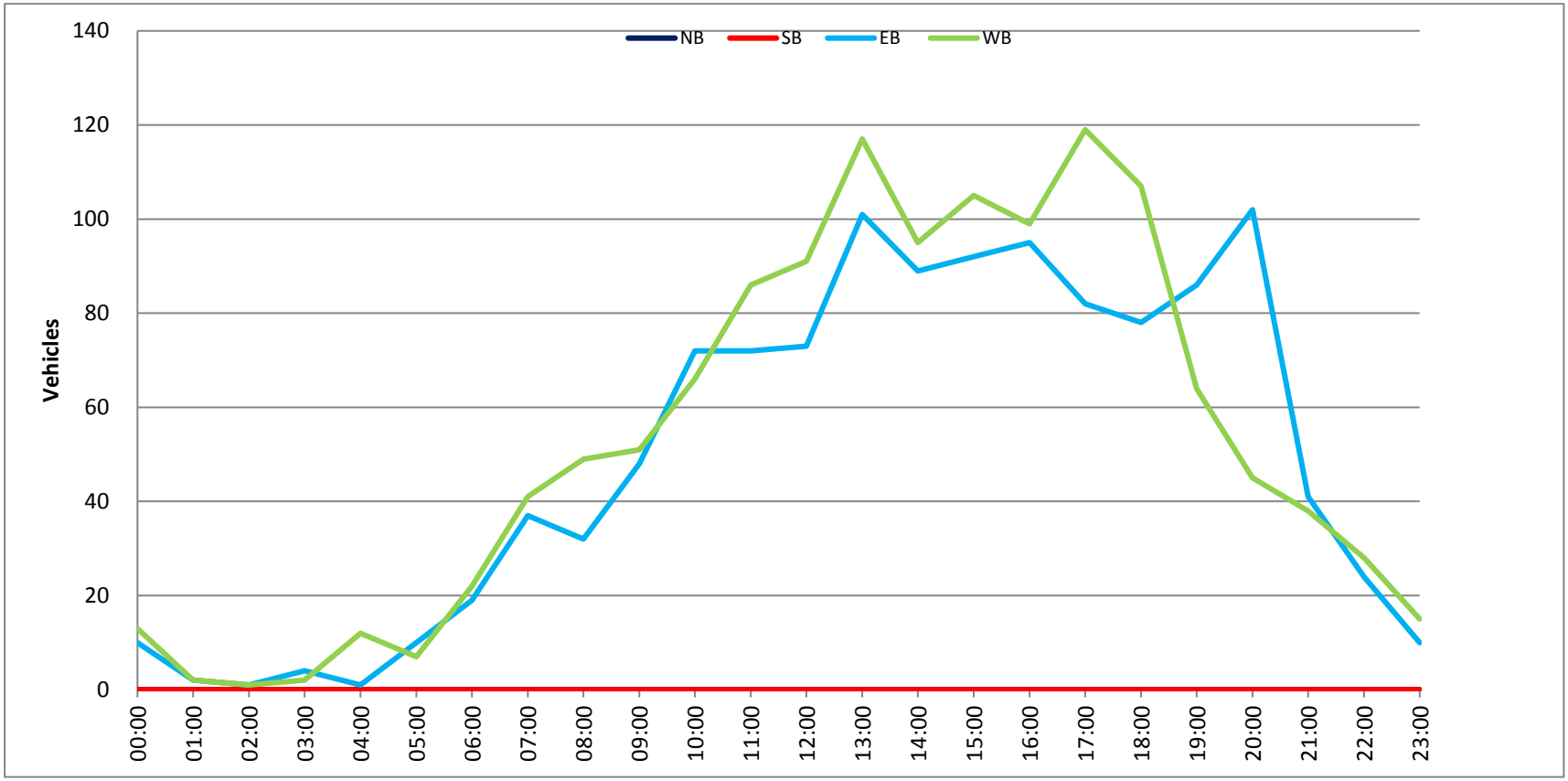
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,181	1,275	2,456

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



Prepared by NDS/ATD

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%**

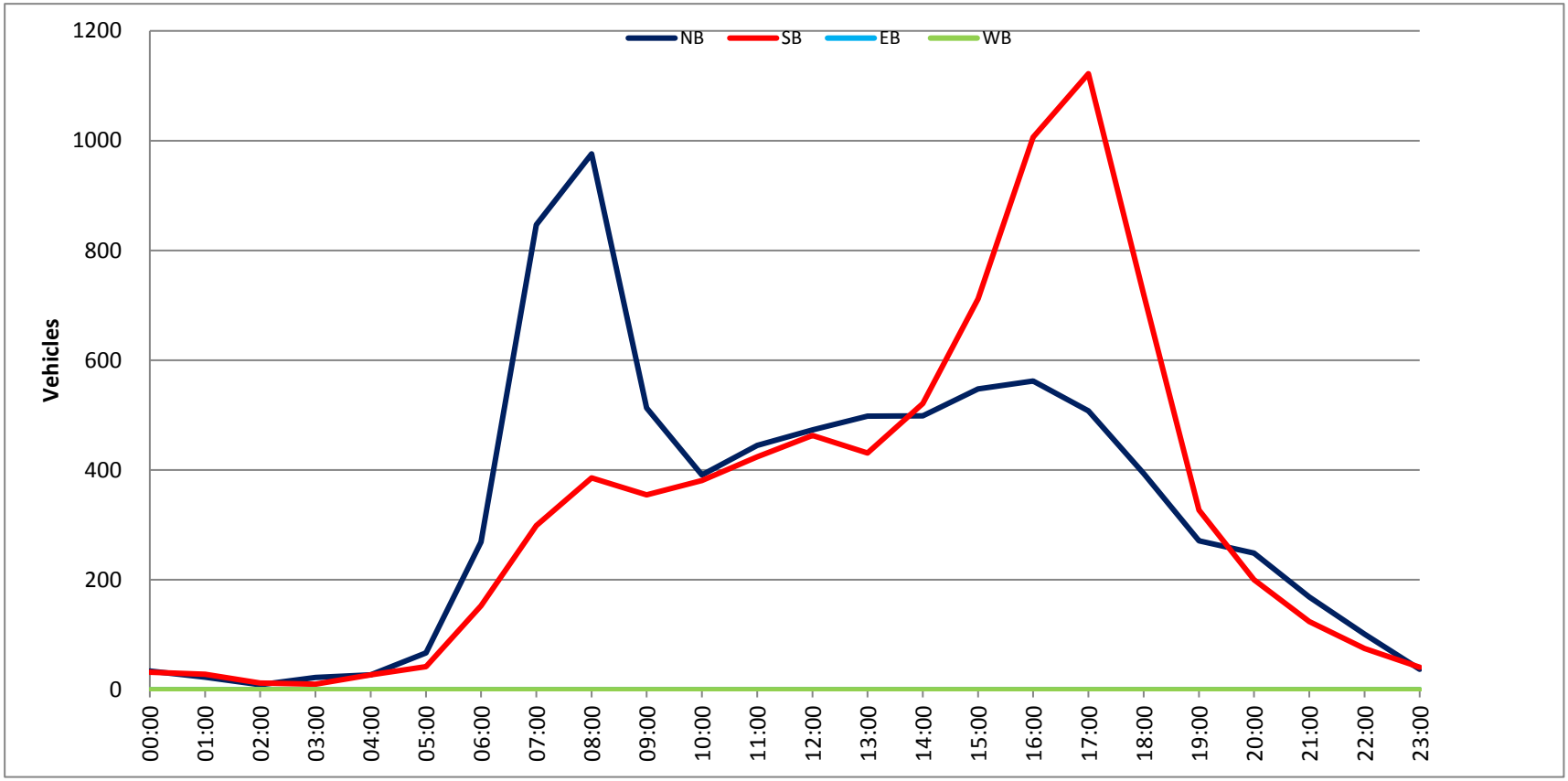
DAILY TOTALS	NB	SB	EB	WB	Total
	7,932	7,891	0	0	15,823

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



Prepared by NDS/ATD

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%**

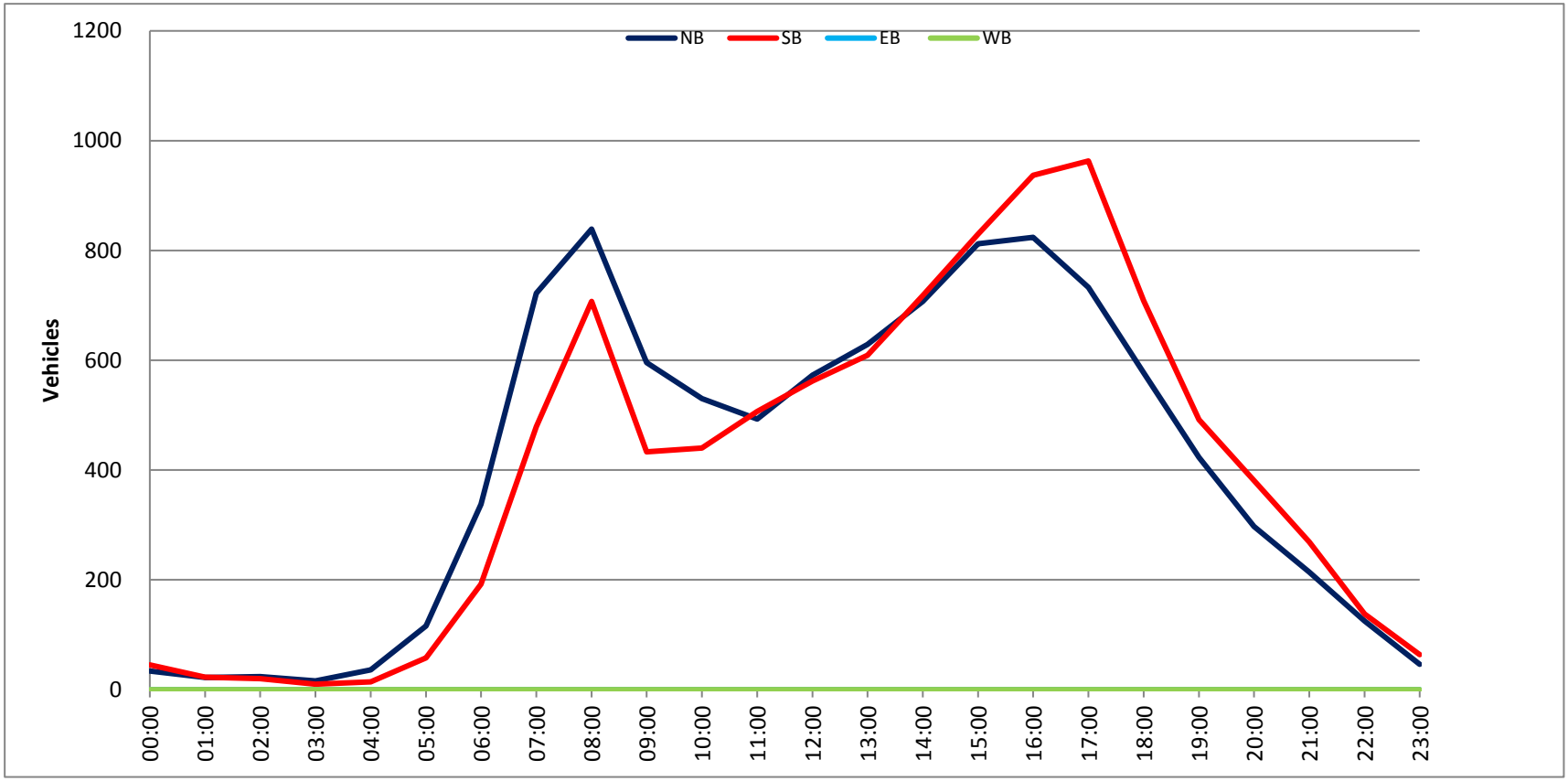
DAILY TOTALS	NB	SB	EB	WB	Total
	9,726	9,599	0	0	19,325

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



Prepared by NDS/ATD

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	EB	WB	Total
	13,726	13,509	0	0	27,235

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%

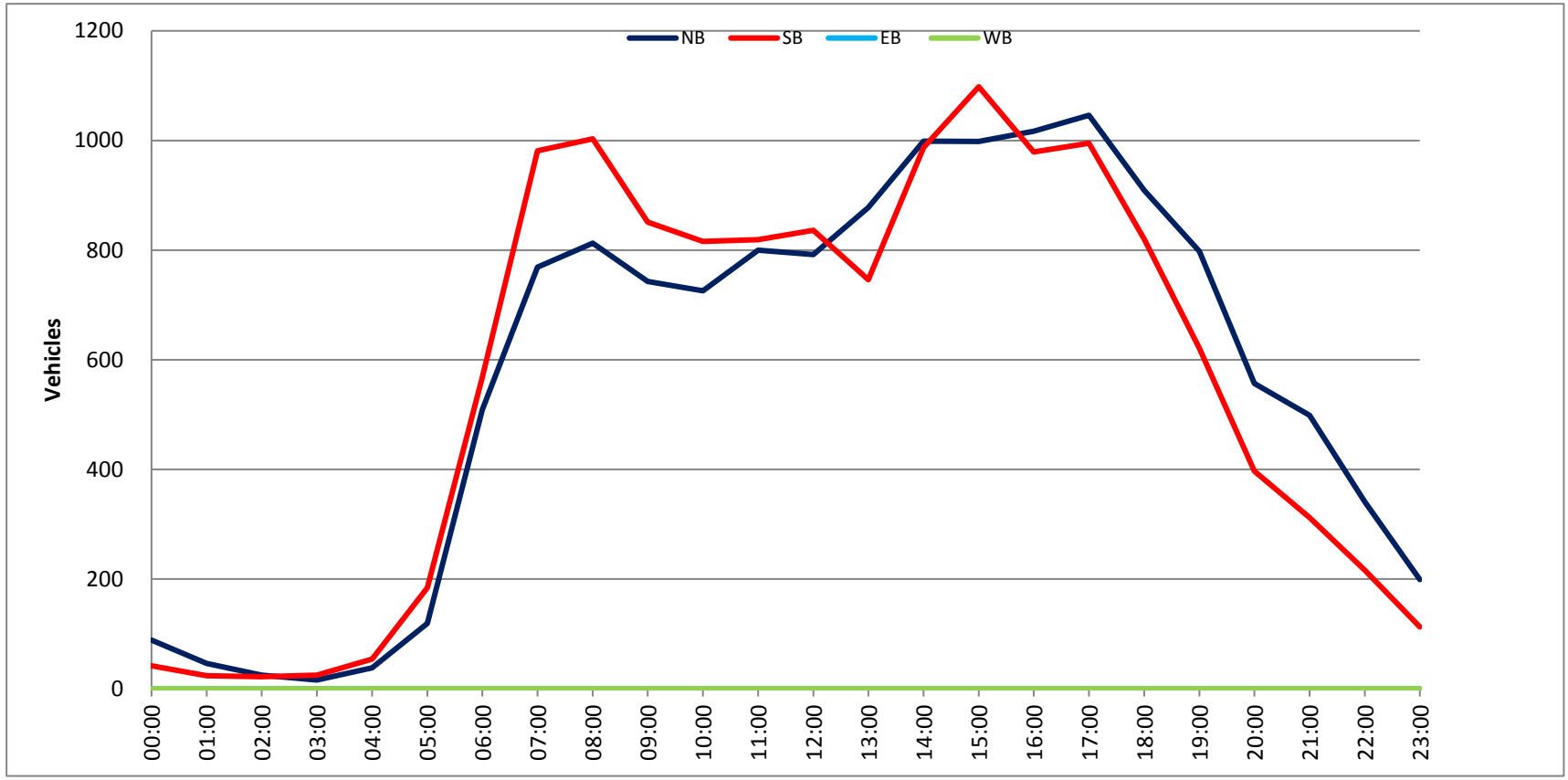
DAILY TOTALS	NB	SB	EB	WB	Total
	13,726	13,509	0	0	27,235

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



Prepared by NDS/ATD

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	
00:00	7		7						14	
00:15	12		2						14	
00:30	12		9						21	
00:45	10	41	3	21					13	62
01:00	7		2						9	
01:15	9		3						12	
01:30	9		4						13	
01:45	9	34	4	13					13	47
02:00	3		1						4	
02:15	4		3						7	
02:30	6		2						8	
02:45	7	20	2	8					9	28
03:00	8		6						14	
03:15	3		2						5	
03:30	5		0						5	
03:45	26	42	3	11					29	53
04:00	4		3						7	
04:15	10		10						20	
04:30	12		13						25	
04:45	16	42	17	43					33	85
05:00	21		14						35	
05:15	42		13						55	
05:30	56		27						83	
05:45	92	211	27	81					119	292
06:00	73		43						116	
06:15	88		62						150	
06:30	108		74						182	
06:45	109	378	85	264					194	642
07:00	107		94						201	
07:15	135		98						233	
07:30	186		107						293	
07:45	228	656	118	417					346	1073
08:00	238		94						332	
08:15	191		113						304	
08:30	196		105						301	
08:45	191	816	116	428					307	1244
09:00	211		99						310	
09:15	152		89						241	
09:30	178		96						274	
09:45	246	787	101	385					347	1172
10:00	185		95						280	
10:15	179		130						309	
10:30	170		136						306	
10:45	202	736	137	498					339	1234
11:00	196		141						337	
11:15	163		147						310	
11:30	184		159						343	
11:45	197	740	125	572					322	1312
TOTALS		4503		2741						7244
SPLIT %		62.2%		37.8%						36.0%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	207		172						379	
12:15	214		180						394	
12:30	218		158						376	
12:45	204	843	168	678					372	1521
13:00	234		169						403	
13:15	222		166						388	
13:30	236		150						386	
13:45	235	927	163	648					398	1575
14:00	188		177						365	
14:15	205		185						390	
14:30	163		238						401	
14:45	182	738	170	770					352	1508
15:00	195		177						372	
15:15	177		182						359	
15:30	199		183						382	
15:45	210	781	175	717					385	1498
16:00	195		183						378	
16:15	196		164						360	
16:30	195		179						374	
16:45	175	761	202	728					377	1489
17:00	199		236						435	
17:15	189		204						393	
17:30	186		187						373	
17:45	157	731	174	801					331	1532
18:00	161		192						353	
18:15	129		165						294	
18:30	130		157						287	
18:45	151	571	150	664					301	1235
19:00	174		149						323	
19:15	145		125						270	
19:30	146		120						266	
19:45	126	591	125	519					251	1110
20:00	108		104						212	
20:15	100		130						230	
20:30	72		104						176	
20:45	63	343	77	415					140	758
21:00	44		47						91	
21:15	48		35						83	
21:30	50		22						72	
21:45	52	194	31	135					83	329
22:00	37		31						68	
22:15	36		24						60	
22:30	32		17						49	
22:45	27	132	11	83					38	215
23:00	24		25						49	
23:15	18		11						29	
23:30	18		10						28	
23:45	7	67	9	55					16	122
TOTALS		6679		6213						12892
SPLIT %		51.8%		48.2%						64.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	11,182	8,954	0	0	20,136

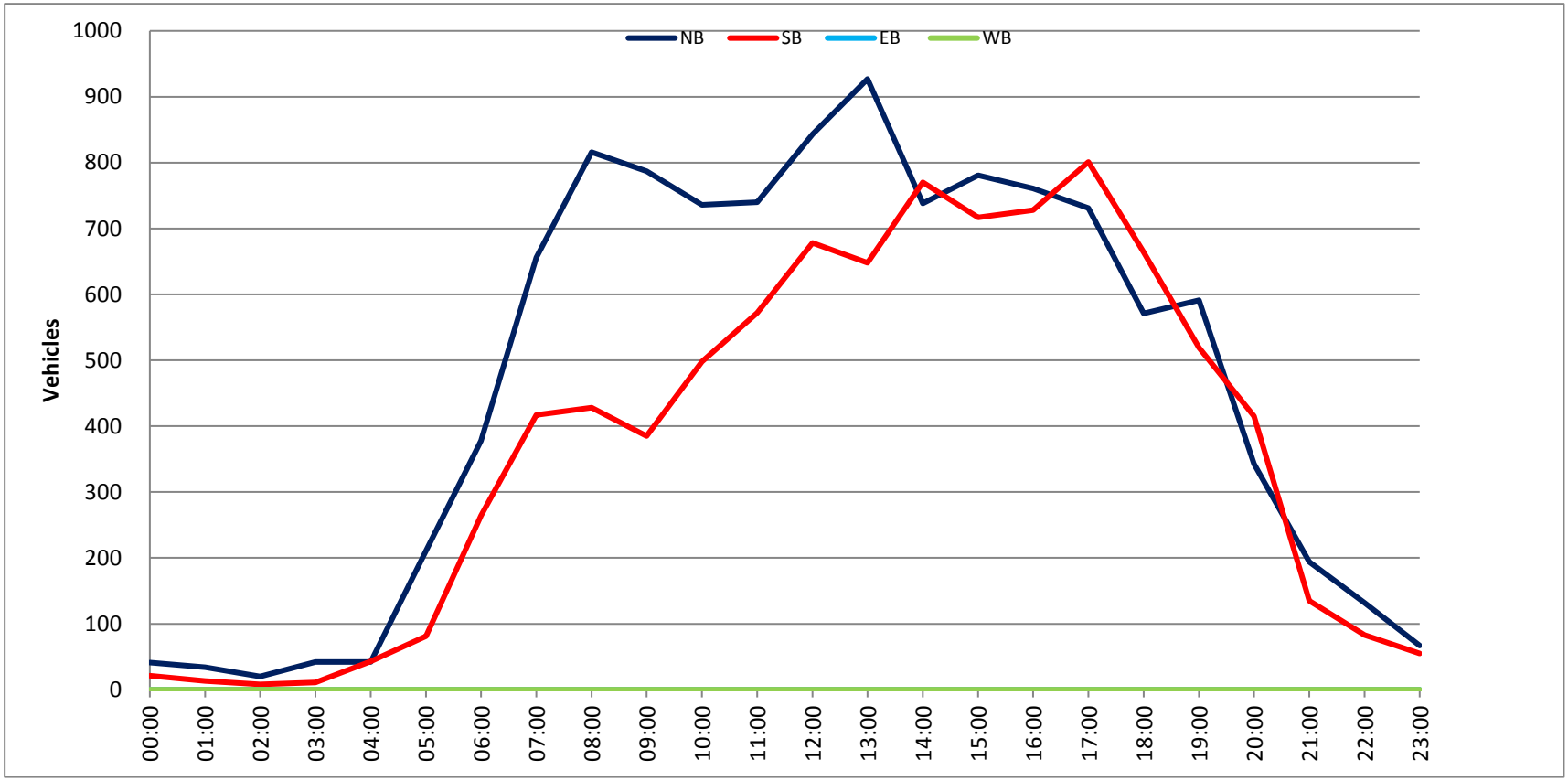
AM Peak Hour	07:45	11:30			11:45
AM Pk Volume	853	636			1471
Pk Hr Factor	0.896	0.883			0.933
7 - 9 Volume	1472	845	0	0	2317
7 - 9 Peak Hour	07:45	07:30			07:45
7 - 9 Pk Volume	853	432	0	0	1283
Pk Hr Factor	0.896	0.915	0.000	0.000	0.927

PM Peak Hour	13:00	16:45			16:30
PM Pk Volume	927	829			1579
Pk Hr Factor	0.982	0.878			0.907
4 - 6 Volume	1492	1529	0	0	3021
4 - 6 Peak Hour	16:15	16:45			16:30
4 - 6 Pk Volume	765	829	0	0	1579
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



Prepared by NDS/ATD

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	
00:00	5		5						10	
00:15	6		10						16	
00:30	6		7						13	
00:45	9	26	9	31					18	57
01:00	6		12						18	
01:15	8		11						19	
01:30	5		4						9	
01:45	5	24	8	35					13	59
02:00	6		5						11	
02:15	6		5						11	
02:30	7		8						15	
02:45	5	24	11	29					16	53
03:00	5		1						6	
03:15	2		4						6	
03:30	3		3						6	
03:45	21	31	4	12					25	43
04:00	9		6						15	
04:15	10		5						15	
04:30	12		23						35	
04:45	19	50	15	49					34	99
05:00	19		19						38	
05:15	40		20						60	
05:30	66		26						92	
05:45	100	225	54	119					154	344
06:00	64		58						122	
06:15	100		75						175	
06:30	121		117						238	
06:45	126	411	104	354					230	765
07:00	108		119						227	
07:15	176		120						296	
07:30	176		143						319	
07:45	250	710	167	549					417	1259
08:00	198		148						346	
08:15	196		129						325	
08:30	207		143						350	
08:45	220	821	132	552					352	1373
09:00	176		123						299	
09:15	177		112						289	
09:30	193		118						311	
09:45	240	786	126	479					366	1265
10:00	177		141						318	
10:15	183		154						337	
10:30	182		191						373	
10:45	215	757	193	679					408	1436
11:00	192		190						382	
11:15	186		202						388	
11:30	215		226						441	
11:45	228	821	209	827					437	1648
TOTALS		4686		3715						8401
SPLIT %		55.8%		44.2%						35.1%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	204		256						460	
12:15	235		259						494	
12:30	202		250						452	
12:45	218	859	263	1028					481	1887
13:00	236		211						447	
13:15	217		220						437	
13:30	238		225						463	
13:45	203	894	248	904					451	1798
14:00	201		288						489	
14:15	202		221						423	
14:30	218		291						509	
14:45	206	827	227	1027					433	1854
15:00	177		255						432	
15:15	189		268						457	
15:30	187		273						460	
15:45	225	778	260	1056					485	1834
16:00	200		285						485	
16:15	215		253						468	
16:30	192		312						504	
16:45	198	805	313	1163					511	1968
17:00	203		406						609	
17:15	222		298						520	
17:30	199		354						553	
17:45	202	826	301	1359					503	2185
18:00	173		267						440	
18:15	169		228						397	
18:30	150		205						355	
18:45	128	620	219	919					347	1539
19:00	113		204						317	
19:15	142		144						286	
19:30	109		147						256	
19:45	101	465	146	641					247	1106
20:00	82		120						202	
20:15	57		139						196	
20:30	51		108						159	
20:45	52	242	114	481					166	723
21:00	51		90						141	
21:15	34		63						97	
21:30	25		23						48	
21:45	25	135	37	213					62	348
22:00	24		37						61	
22:15	32		26						58	
22:30	20		15						35	
22:45	24	100	13	91					37	191
23:00	10		30						40	
23:15	13		14						27	
23:30	8		15						23	
23:45	3	34	7	66					10	100
TOTALS		6585		8948						15533
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



Prepared by NDS/ATD

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%**

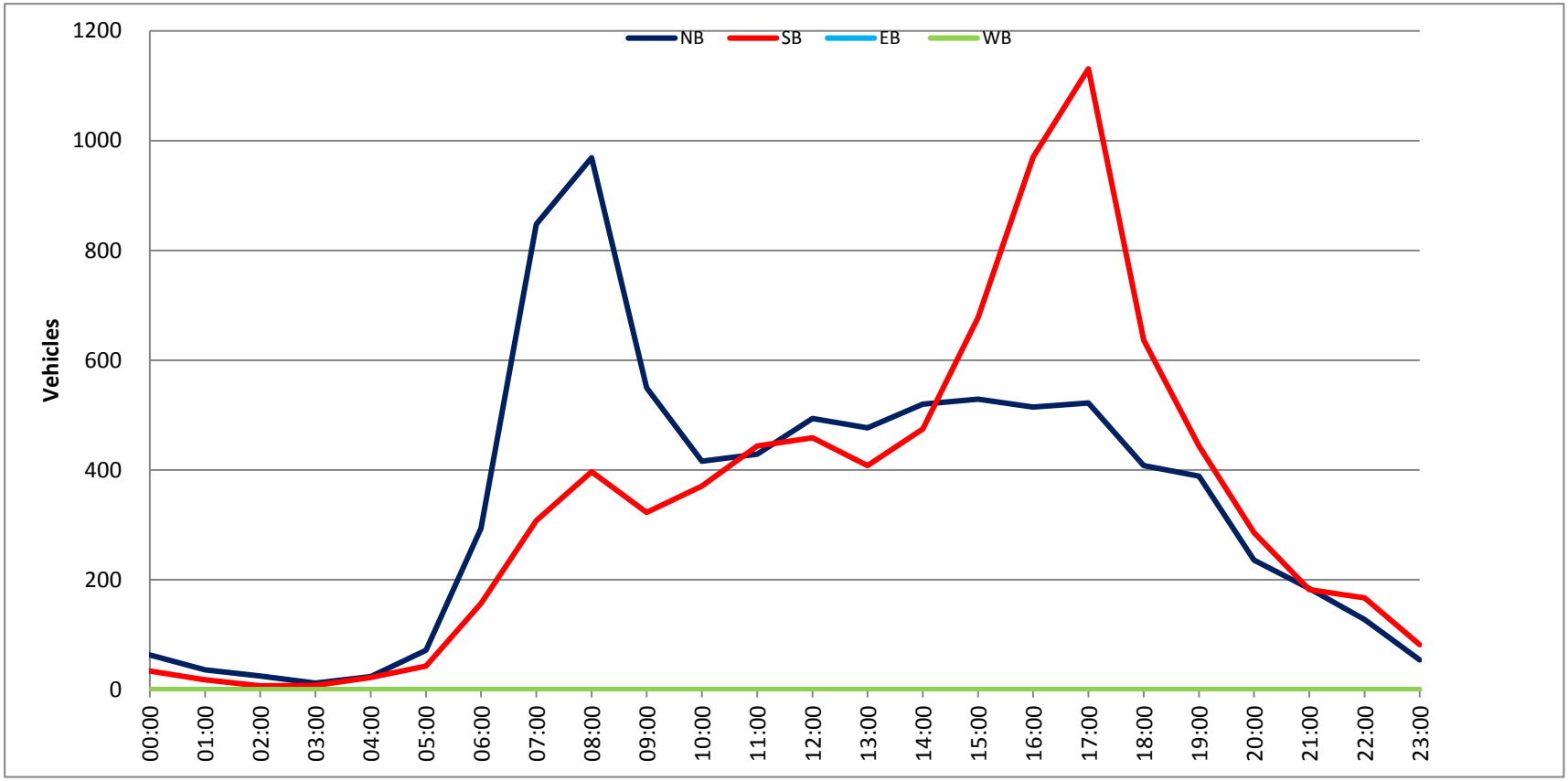
DAILY TOTALS	NB	SB	EB	WB	Total
	8,194	8,051	0	0	16,245

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



Prepared by NDS/ATD

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	59	292	**12:45**			337	1290	347	1291	684	2581
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	35	166	**13:45**			350	1302	349	1354	699	2656
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	22	140	**14:45**			376	1448	321	1316	697	2764
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	22	81	**15:45**			411	1607	316	1327	727	2934
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	58	176	**16:45**			440	1696	429	1593	869	3289
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	181	552	**17:45**			414	1674	399	1607	813	3281
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	428	1273	**18:45**			353	1387	293	1370	646	2757
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	704	2572	**19:45**			263	1299	239	1144	502	2443
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	711	2691	**20:45**			254	1056	189	883	443	1939
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	584	2325	**21:45**			184	828	138	696	322	1524
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	575	2241	**22:45**			121	607	77	451	198	1058
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	648	2438	**23:45**			88	415	50	279	138	694
TOTALS				7016		7931		**14947**	**TOTALS**				14609		13311		**27920**
SPLIT %				46.9%		53.1%		**34.9%**	**SPLIT %**				52.3%		47.7%		**65.1%**

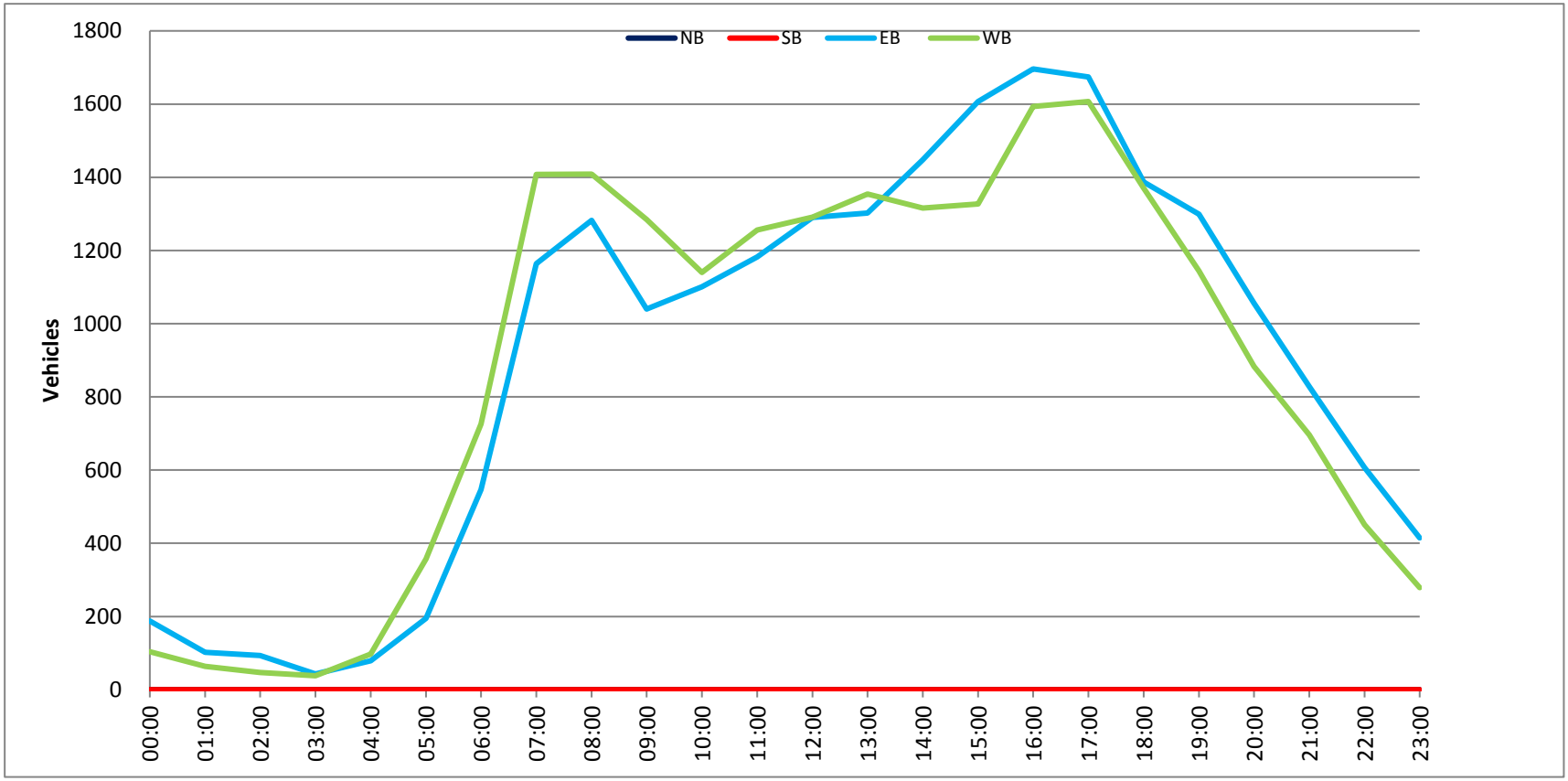
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	21,625	21,242	42,867

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



Prepared by NDS/ATD

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	97	661	12:45			461	1936	467	1788	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	64	316	13:45			503	2017	460	1861	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	48	221	14:45			511	2157	484	2000	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	35	142	15:45			542	2111	523	2065	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	98	288	16:45			420	1805	527	2186	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	312	844	17:45			424	1753	556	2235	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	750	2298	18:45			414	1790	543	2193	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	912	3553	19:45			299	1423	428	1813	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	909	3562	20:45			294	1202	319	1429	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	904	3477	21:45			250	1142	297	1303	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	899	3399	22:45			205	922	229	1089	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	979	3608	23:45			144	689	128	680	272	1369
TOTALS				12395		9974		**22369**	**TOTALS**				18947		20642		**39589**
SPLIT %				55.4%		44.6%		**36.1%**	**SPLIT %**				47.9%		52.1%		**63.9%**

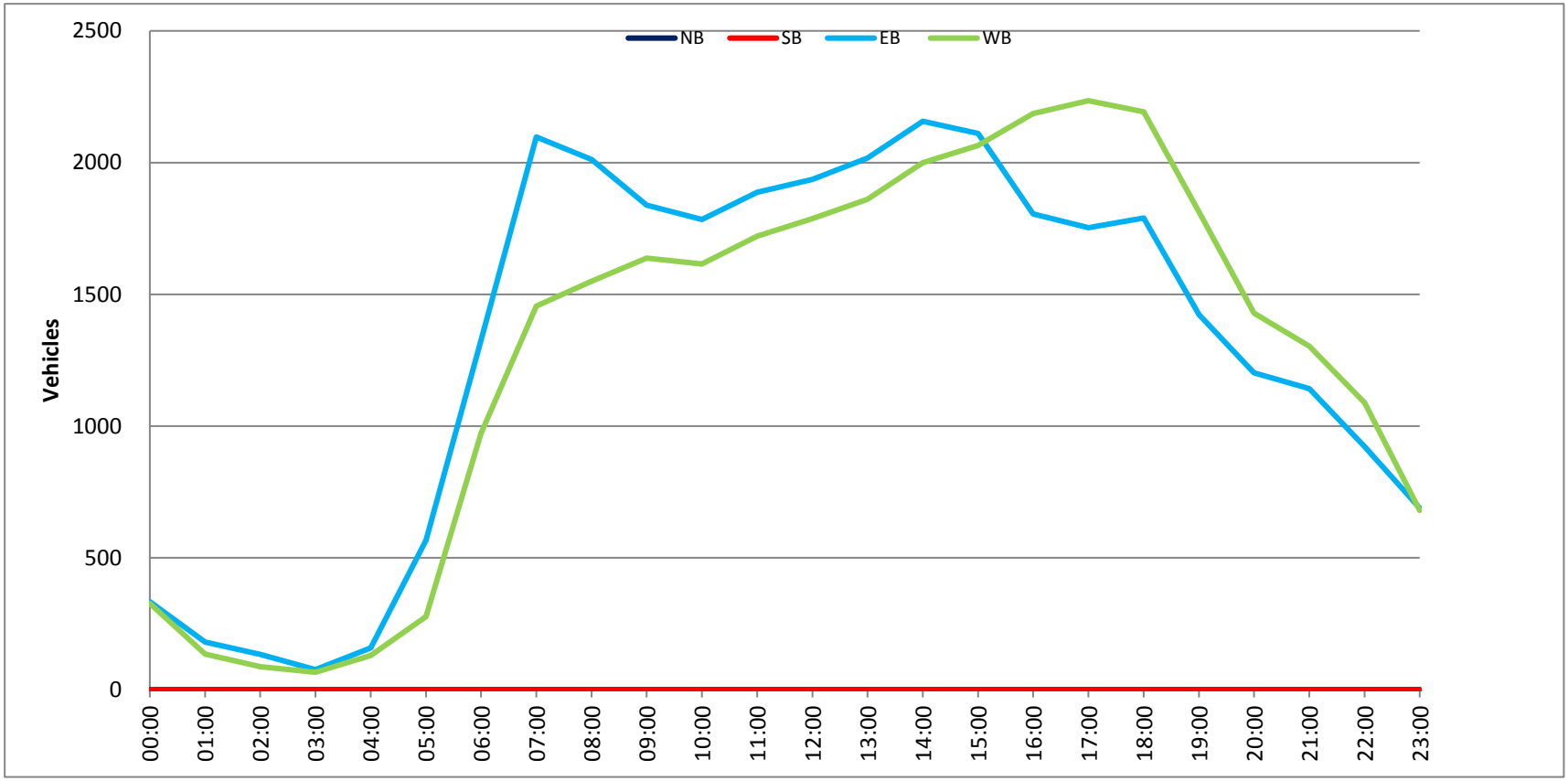
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	31,342	30,616	61,958

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



Prepared by NDS/ATD

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	71	332	12:45			257	990	231	1046	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	47	206	13:45			257	1069	280	1037	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	31	162	14:45			293	1344	264	1138	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	30	99	15:45			339	1300	316	1172	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	75	181	16:45			266	1115	359	1325	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	198	532	17:45			263	1183	409	1598	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	445	1406	18:45			286	1123	290	1231	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	643	2444	19:45			249	1070	252	1029	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	535	2190	20:45			201	875	216	809	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	486	1915	21:45			131	638	162	694	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	479	1868	22:45			118	542	123	610	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	514	1914	23:45			81	439	85	368	166	807
TOTALS				8242		5007		13249	TOTALS				11688		12057		23745
SPLIT %				62.2%		37.8%		35.8%	SPLIT %				49.2%		50.8%		64.2%

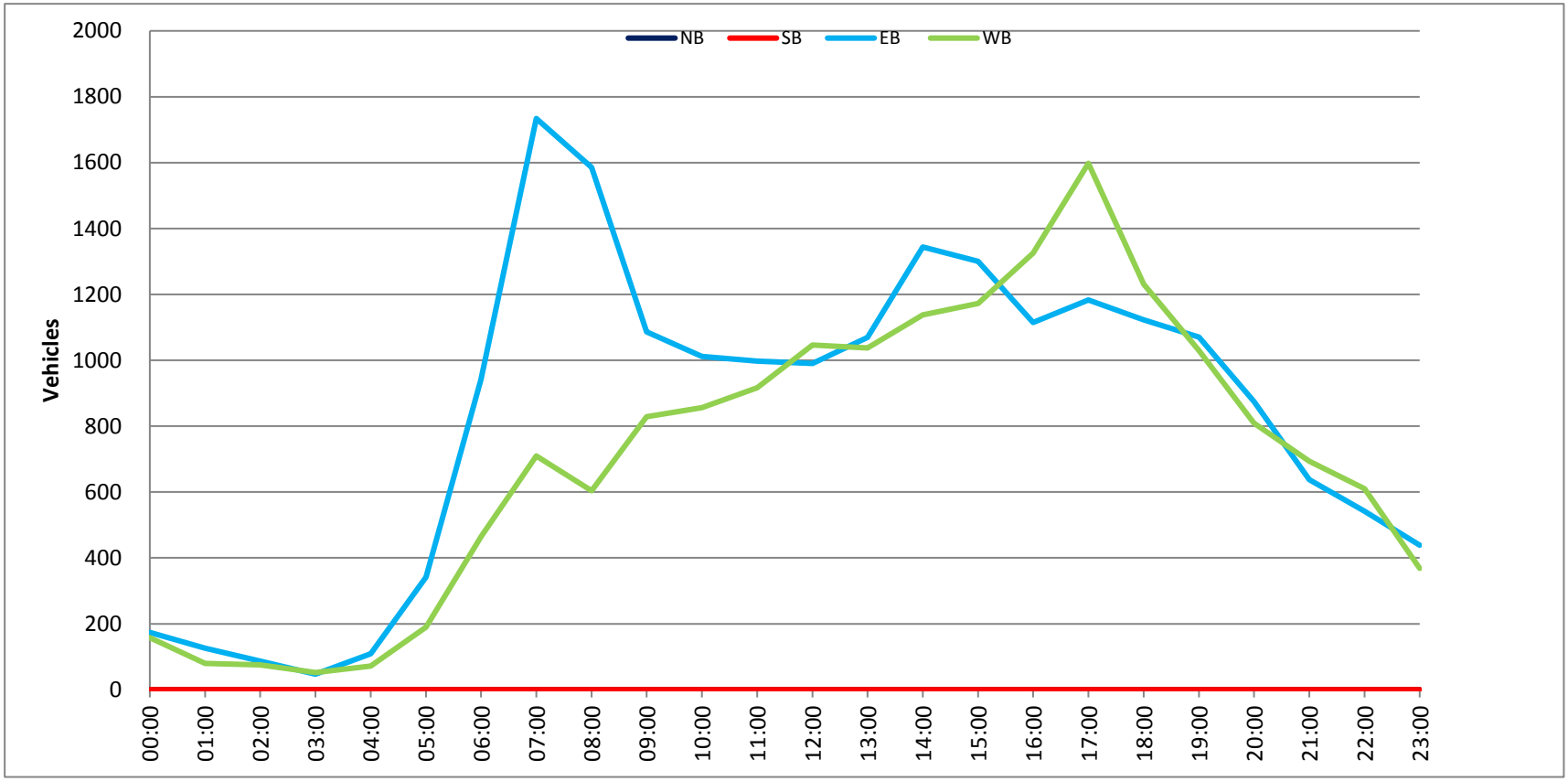
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	19,930	17,064	36,994

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



Prepared by NDS/ATD

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%

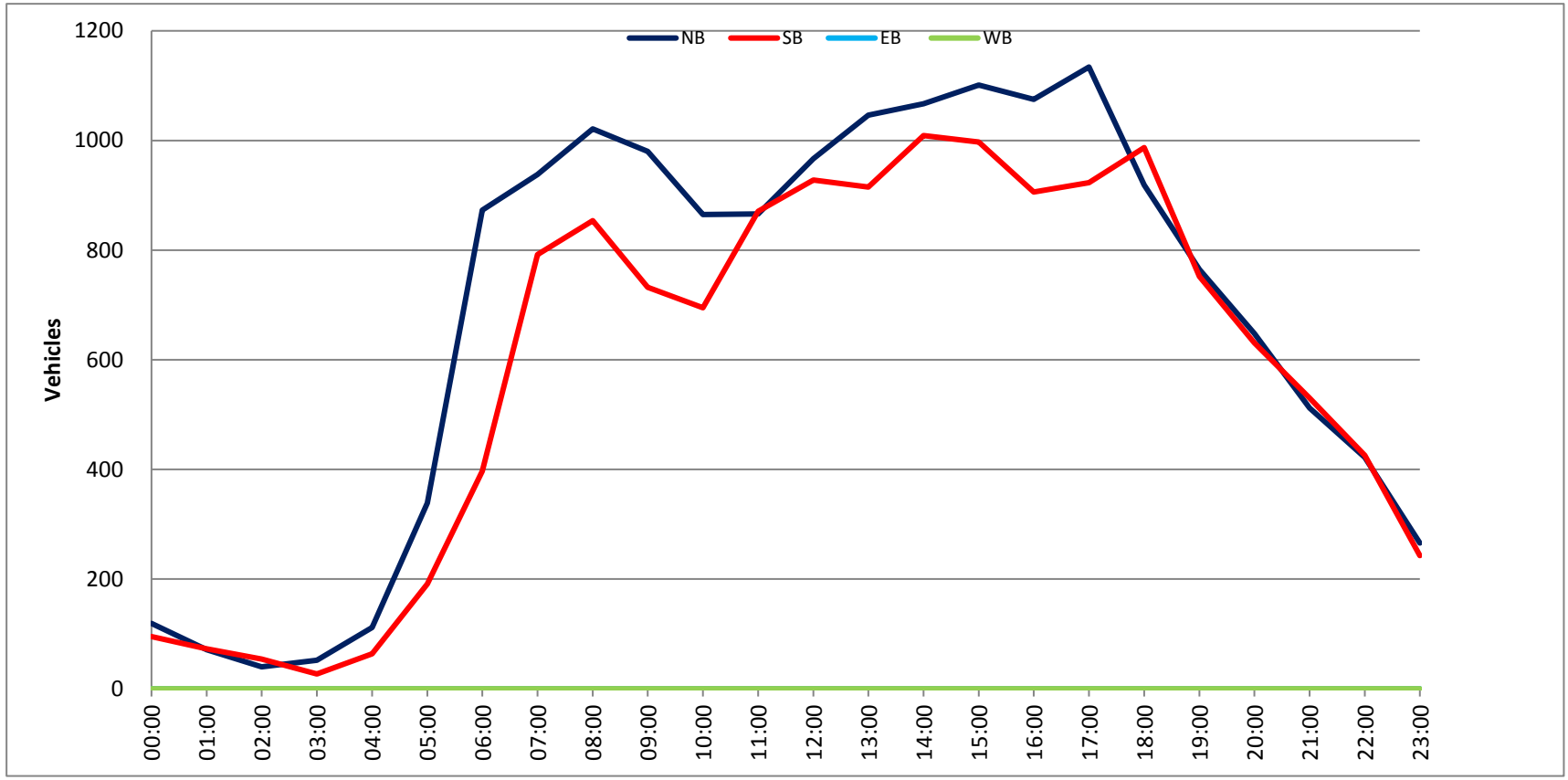
DAILY TOTALS	NB	SB	EB	WB	Total
	16,198	14,092	0	0	30,290

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



Prepared by NDS/ATD

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	1	18	12:45			22	86	16	83	38	169
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	0	7	13:45			21	92	23	117	44	209
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	0	2	14:45			20	71	21	90	41	161
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	2	8	15:45			37	93	33	102	70	195
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	1	3	5	10	16:45			19	89	26	97	45	186
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	6	23	10	36	17:45			15	72	21	77	36	149
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	23	70	18:45			7	42	7	54	14	96
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	49	150	19:45			7	31	11	33	18	64
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	63	205	20:45			9	34	3	37	12	71
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	0	22	14	118	21:45			7	22	5	37	12	59
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	18	69	30	135	22:45			6	12	7	19	13	31
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	20	76	35	149	23:45			0	11	0	2	0	13
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



Prepared by NDS/ATD

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	EB	WB	Total
	190	211	0	0	401

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					1	4	12:45	4	12	4	19					8	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					0	1	13:45	0	13	2	12					2	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					5	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					1	2	15:45	2	6	2	9					4	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					0	1	16:45	4	16	2	18					6	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					1	3	17:45	7	19	6	12					13	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					1	6	18:45	3	8	8	18					11	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					5	12	19:45	1	10	6	17					7	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					8	25	20:45	3	9	1	11					4	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					5	33	21:45	1	8	3	12					4	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					4	24	22:45	6	12	1	3					7	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					5	21	23:45	3	5	1	4					4	9
TOTALS		67		65						132	TOTALS		123		146						269
SPLIT %		50.8%		49.2%						32.9%	SPLIT %		45.7%		54.3%						67.1%

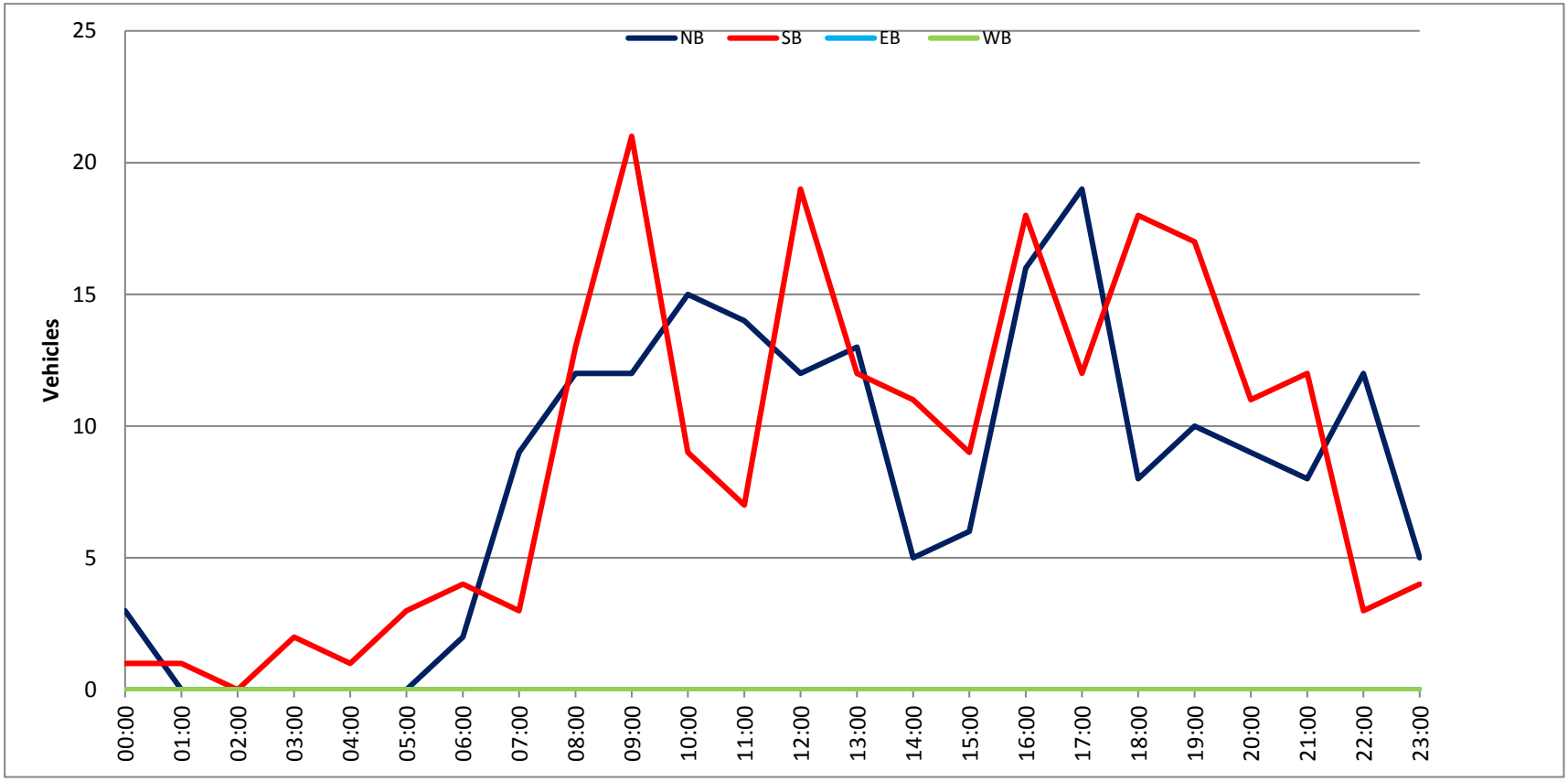
DAILY TOTALS	NB	SB	EB	WB	Total
	190	211	0	0	401

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



Prepared by NDS/ATD

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	3	8	12:45			7	19	4	12	11	31
01:00			1		1		2		13:00			7		1		8	
01:15			0		1		1		13:15			6		4		10	
01:30			1		0		1		13:30			5		2		7	
01:45			0	2	0	2	0	4	13:45			3	21	3	10	6	31
02:00			0		0		0		14:00			2		1		3	
02:15			0		0		0		14:15			1		4		5	
02:30			1		0		1		14:30			5		1		6	
02:45			1	2	0		1	2	14:45			4	12	1	7	5	19
03:00			0		1		1		15:00			3		2		5	
03:15			0		0		0		15:15			1		1		2	
03:30			0		0		0		15:30			1		0		1	
03:45			0		0	1	0	1	15:45			2	7	1	4	3	11
04:00			0		0		0		16:00			4		0		4	
04:15			1		1		2		16:15			2		2		4	
04:30			0		0		0		16:30			1		1		2	
04:45			0	1	1	2	1	3	16:45			5	12	2	5	7	17
05:00			1		0		1		17:00			1		1		2	
05:15			0		0		0		17:15			2		1		3	
05:30			0		1		1		17:30			3		3		6	
05:45			1	2	0	1	1	3	17:45			3	9	2	7	5	16
06:00			1		0		1		18:00			3		3		6	
06:15			2		0		2		18:15			2		2		4	
06:30			1		1		2		18:30			7		2		9	
06:45			2	6	0	1	2	7	18:45			9	21	2	9	11	30
07:00			0		0		0		19:00			5		1		6	
07:15			2		2		4		19:15			2		2		4	
07:30			1		1		2		19:30			1		4		5	
07:45			3	6	1	4	4	10	19:45			1	9	3	10	4	19
08:00			6		2		8		20:00			3		2		5	
08:15			7		1		8		20:15			1		1		2	
08:30			7		6		13		20:30			2		0		2	
08:45			11	31	6	15	17	46	20:45			2	8	1	4	3	12
09:00			7		3		10		21:00			4		0		4	
09:15			0		0		0		21:15			1		1		2	
09:30			4		3		7		21:30			1		1		2	
09:45			6	17	4	10	10	27	21:45			0	6	2	4	2	10
10:00			2		3		5		22:00			0		1		1	
10:15			2		1		3		22:15			2		2		4	
10:30			5		4		9		22:30			1		2		3	
10:45			4	13	2	10	6	23	22:45			1	4	0	5	1	9
11:00			3		2		5		23:00			0		1		1	
11:15			1		1		2		23:15			0		0		0	
11:30			2		7		9		23:30			2		2		4	
11:45			3	9	2	12	5	21	23:45			2	4	0	3	2	7
TOTALS				95		60		155	TOTALS				132		80		212
SPLIT %				61.3%		38.7%		42.2%	SPLIT %				62.3%		37.7%		57.8%

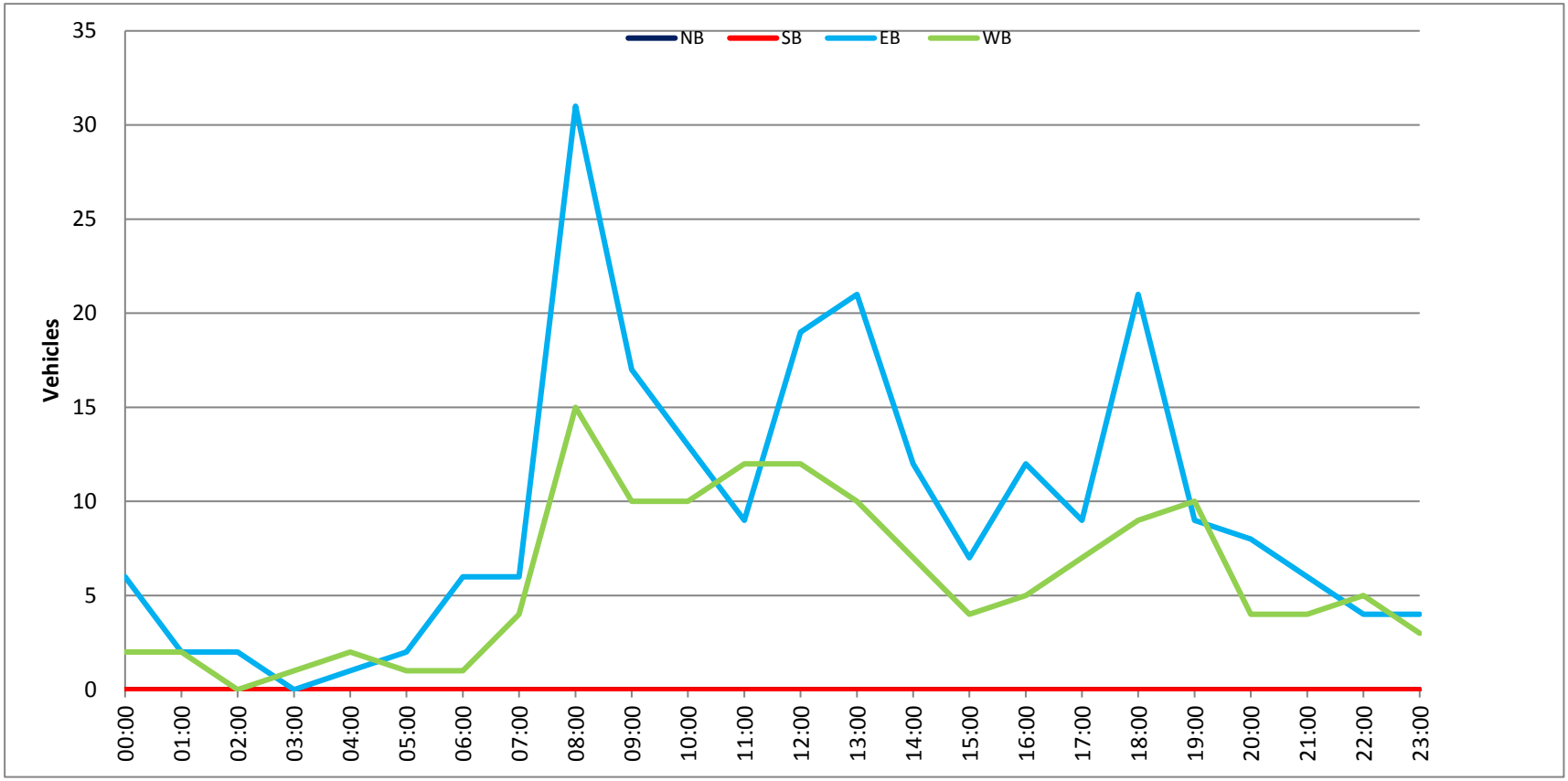
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	227	140	367

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				UTURNS			
	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	NB	SB	EB	WB
7:00 AM	0	21	39	0	24	0	0	0	0	46	0	1	131	0	0	0	0
7:15 AM	0	16	78	1	17	0	0	0	0	37	0	4	153	0	0	0	0
7:30 AM	0	35	77	0	35	0	0	0	0	43	0	8	198	0	0	0	0
7:45 AM	0	72	107	3	48	0	0	0	0	45	0	6	281	0	0	0	0
8:00 AM	0	53	105	1	31	0	0	0	0	35	0	8	233	0	0	0	0
8:15 AM	0	35	89	0	15	0	0	0	0	39	0	6	184	0	0	0	0
8:30 AM	0	42	67	1	20	0	0	0	0	47	0	6	183	0	0	0	0
8:45 AM	0	72	82	3	38	0	0	0	0	42	0	14	251	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	0	346	644	9	228	0	0	0	0	334	0	53	1614	0	0	0	0
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												TOTAL				
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)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-001 **Day:** Thursday

City: Pacific Beach **Date:** 6/9/2016

PM

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
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

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	SB	EB	WB	
2	0	0	0	

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

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	985	238	61	459	0	0	0	0	197	0	91	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

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	550	703	126	1337	0	0	0	0	685	0	127	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												TOTAL
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

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

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

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

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-003

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM

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
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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	3	1191	393	109	2042	0	0	0	0	361	0	89	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

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
	NB	SB	EB	WB
	3	0	0	0

CONTROL : Signalized

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

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	1408	592	0	367	725	145	0	173	0	0	0	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

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	SB	EB	WB
	0	0	0	0

CONTROL : Signalized

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

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	1	1412	379	0	1271	1241	229	0	393	0	0	0	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!	

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

	NB	SB	EB	WB
	1	0	0	0

PEAK HR START TIME :	500 PM												TOTAL
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

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

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

CONTROL : No Control

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	791	242	250	1426	0	0	0	656	0	0	984	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												TOTAL
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

UTURNS				
NB	SB	EB	WB
0	0	0	0

CONTROL : No Control

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

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

CONTROL : 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-006

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM

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
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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	4	912	31	75	1877	0	0	0	0	30	0	49	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

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

CONTROL : 1-Way Stop (WB)

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

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

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-007 **Day:** Thursday

City: Pacific Beach **Date:** 6/9/2016

PM

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
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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	815	79	202	1715	0	0	0	0	57	0	152	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

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

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	253	608	608	283	492	639	376	1576	107	623	1503	184	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

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	SB	EB	WB
	33	3	14	2

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-008

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM

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
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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	207	619	679	484	973	551	750	2096	137	755	1939	200	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

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	SB	EB	WB
	28	5	21	7

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	195	0	477	574	1901	0	0	2258	139	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

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	SB	EB	WB
0	0	115	0

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	183	0	577	694	2734	0	0	2480	194	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

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	SB	EB	WB
	0	0	183	0

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	459	0	0	88	0	2400	0	0	3686	208	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												TOTAL
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

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : 1-Way Stop (SB)

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	1780	0	0	249	0	2722	0	0	4135	118	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												TOTAL
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

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : 1-Way Stop (SB)

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	827	764	402	436	405	819	1503	1633	889	345	1380	435	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

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	SB	EB	WB
	1	0	0	6

CONTROL : Signalized

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

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	1091	627	500	573	600	1624	1005	1665	860	469	1747	648	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%	

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

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

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-012

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM

NS/EW Streets:	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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	48	2	0	21	4	4027	47	0	3004	21	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

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	SB	EB	WB
0	0	1	0

CONTROL : Signalized

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 0	NT 0	NR 1	SL 0	ST 1	SR 0	EL 0	ET 2	ER 0	WL 0	WT 2	WR 0	TOTAL
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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	62	5	0	42	10	3454	101	2	4423	38	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

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
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

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

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

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	1205	0	162	136	2339	0	0	3432	1197	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

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

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	1729	0	2	1	1229	0	0	539	1126	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

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	1513	0	13	0	873	0	0	1316	2032	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

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	55	83	34	192	147	16	14	1484	75	13	1041	44	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

UTURNS				
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	171	145	46	133	103	33	23	1377	79	28	1913	76	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

UTURNS				
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	26	161	142	7	220	13	38	1064	40	83	457	14	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%	

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	SB	EB	WB	
0	0	3	3	

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

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-016

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM

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
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

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	37	314	83	17	185	40	30	770	41	197	1117	19	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	SB	EB	WB
	0	0	11	4

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-017

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

AM

NS/EW Streets:	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

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

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-017

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM

NS/EW Streets:	Olney St			Olney St			Grand Ave			Grand Ave				UTURNS			
	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	NB	SB	EB	WB
4:00 PM	8	11	28	24	17	6	6	239	2	30	264	32	667	0	0	0	2
4:15 PM	1	10	32	13	18	9	7	211	4	23	216	26	570	0	0	1	1
4:30 PM	2	14	28	18	17	4	4	233	8	35	259	41	663	0	0	1	3
4:45 PM	3	18	29	23	19	5	3	230	8	33	289	32	692	0	0	2	2
5:00 PM	5	15	35	24	20	6	3	244	5	30	311	52	750	0	0	0	1
5:15 PM	3	12	27	22	25	5	2	266	8	29	301	40	740	0	0	1	1
5:30 PM	3	21	23	22	26	5	6	233	7	44	282	38	710	0	0	0	3
5:45 PM	2	22	40	21	31	8	4	238	8	35	318	46	773	0	0	1	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	27	123	242	167	173	48	35	1894	50	259	2240	307	5565	0	0	6	13
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

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				UTURNS			
	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	NB	SB	EB	WB
7:00 AM	0	0	0	19	0	6	11	339	0	0	157	10	542	0	0	1	0
7:15 AM	0	0	0	42	0	9	10	375	0	0	146	37	619	0	0	5	0
7:30 AM	0	0	0	42	0	14	25	472	0	1	134	48	736	0	0	3	1
7:45 AM	0	0	0	45	0	16	10	422	0	0	123	15	631	0	0	4	0
8:00 AM	0	0	0	20	0	0	3	414	0	1	120	10	568	0	0	1	1
8:15 AM	0	0	0	18	0	3	3	417	0	0	132	15	588	0	0	1	0
8:30 AM	0	0	0	12	0	1	5	369	0	1	142	5	535	0	0	5	1
8:45 AM	0	0	0	13	0	3	3	332	0	0	154	4	509	0	0	2	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	0	0	0	211	0	52	70	3140	0	3	1108	144	4728	0	0	22	3
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

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-018 **Day:** Thursday

City: Pacific Beach **Date:** 6/9/2016

PM

NS/EW Streets:	Culver St			Culver St			Grand Ave			Grand Ave				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	0	0	0	1	0	1	2	0	1	2	0					
4:00 PM	0	0	0	23	0	4	5	284	0	0	297	12	625	0	0	4	0
4:15 PM	0	0	0	10	0	6	4	262	0	0	313	10	605	0	0	0	0
4:30 PM	0	0	0	15	0	5	1	268	0	0	311	17	617	0	0	0	0
4:45 PM	0	0	0	22	0	4	5	299	0	0	401	23	754	0	0	3	0
5:00 PM	0	0	0	13	0	6	2	329	0	0	355	13	718	0	0	1	0
5:15 PM	0	0	0	16	0	6	6	293	0	1	397	11	730	0	0	1	1
5:30 PM	0	0	0	17	0	8	3	288	0	0	371	15	702	0	0	0	0
5:45 PM	0	0	0	7	0	4	5	278	0	0	354	12	660	0	0	2	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	0	0	0	123	0	43	31	2301	0	1	2799	113	5411	0	0	11	1
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

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				UTURNS			
	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	NB	SB	EB	WB
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				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	57	0	51	0	0	0	0	3303	55	158	1205	0	4829	0	0	0	0
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

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-019

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM

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
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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	33	0	70	0	0	0	0	2377	46	157	2887	0	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

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	97	3337	0	0	1260	65	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

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

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	134	2307	0	0	2887	58	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

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	SB	EB	WB
0	0	61	0

CONTROL : Signalized

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

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 5	SB 2	EB 0	WB 0

CONTROL : Signalized

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				UTURNS			
	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	NB	SB	EB	WB
4:00 PM	243	217	5	0	238	48	24	0	284	0	0	3	1062	2	0	0	0
4:15 PM	288	197	9	0	158	44	34	0	246	0	0	4	980	1	0	0	0
4:30 PM	267	220	4	0	165	68	23	0	268	0	0	2	1017	0	0	0	0
4:45 PM	308	237	5	0	193	75	24	0	252	0	2	0	1096	0	0	0	0
5:00 PM	372	214	3	2	184	49	34	0	276	0	0	2	1136	2	2	0	0
5:15 PM	337	252	5	0	184	70	34	0	277	0	0	6	1165	0	0	0	0
5:30 PM	276	224	6	0	179	92	19	0	244	0	0	2	1042	0	0	0	0
5:45 PM	355	219	3	0	136	61	33	0	256	0	0	3	1066	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	2446	1780	40	2	1437	507	225	0	2103	0	2	22	8564	5	2	0	0
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

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	2453	16	10	3979	0	0	0	0	4	0	15	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

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	SB	EB	WB
	0	5	0	0

CONTROL : 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-022

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM

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
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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	2	4211	22	9	3518	0	0	0	0	5	0	17	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

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	SB	EB	WB
	2	1	0	0

CONTROL : 1-Way Stop (WB)

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	20	1713	174	204	1431	1	1	0	1	87	1	63	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

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	SB	EB	WB
	19	29	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-023

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM

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
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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	48	1917	80	146	1659	43	12	1	13	209	5	90	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

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	SB	EB	WB
	29	29	0	0

CONTROL : Signalized

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

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

CONTROL : Signalized

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				UTURNS			
	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	NB	SB	EB	WB
4:00 PM	10	263	1	11	226	22	13	2	33	1	0	1	583	5	9	0	0
4:15 PM	12	245	0	6	180	25	20	0	25	0	1	2	516	6	5	0	0
4:30 PM	9	256	1	9	194	27	16	0	22	1	1	3	539	6	6	0	0
4:45 PM	14	259	1	9	216	30	17	0	16	1	0	2	565	3	7	0	0
5:00 PM	17	276	1	10	170	27	15	1	32	2	1	1	553	3	7	0	0
5:15 PM	12	284	1	10	204	22	10	2	36	1	0	3	585	6	8	0	0
5:30 PM	10	253	0	8	203	34	11	0	31	3	0	1	554	7	5	0	0
5:45 PM	6	271	0	3	188	27	10	0	18	1	0	0	524	4	3	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	90	2107	5	66	1581	214	112	5	213	10	3	13	4419	40	50	0	0
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

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				UTURNS			
	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	NB	SB	EB	WB
7:00 AM	0	342	29	12	188	0	0	0	0	8	0	10	589	0	0	0	0
7:15 AM	0	346	26	13	149	0	0	0	0	22	0	11	567	0	0	0	0
7:30 AM	0	308	17	14	182	0	0	0	0	22	0	13	556	2	0	0	0
7:45 AM	0	301	24	18	195	0	0	0	0	12	0	11	561	3	0	0	0
8:00 AM	0	328	25	14	175	0	0	0	0	22	0	12	576	2	0	0	0
8:15 AM	0	297	29	6	177	0	0	0	0	17	0	18	544	0	0	0	0
8:30 AM	0	299	36	12	207	0	0	0	0	22	0	10	586	0	0	0	0
8:45 AM	0	282	23	17	207	0	0	0	0	22	0	8	559	1	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	0	2503	209	106	1480	0	0	0	0	147	0	93	4538	8	0	0	0
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

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	2149	302	150	2546	0	0	0	0	287	0	257	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

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
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	142	2488	0	0	1396	384	1156	0	197	0	0	0	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

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	SB	EB	WB
	10	0	0	0

CONTROL : Signalized

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			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
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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	508	1886	0	0	2387	982	532	0	261	0	0	0	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

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	SB	EB	WB
	17	0	0	0

CONTROL : Signalized

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
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	37	144	0	0	48	131	167	0	56	0	0	0	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												TOTAL
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

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
	NB	SB	EB	WB
	0	0	2	0

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

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				UTURNS			
	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	NB	SB	EB	WB
4:00 PM	7	3	0	0	22	29	21	0	12	0	0	0	94	0	0	0	0
4:15 PM	2	9	0	0	11	31	21	0	8	0	0	0	82	0	0	0	0
4:30 PM	7	6	0	1	15	23	12	0	8	0	0	0	72	0	1	0	0
4:45 PM	15	17	0	0	11	19	23	0	8	0	0	0	93	0	0	0	0
5:00 PM	24	6	0	0	21	36	21	0	23	0	0	0	131	0	0	1	0
5:15 PM	20	5	0	0	15	30	22	0	15	0	0	0	107	0	0	2	0
5:30 PM	7	11	0	0	14	35	18	0	9	0	0	0	94	0	0	1	0
5:45 PM	5	8	0	0	9	20	17	0	10	0	0	0	69	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	87	65	0	1	118	223	155	0	93	0	0	0	742	0	1	4	0
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)

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

									AM PEAK							PM PEAK						
DI	RTE	CO	PRE	PM	CS	LEG	YR	Dir	1 WAY PHV	% K	% D	% KD	HR	DAY	MNTH	Dir	1 WAY 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

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.98			1.00	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.97	
Satd. Flow (prot)	1770	1851		1770	3523			1794			1807	
Flt Permitted	0.45	1.00		0.26	1.00			0.86			0.76	
Satd. Flow (perm)	835	1851		476	3523			1573			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	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	78.0	78.0		78.0	78.0			18.2			18.2	
Effective Green, g (s)	78.0	78.0		78.0	78.0			18.2			18.2	
Actuated g/C Ratio	0.74	0.74		0.74	0.74			0.17			0.17	
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)	614	1362		350	2592			270			240	
v/s Ratio Prot		c0.46			0.15							
v/s Ratio Perm	0.01			0.01				0.06			c0.14	
v/c Ratio	0.01	0.63		0.01	0.21			0.36			0.79	
Uniform Delay, d1	3.7	6.9		3.7	4.4			38.7			42.1	
Progression Factor	1.00	1.00		1.47	1.39			1.00			1.00	
Incremental Delay, d2	0.0	2.2		0.1	0.2			0.3			15.3	
Delay (s)	3.7	9.0		5.5	6.2			39.0			57.4	
Level of Service	A	A		A	A			D			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

Lane Group	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	614	658	314	886
v/c Ratio	1.03	0.48	0.22	0.59
Control Delay	67.1	7.6	0.3	12.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	67.1	7.6	0.3	12.3
Queue Length 50th (ft)	~104	40	0	99
Queue Length 95th (ft)	#200	75	0	183
Internal Link Dist (ft)	936	284		899
Turn Bay Length (ft)				
Base Capacity (vph)	594	1382	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	1.03	0.48	0.22	0.59

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.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	576	323	590	833	0
Future Volume (vph)	1	576	323	590	833	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	0.93	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	0.94
Adj. Flow (vph)	1	613	344	628	886	0
RTOR Reduction (vph)	0	0	196	0	0	0
Lane Group Flow (vph)	0	614	462	314	886	0
Turn Type		NA	NA	Free	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/s Ratio Perm		c0.18		0.22		
v/c Ratio		0.48	0.39	0.22	0.59	
Uniform Delay, d1		12.6	12.0	0.0	11.4	
Progression Factor		1.00	1.00	1.00	0.95	
Incremental Delay, d2		0.8	0.6	0.3	1.4	
Delay (s)		13.4	12.7	0.3	12.2	
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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
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



Movement	EBL	EBT	WBT	WBR	SBL	SBR
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/s 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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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				Perm			Perm
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/s Ratio Perm									0.02			
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



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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.9	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	0.96	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	4.9	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)	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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1263	0	0	1873	126	0	0	236	0	0	52
Future Volume (Veh/h)	0	1263	0	0	1873	126	0	0	236	0	0	52
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	0.93
Hourly flow rate (vph)	0	1358	0	0	2014	135	0	0	254	0	0	56
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										
pX, platoon unblocked				0.77			0.77	0.77	0.77	0.77	0.77	
vC, conflicting volume	2149			1358			2085	3507	679	2760	3440	739
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2149			880			1819	3655	3	2691	3568	739
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	70	100	100	84
cM capacity (veh/h)	247			592			32	4	836	6	4	360

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	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%	ICU Level of Service		B	
Analysis Period (min)	15				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1096	262	0	1408	0	0	0	269	0	0	290
Future Volume (Veh/h)	0	1096	262	0	1408	0	0	0	269	0	0	290
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	1191	285	0	1530	0	0	0	292	0	0	315
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	0.70						0.70	0.70		0.70	0.70	0.70
vC, conflicting volume	1530			1191			1956	2721	596	2126	2721	765
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	910			1191			1516	2603	596	1757	2603	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	35	100	100	59
cM capacity (veh/h)	523			582			34	17	447	13	17	763

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%	ICU Level of Service		B	
Analysis Period (min)	15				

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
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
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	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/s Ratio Perm				0.03		0.03
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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	815	69	337	768	90	139	322	332	152	271	310
Future Volume (vph)	208	815	69	337	768	90	139	322	332	152	271	310
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	0.95		0.97	0.95		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	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3498		3433	3484		1770	3539	1583	1770	3256	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3498		3433	3484		1770	3539	1583	1770	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	0.87	0.87
Adj. Flow (vph)	239	937	79	387	883	103	160	370	382	175	311	356
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	69	0	115	0
Lane Group Flow (vph)	239	1013	0	387	982	0	160	370	313	175	552	0
Turn Type	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)	15.0	46.3		21.3	51.9		18.0	28.0	49.3	19.2	29.2	
Effective Green, g (s)	15.0	46.3		21.3	51.9		18.0	28.0	49.3	19.2	29.2	
Actuated g/C Ratio	0.11	0.34		0.16	0.39		0.13	0.21	0.37	0.14	0.22	
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)	382	1203		543	1343		236	736	579	252	706	
v/s Ratio Prot	0.07	c0.29		c0.11	0.28		0.09	0.10	0.09	c0.10	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	
Uniform Delay, d1	57.1	40.8		53.7	35.4		55.5	47.1	33.7	54.9	49.7	
Progression Factor	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	
Delay (s)	59.4	46.4		57.4	37.5		61.5	47.5	34.3	61.4	55.2	
Level of Service	E	D		E	D		E	D	C	E	E	
Approach Delay (s)		48.9			43.1			44.4			56.5	
Approach LOS		D			D			D			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

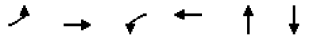
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	38	632	47	209	203	146
v/c Ratio	0.15	0.50	0.18	0.15	0.46	0.32
Control Delay	21.9	13.8	21.6	9.9	17.8	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	13.8	21.6	9.9	17.8	17.5
Queue Length 50th (ft)	9	68	11	11	40	31
Queue Length 95th (ft)	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

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	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.94			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	3523		1770	3519			1752			1851	
Flt Permitted	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (perm)	1770	3523		1770	3519			1700			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		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	2.2	15.8		3.5	17.2			10.5			10.5	
Effective Green, g (s)	2.2	15.8		3.5	17.2			10.5			10.5	
Actuated g/C Ratio	0.05	0.36		0.08	0.39			0.24			0.24	
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)	88	1259		140	1369			403			436	
v/s Ratio Prot	0.02	c0.18		c0.03	0.06							
v/s Ratio Perm								c0.11			0.08	
v/c Ratio	0.43	0.50		0.34	0.15			0.46			0.33	
Uniform Delay, d1	20.4	11.1		19.3	8.8			14.4			14.0	
Progression Factor	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	
Delay (s)	21.6	11.4		19.8	8.8			14.7			14.1	
Level of Service	C	B		B	A			B			B	
Approach Delay (s)		12.0			10.8			14.7			14.1	
Approach LOS		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			

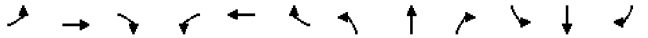
c Critical Lane Group



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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.98			0.90			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.97	
Satd. Flow (prot)	1770	3535		1770	3485			1670			1795	
Flt Permitted	0.95	1.00		0.95	1.00			0.99			0.32	
Satd. Flow (perm)	1770	3535		1770	3485			1657			597	
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	7	0	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		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
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							
v/s Ratio Perm								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

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	55	1934	727	216
v/c Ratio	0.43	0.73	0.32	0.75
Control Delay	60.0	5.6	8.8	56.0
Queue Delay	0.0	0.4	0.2	0.0
Total Delay	60.0	6.0	9.0	56.0
Queue Length 50th (ft)	39	156	112	134
Queue Length 95th (ft)	m52	m181	179	193
Internal Link Dist (ft)		1076	211	186
Turn Bay Length (ft)	55			
Base Capacity (vph)	185	2642	2256	434
Starvation Cap Reductn	0	0	789	0
Spillback Cap Reductn	0	273	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.82	0.50	0.50

Intersection Summary

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

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	48	1683	0	523	110	149	39
Future Volume (vph)	48	1683	0	523	110	149	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.9		4.9	
Lane Util. Factor	1.00	0.95		0.95		1.00	
Frt	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	0.87	0.87	0.87
Adj. Flow (vph)	55	1934	0	601	126	171	45
RTOR Reduction (vph)	0	0	0	12	0	10	0
Lane Group Flow (vph)	55	1934	0	715	0	206	0
Turn Type	Prot	NA	Prot	NA		Prot	
Protected Phases	5	2	1	6		4	
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/s Ratio Perm							
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

Lane Group	EBT	WBL	WBT	NBL
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.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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	
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/s Ratio Perm						
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	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT
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.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	65	1765	689	22	0	0
Future Volume (vph)	65	1765	689	22	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			
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	0.96
Adj. Flow (vph)	68	1839	718	23	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	68	1839	741	0	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/s Ratio Perm						
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

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.

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	307	1463	499	705	0	665	105
Future Volume (vph)	307	1463	499	705	0	665	105
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	
Frt	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		3467	
Flt Permitted	0.95	1.00	0.95	1.00		1.00	
Satd. Flow (perm)	1770	1583	3433	3539		3467	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.92	0.91	0.91
Adj. Flow (vph)	337	1608	548	775	0	731	115
RTOR Reduction (vph)	0	0	0	0	0	15	0
Lane Group Flow (vph)	337	1608	548	775	0	831	0
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	
Effective Green, g (s)	15.1	75.0	16.3	49.8		28.6	
Actuated g/C Ratio	0.20	1.00	0.22	0.66		0.38	
Clearance Time (s)	4.4		5.7	5.7		4.9	
Vehicle Extension (s)	2.0		2.0	4.6		3.6	
Lane Grp Cap (vph)	356	1583	746	2349		1322	
v/s Ratio Prot	0.19		0.16	0.22		0.24	
v/s Ratio Perm		c1.02					
v/c Ratio	0.95	1.02	0.73	0.33		0.63	
Uniform Delay, d1	29.6	37.5	27.3	5.4		18.9	
Progression Factor	1.00	1.00	1.00	1.00		0.92	
Incremental Delay, d2	16.7	17.6	3.3	0.4		2.2	
Delay (s)	46.3	55.1	30.6	5.8		19.6	
Level of Service	D	E	C	A		B	
Approach Delay (s)	53.6			16.1		19.6	
Approach LOS	D			B		B	

Intersection Summary

HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	717	85	1309	742	211
v/c Ratio	0.92	0.45	0.57	0.42	0.24
Control Delay	47.1	27.7	15.4	13.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	27.7	15.4	13.8	5.0
Queue Length 50th (ft)	162	54	340	114	14
Queue Length 95th (ft)	#263	90	368	174	54
Internal Link Dist (ft)	261		749	743	
Turn Bay Length (ft)	270	205			70
Base Capacity (vph)	788	401	2305	1776	870
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	0.91	0.21	0.57	0.42	0.24

Intersection Summary

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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	c0.21		0.05	c0.37	0.21	
v/s Ratio Perm						0.08
v/c Ratio	0.92		0.51	0.57	0.43	0.17
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

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.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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/s 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

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		Prot	NA		Prot	NA	
Protected Phases		8			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							0.02	c0.27		c0.02	0.23	
v/s Ratio Perm		c0.10			0.01							
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	14.7	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.43				
Actuated Cycle Length (s)	150.0	Sum of lost time (s)		14.3	
Intersection Capacity Utilization	49.8%	ICU Level of Service		A	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	75	1024	125	762
v/c Ratio	0.31	0.42	0.58	0.25
Control Delay	3.3	4.6	39.0	1.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.3	4.6	39.0	1.5
Queue Length 50th (ft)	0	44	65	55
Queue Length 95th (ft)	0	m50	95	14
Internal Link Dist (ft)	514	478		804
Turn Bay Length (ft)			90	
Base Capacity (vph)	504	2423	236	2995
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	0.15	0.42	0.53	0.25

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	36	0	35	0	883	90	119	724	0
Future Volume (vph)	0	0	0	36	0	35	0	883	90	119	724	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	
Frt					0.93			0.99		1.00	1.00	
Flt Protected					0.98			1.00		0.95	1.00	
Satd. Flow (prot)					1696			3490		1770	3539	
Flt Permitted					0.84			1.00		0.95	1.00	
Satd. Flow (perm)					1460			3490		1770	3539	
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	0	0	38	0	37	0	929	95	125	762	0
RTOR Reduction (vph)	0	0	0	0	71	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	4	0	0	1018	0	125	762	0
Turn Type				Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)					3.6			49.1		8.0	61.5	
Effective Green, g (s)					3.6			49.1		8.0	61.5	
Actuated g/C Ratio					0.05			0.65		0.11	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			2284		188	2901	
v/s Ratio Prot								c0.29		c0.07	0.22	
v/s Ratio Perm					c0.00							
v/c Ratio					0.05			0.45		0.66	0.26	
Uniform Delay, d1					34.1			6.3		32.2	1.5	
Progression Factor					1.00			0.63		0.91	0.86	
Incremental Delay, d2					0.1			0.5		6.5	0.2	
Delay (s)					34.2			4.5		35.8	1.5	
Level of Service					C			A		D	A	
Approach Delay (s)		0.0			34.2			4.5			6.4	
Approach LOS		A			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.45				
Actuated Cycle Length (s)	75.0	Sum of lost time (s)		14.3	
Intersection Capacity Utilization	49.9%	ICU Level of Service		A	
Analysis Period (min)	15				

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Grade	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	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (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%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	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
Hadj (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%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	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
Hadj (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		A	

Intersection Summary				
Delay		12.7		
Level of Service		B		
Intersection Capacity Utilization		33.8%	ICU Level of Service	A
Analysis Period (min)		15		



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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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		5.5		4.4	5.5
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.95		0.97		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	3332		3440		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	3332		3440		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		Prot	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



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



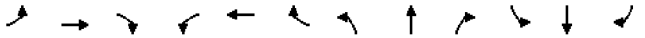
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	223	33	0	714	119	17	312
Future Volume (vph)	223	33	0	714	119	17	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)	-10%			-3%			0%
Total Lost time (s)	4.9	4.9		6.0	4.9	4.4	5.7
Lane Util. Factor	0.97	1.00		0.95	1.00	1.00	0.95
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	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	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				



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

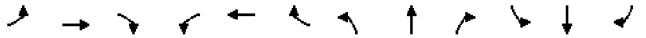
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	0	94	0	0	0	0	784	290	0	204	377
Future Volume (vph)	73	0	94	0	0	0	0	784	290	0	204	377
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
Lane Util. Factor	1.00		1.00					0.95	1.00		0.95	1.00
Frt	1.00		0.85					1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770		1583					3539	1583		3539	1583
Flt Permitted	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770		1583					3539	1583		3539	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					NA	Free		NA	Free
Protected Phases								2			6	
Permitted Phases	4		4						Free			Free
Actuated Green, G (s)	5.7		5.7					19.9	33.6		19.9	33.6
Effective Green, g (s)	5.7		5.7					19.9	33.6		19.9	33.6
Actuated g/C Ratio	0.17		0.17					0.59	1.00		0.59	1.00
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)	300		268					2096	1583		2096	1583
v/s Ratio Prot								c0.25			0.07	
v/s Ratio Perm	0.05		0.01						0.21			c0.27
v/c Ratio	0.28		0.07					0.43	0.21		0.11	0.27
Uniform Delay, d1	12.2		11.7					3.7	0.0		3.0	0.0
Progression Factor	1.00		1.00					1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5		0.1					0.1	0.3		0.0	0.4
Delay (s)	12.7		11.8					3.9	0.3		3.0	0.4
Level of Service	B		B					A	A		A	A
Approach Delay (s)		12.2			0.0			2.9			1.3	
Approach LOS		B			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	3.3	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.43			
Actuated Cycle Length (s)	33.6	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	32.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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			Free			Free	
Grade		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								None			None	
Median storage veh)												
Upstream signal (ft)											1013	
pX, platoon unblocked												
vC, conflicting volume	1267	1267	134	1134	1267	888	267			888		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1267	1267	134	1134	1267	888	267			888		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	82	100	100	0	100			93		
cM capacity (veh/h)	0	155	891	122	155	287	1294			758		

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			B		
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	C	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	23	29	946	19	17	354
Future Volume (Veh/h)	23	29	946	19	17	354
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	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	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (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			

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			3361
Turn Bay Length (ft)			95	95	
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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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	5.9	4.4	6.0
Lane Util. Factor	1.00		0.95	1.00	1.00	0.95
Frt	0.92		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	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	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

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	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 Mtn 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	27.7	C
Mission Bay Dr	II	35	15.5	57.8	73.3	0.12	6.1	F
Moraga Ave	II	45	44.2	5.3	49.5	0.50	36.5	A
Clairemont 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
Clairemont Dr	II	45	14.7	41.0	55.7	0.13	8.7	F
Moraga 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 Mtn 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
Bluffside 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
Bluffside 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

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

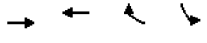
m Volume for 95th percentile queue is metered by upstream signal.



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	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1770	1846		1770	3522			1792			1776	
Flt Permitted	0.24	1.00		0.27	1.00			0.79			0.72	
Satd. Flow (perm)	440	1846		512	3522			1453			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		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.4	43.4		43.4	43.4			13.8			13.8	
Effective Green, g (s)	43.4	43.4		43.4	43.4			13.8			13.8	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.21			0.21	
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)	285	1195		331	2281			299			270	
v/s Ratio Prot		c0.41			0.30							
v/s Ratio Perm	0.03			0.04				c0.14			0.10	
v/c Ratio	0.04	0.63		0.06	0.46			0.70			0.48	
Uniform Delay, d1	4.3	7.0		4.3	5.9			24.7			23.4	
Progression Factor	1.00	1.00		1.30	1.41			1.00			1.00	
Incremental Delay, d2	0.3	2.5		0.3	0.6			5.7			0.5	
Delay (s)	4.6	9.5		5.9	8.9			30.3			23.9	
Level of Service	A	A		A	A			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	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)	9.8	
Intersection Capacity Utilization	61.0%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



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

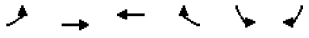
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	433	657	1033	790	7
Future Volume (vph)	0	433	657	1033	790	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	4.0	4.9	
Lane Util. Factor		0.95	0.91	0.91	0.97	
Frt		1.00	0.93	0.85	1.00	
Flt Protected		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	
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	c0.31		c0.24	
v/s Ratio Perm				0.37		
v/c Ratio		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

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



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
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	0.96	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



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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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			
Frt		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				Perm			Perm
Protected Phases		2			6							
Permitted Phases									2			6
Actuated Green, G (s)		170.0			170.0				170.0			
Effective Green, g (s)		170.0			170.0				170.0			
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)		3523			3539				1611			
v/s Ratio Prot		0.52			c0.67							
v/s Ratio Perm									0.02			
v/c Ratio		0.52			0.67				0.02			
Uniform Delay, d1		0.0			0.0				0.0			
Progression Factor		1.00			1.00				1.00			
Incremental Delay, d2		0.5			0.7				0.0			
Delay (s)		0.5			0.7				0.0			
Level of Service		A			A				A			
Approach Delay (s)		0.5			0.7			0.0			0.0	
Approach LOS		A			A			A			A	

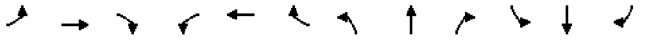
Intersection Summary				
HCM 2000 Control Delay	0.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	7.9	
Intersection Capacity Utilization	69.3%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



Lane Group	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			1151			461			376	
Turn Bay Length (ft)	565		120	410		325	265		100	200		265
Base Capacity (vph)	700	1270	1004	313	1218	927	708	959	798	628	368	1186
Starvation Cap Reductn	0	107	201	0	0	0	0	0	221	0	31	182
Spillback Cap Reductn	0	0	0	0	0	0	0	31	0	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

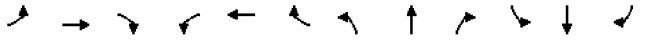
Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



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
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	0.99	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



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										
pX, platoon unblocked				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
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (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
cM 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	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

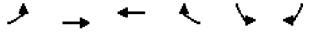
Intersection Summary				
Average Delay	30.5			
Intersection Capacity Utilization	100.5%	ICU Level of Service	G	
Analysis Period (min)	15			



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	257	0	0	197
Future Volume (Veh/h)	0	1437	514	0	1578	0	0	0	257	0	0	197
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	1562	559	0	1715	0	0	0	279	0	0	214
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	2496	3277	858
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1107			1562			2145	3408	781	2257	3408	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (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

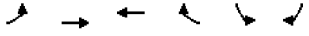
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	781	781	559	858	858	279	214
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	559	0	0	279	214
cSH	1700	1700	1700	1700	1700	338	736
Volume to Capacity	0.46	0.46	0.33	0.50	0.50	0.83	0.29
Queue Length 95th (ft)	0	0	0	0	0	180	30
Control Delay (s)	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%	ICU Level of Service		B	
Analysis Period (min)	15				



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



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	6.5	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	395	1187	427	1171	86	319	350	260	828
v/c Ratio	0.80	0.87	0.82	0.86	0.63	0.57	0.60	0.85	0.93
Control Delay	77.0	52.5	77.0	50.9	89.6	65.6	40.2	86.0	68.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.0	52.5	77.0	50.9	89.6	65.6	40.2	86.0	68.6
Queue Length 50th (ft)	201	576	218	561	86	162	256	252	406
Queue Length 95th (ft)	270	#794	290	#754	152	226	369	#417	#601
Internal Link Dist (ft)		3203		630		1350			860
Turn Bay Length (ft)	240		220		200		100	120	
Base Capacity (vph)	672	1395	672	1383	347	925	648	347	917
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	0.59	0.85	0.64	0.85	0.25	0.34	0.54	0.75	0.90

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

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		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	1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3513		3433	3490		1770	3539	1583	1770	3345	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3513		3433	3490		1770	3539	1583	1770	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	pm+ov	Prot	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		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)	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	E	D	E	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

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	16	414	113	584	243	134
v/c Ratio	0.08	0.42	0.34	0.35	0.52	0.29
Control Delay	23.5	16.3	22.0	9.4	20.0	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	16.3	22.0	9.4	20.0	16.6
Queue Length 50th (ft)	4	47	27	39	54	27
Queue Length 95th (ft)	21	100	76	121	130	74
Internal Link Dist (ft)		1172		936	328	244
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	1222	3490	1222	3520	1512	1508
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	0.12	0.09	0.17	0.16	0.09

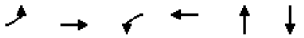
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	373	28	110	557	10	16	177	44	9	99	22
Future Volume (vph)	16	373	28	110	557	10	16	177	44	9	99	22
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	
Frt	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	0.97
Adj. Flow (vph)	16	385	29	113	574	10	16	182	45	9	102	23
RTOR Reduction (vph)	0	5	0	0	1	0	0	6	0	0	5	0
Lane Group Flow (vph)	16	409	0	113	583	0	0	237	0	0	129	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	0.9	15.4		6.7	21.3			11.9			11.9	
Effective Green, g (s)	0.9	15.4		6.7	21.3			11.9			11.9	
Actuated g/C Ratio	0.02	0.32		0.14	0.44			0.25			0.25	
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)	32	1114		245	1553			435			433	
v/s Ratio Prot	0.01	0.12		c0.06	c0.17							
v/s Ratio Perm								c0.13			0.07	
v/c Ratio	0.50	0.37		0.46	0.38			0.54			0.30	
Uniform Delay, d1	23.5	12.7		19.2	9.1			15.9			14.8	
Progression Factor	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	
Delay (s)	27.9	12.9		19.7	9.2			16.6			15.0	
Level of Service	C	B		B	A			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



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.

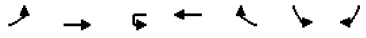
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	981	28	138	1212	176	13	70	125	89	102	24
Future Volume (vph)	15	981	28	138	1212	176	13	70	125	89	102	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total 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	
Frt	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		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
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							
v/s Ratio Perm								0.11			c0.21	
v/c Ratio	0.44	0.53		0.72	0.63			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

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

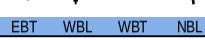
Intersection Summary
m Volume for 95th percentile queue is metered by upstream signal.



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	
Lane Util. Factor	1.00	0.95		0.95		1.00	
Frt	1.00	1.00		0.99		0.96	
Flt Protected	0.95	1.00		1.00		0.96	
Satd. Flow (prot)	1770	3539		3518		1733	
Flt Permitted	0.95	1.00		1.00		0.96	
Satd. Flow (perm)	1770	3539		3518		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	
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	c0.36		c0.47		c0.05	
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



Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1305	92	1639	43
v/c Ratio	0.48	0.61	0.52	0.42
Control Delay	2.9	75.5	2.4	43.7
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	3.0	75.5	2.5	43.8
Queue Length 50th (ft)	93	79	113	15
Queue Length 95th (ft)	119	134	181	54
Internal Link Dist (ft)	211		1401	337
Turn Bay Length (ft)		400		
Base Capacity (vph)	2737	166	3178	421
Starvation Cap Reductn	344	0	0	0
Spillback Cap Reductn	0	0	123	32
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.55	0.54	0.11

Intersection Summary

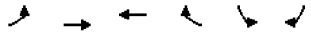
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1225	28	88	1573	16	25
Future Volume (vph)	1225	28	88	1573	16	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		4.4	5.4	4.9	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	1.00		1.00	1.00	0.92	
Flt 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	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	c0.46	c0.01	
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

Lane Group	EBL	EBT	WBT
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



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			
Frt	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	c0.67	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



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			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.

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	111	1049	1293	927	0	740	286
Future Volume (vph)	111	1049	1293	927	0	740	286
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	
Frt	1.00	0.85	1.00	1.00		0.96	
Flt Protected	0.95	1.00	0.95	1.00		1.00	
Satd. Flow (prot)	1770	1583	3433	3539		3391	
Flt Permitted	0.95	1.00	0.95	1.00		1.00	
Satd. Flow (perm)	1770	1583	3433	3539		3391	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.92	0.95	0.95
Adj. Flow (vph)	117	1104	1361	976	0	779	301
RTOR Reduction (vph)	0	0	0	0	0	22	0
Lane Group Flow (vph)	117	1104	1361	976	0	1058	0
Turn Type	Prot	Free	Prot	NA	Prot	NA	
Protected Phases	4		1	6	5	2	
Permitted Phases		Free					
Actuated Green, G (s)	15.6	170.0	71.9	144.3		67.5	
Effective Green, g (s)	15.6	170.0	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		5.7	5.7		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

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	389	289	1023	1228	524
v/c Ratio	0.78	0.57	0.38	0.83	0.66
Control Delay	39.0	26.6	1.4	28.5	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	26.6	1.4	28.5	16.1
Queue Length 50th (ft)	78	176	20	305	127
Queue Length 95th (ft)	#128	180	20	#396	242
Internal Link Dist (ft)	261		749	743	
Turn Bay Length (ft)	270	205			70
Base Capacity (vph)	534	508	2704	1480	790
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	0.73	0.57	0.38	0.83	0.66

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3320		1770	3539	3539	1583
Flt Permitted	0.97		0.95	1.00	1.00	1.00
Satd. Flow (perm)	3320		1770	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	NA	NA	Perm
Protected Phases	4		5	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	
v/s Ratio Perm						0.25
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

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

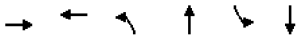
Intersection Summary
m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	141	146	1117	170	75	1251
Future Volume (vph)	141	146	1117	170	75	1251
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
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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

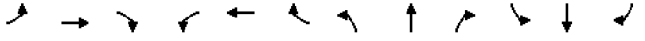
Intersection Summary				
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	13.8	
Intersection Capacity Utilization	54.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



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.



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	
Frt		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)		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	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							c0.03	c0.32		0.02	0.27	
v/s Ratio Perm		c0.09			0.01							
v/c Ratio		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			

c Critical Lane Group



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		804
Turn Bay Length (ft)			90	
Base Capacity (vph)	406	2337	208	2828
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	74	0	0	461
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	0.46	0.43	0.38

Intersection Summary

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			5.0		4.4	5.0	
Lane Util. Factor					1.00			0.95		1.00	0.95	
Frt					0.97			0.99		1.00	1.00	
Flt Protected					0.96			1.00		0.95	1.00	
Satd. Flow (prot)					1736			3517		1770	3539	
Flt Permitted					0.78			1.00		0.95	1.00	
Satd. Flow (perm)					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	0	134	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	29	0	0	1068	0	89	896	0
Turn Type				Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)					7.2			55.5		8.0	67.9	
Effective Green, g (s)					7.2			55.5		8.0	67.9	
Actuated g/C Ratio					0.08			0.65		0.09	0.80	
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)					118			2296		166	2827	
v/s Ratio Prot								c0.30		c0.05	0.25	
v/s Ratio Perm					c0.02							
v/c Ratio					0.25			0.46		0.54	0.32	
Uniform Delay, d1					36.4			7.4		36.7	2.3	
Progression Factor					1.00			0.85		0.81	0.80	
Incremental Delay, d2					0.4			0.6		1.6	0.3	
Delay (s)					36.8			6.9		31.5	2.1	
Level of Service					D			A		C	A	
Approach Delay (s)		0.0			36.8			6.9			4.8	
Approach LOS		A			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

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
Grade	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)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						606
pX, 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	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	63	97			99	
cM 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			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
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
Hadj (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

Intersection Summary				
Delay		8.1		
Level of Service		A		
Intersection Capacity Utilization		30.9%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
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
Hadj (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%	ICU Level of Service	A
Analysis Period (min)		15		

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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		Prot	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	c0.14		0.15		0.03	c0.23
v/s Ratio Perm						
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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
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

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
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
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	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	pm+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	0.58	0.09	0.58
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/s 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

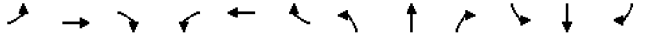
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	45.7	Sum of lost time (s)	15.3
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBR	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		100
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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	0	205	0	0	0	0	731	197	0	722	629
Future Volume (vph)	111	0	205	0	0	0	0	731	197	0	722	629
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
Lane Util. Factor	1.00		1.00					0.95	1.00		0.95	1.00
Frt	1.00		0.85					1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770		1583					3539	1583		3539	1583
Flt Permitted	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770		1583					3539	1583		3539	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)	126	0	233	0	0	0	0	831	224	0	820	715
RTOR Reduction (vph)	0	0	55	0	0	0	0	0	105	0	0	0
Lane Group Flow (vph)	126	0	178	0	0	0	0	831	119	0	820	715
Turn Type	Perm		Perm					NA	Perm		NA	Free
Protected Phases								2			6	
Permitted Phases	4		4						2			Free
Actuated Green, G (s)	7.5		7.5					17.6	17.6		17.6	33.1
Effective Green, g (s)	7.5		7.5					17.6	17.6		17.6	33.1
Actuated g/C Ratio	0.23		0.23					0.53	0.53		0.53	1.00
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)	401		358					1881	841		1881	1583
v/s Ratio Prot								0.23			0.23	
v/s Ratio Perm	0.07		0.11						0.08			c0.45
v/c Ratio	0.31		0.50					0.44	0.14		0.44	0.45
Uniform Delay, d1	10.7		11.2					4.7	3.9		4.7	0.0
Progression Factor	1.00		1.00					1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5		1.1					0.2	0.1		0.2	0.9
Delay (s)	11.1		12.2					4.9	4.0		4.9	0.9
Level of Service	B		B					A	A		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	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.60				
Actuated Cycle Length (s)	33.1	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	39.3%	ICU Level of Service		A	
Analysis Period (min)	15				

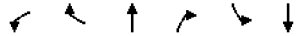
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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			None	
Median storage veh)												
Upstream signal (ft)											962	
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		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (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				
Intersection Capacity Utilization	59.8%	ICU Level of Service		B	
Analysis Period (min)	15				



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			Free
Grade	0%		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			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	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	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		A	
Analysis Period (min)	15				

Lane Group	WBL	NBT	NBR	SBL	SBT
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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Frt	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	c0.04		0.13		0.06	c0.29
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
Moraga Ave	II	45	44.2	6.0	50.2	0.50	36.0	A
Clairemont 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
Clairemont Dr	II	45	14.7	50.9	65.6	0.13	7.4	F
Moraga 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
Bluffside Av	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
Bluffside Av	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			
	Existing Model Volume	Adjustment	Adjusted Existing Model Volume	Adopted Model Volume	Adjustment	Adjusted Adopted Model Volume	Change in 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
Figueroa 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			
	Existing Model Volume	Adjustment	Adjusted Existing Model Volume	Preferred Model Volume	Adjustment	Adjusted Adopted Model Volume	Change in 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
Figueroa 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

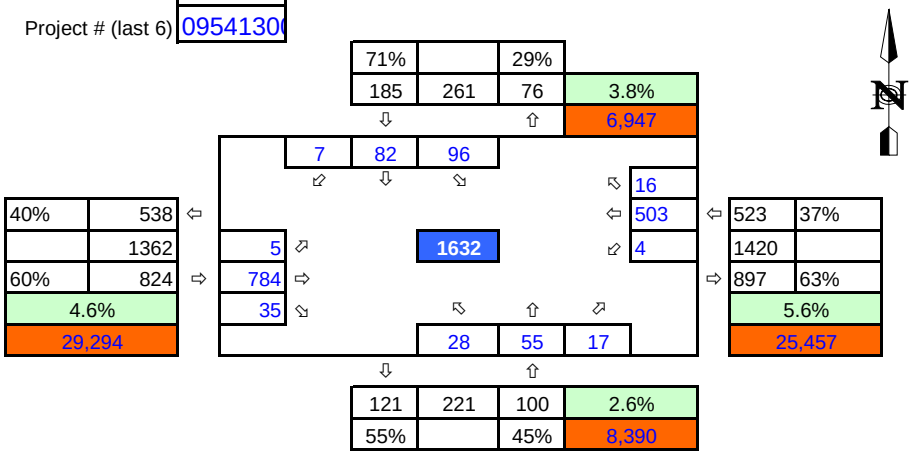
ROADWAY SEGMENT	EXISTING			REDUCED MODEL			
	Existing Model Volume	Adjustment	Adjusted Existing Model Volume	Reduced Model Volume	Adjustment	Adjusted Adopted Model Volume	Change in Volume
Balboa Avenue							
Garnet Avenue to Grand Avenue	19,700	0	19,700	13,200	0	13,200	-6,500
Garnet Avenue							
Bond 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
Figueroa 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

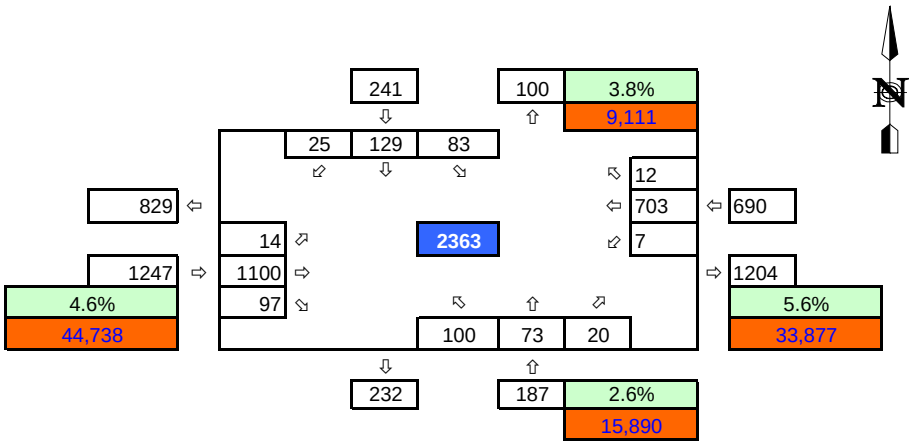
FUTURE YEAR VOLUME ESTIMATES

Int 1 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Garnet Ave**
Intersection #:	1
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Garnet Ave**

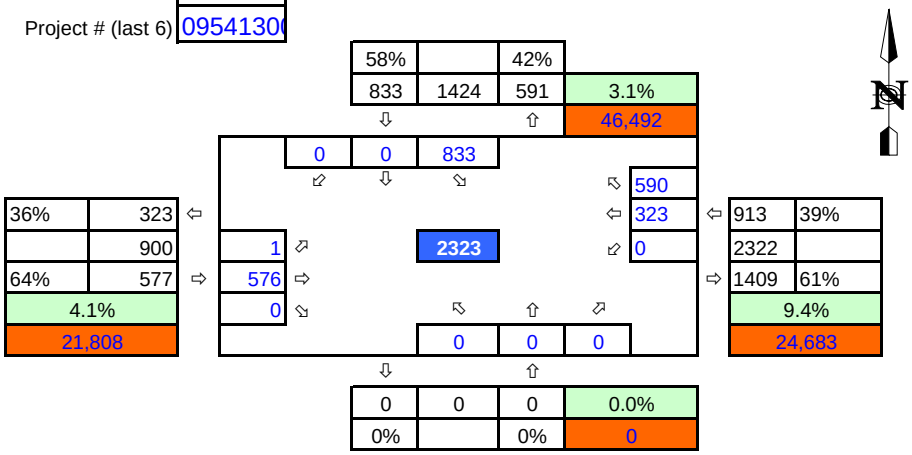


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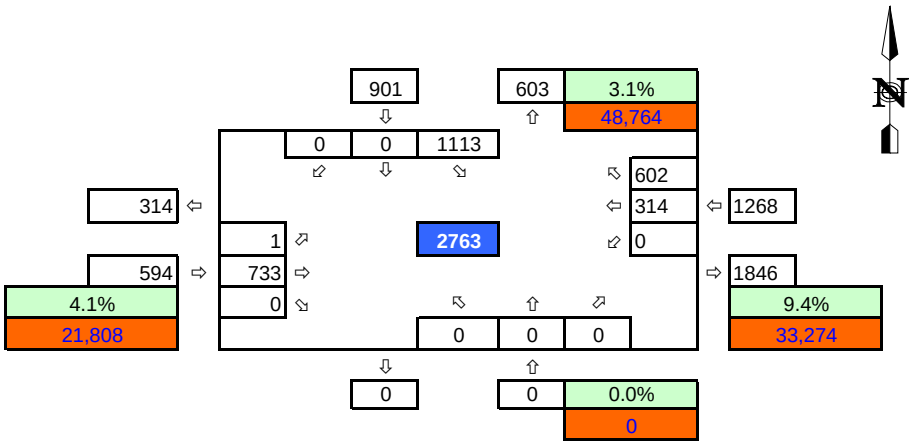
Existing K-Factor	xx%
ADT Volume	xx

Int 2 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Garnet Ave**
E/W Street:	**Balboa Ave / Garnet Ave**
Intersection #:	2
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Garnet Ave**
E/W Street:	**Balboa Ave / Garnet Ave**

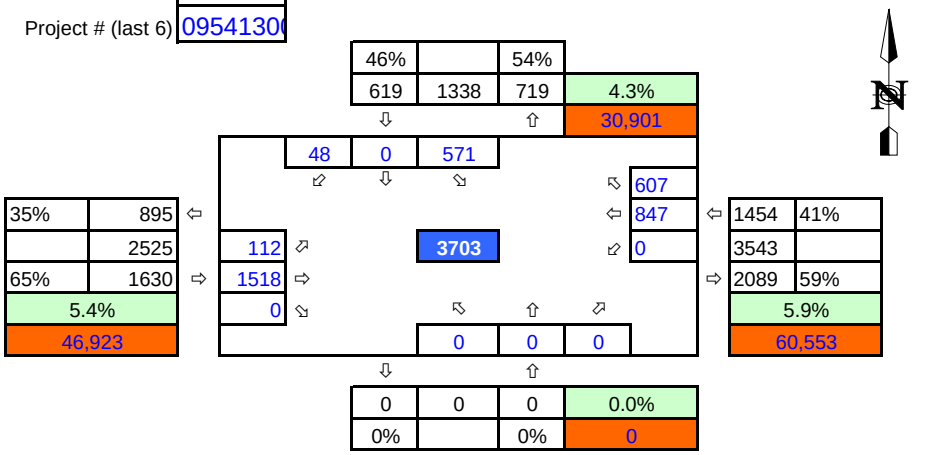


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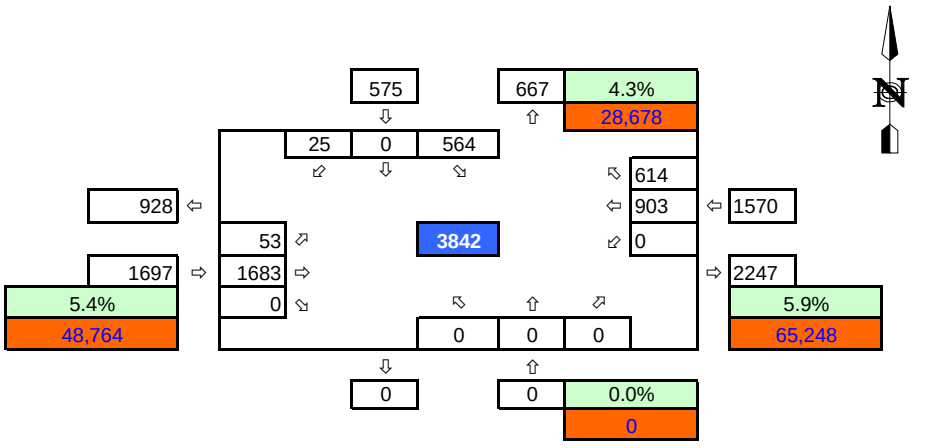
Existing K-Factor	xx%
ADT Volume	xx

Int 3 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**
Intersection #:	3
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**

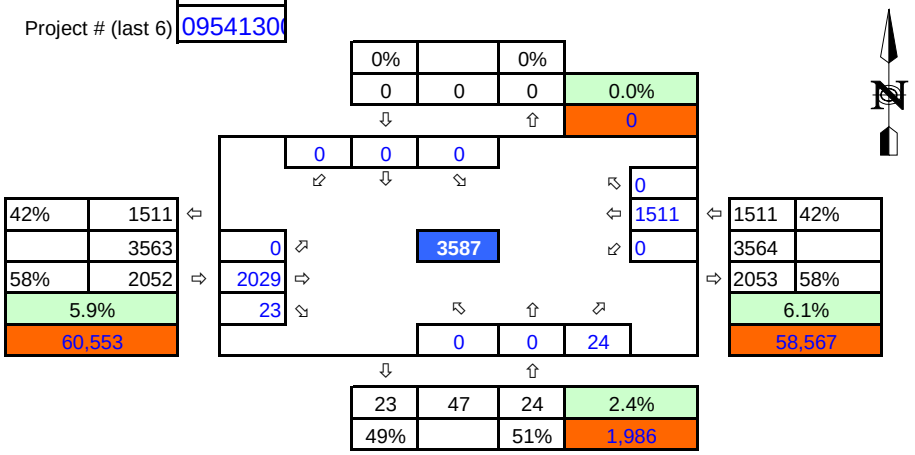


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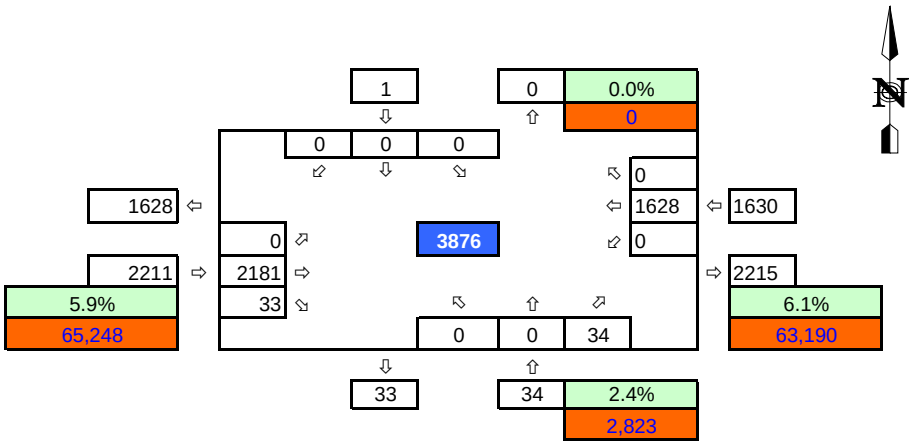
Existing K-Factor	xx%
ADT Volume	xx

Int 4 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Bond St**
E/W Street:	**Garnet Ave**
Intersection #:	4
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Bond St**
E/W Street:	**Garnet Ave**

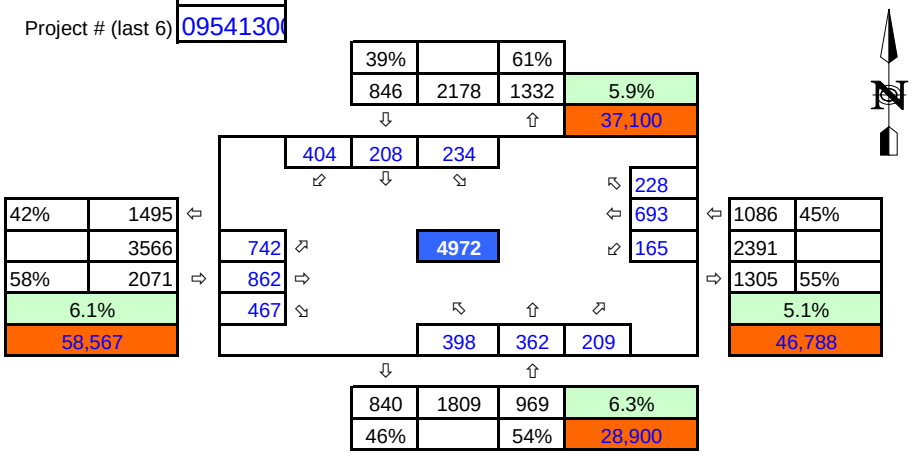


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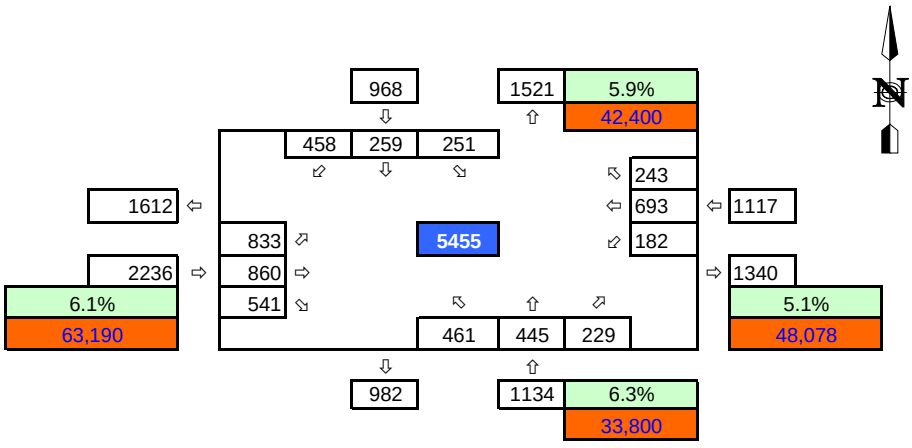
Existing K-Factor	xx%
ADT Volume	xx

Int 5 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**
Intersection #:	5
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**

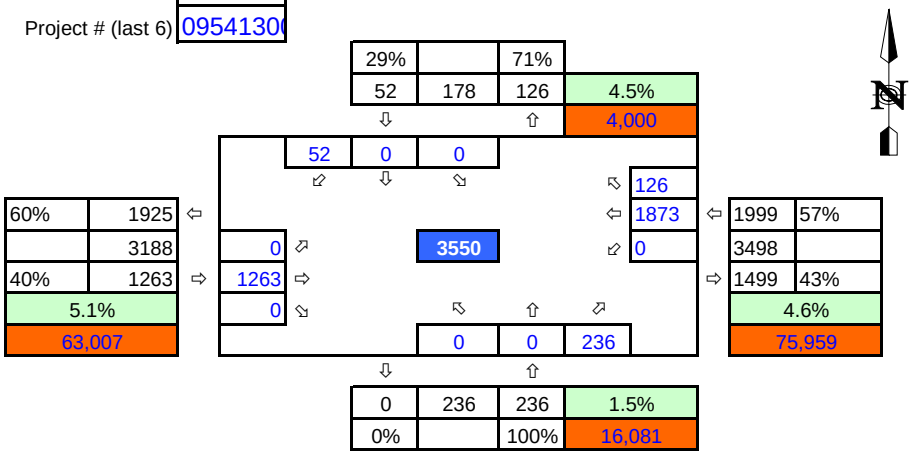


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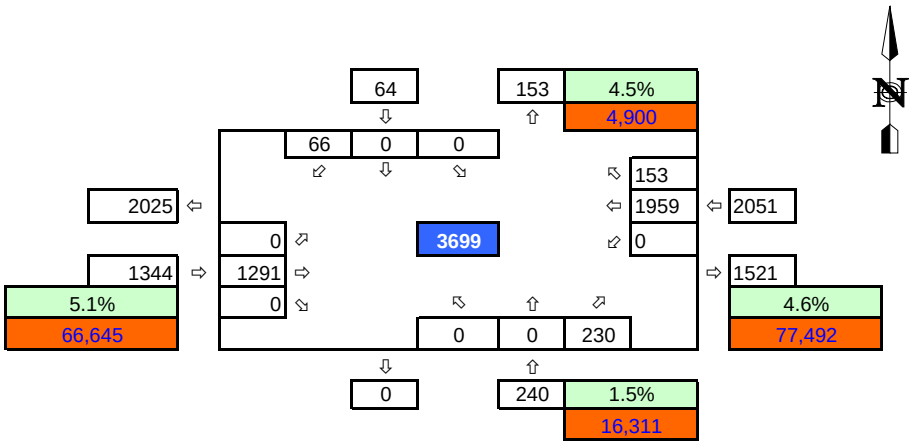
Existing K-Factor	xx%
ADT Volume	xx

Int 6 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**
Intersection #:	6
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**

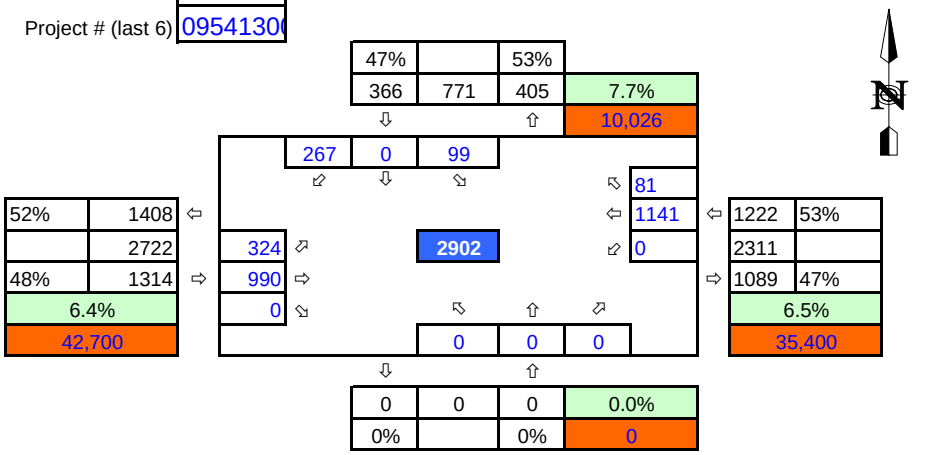


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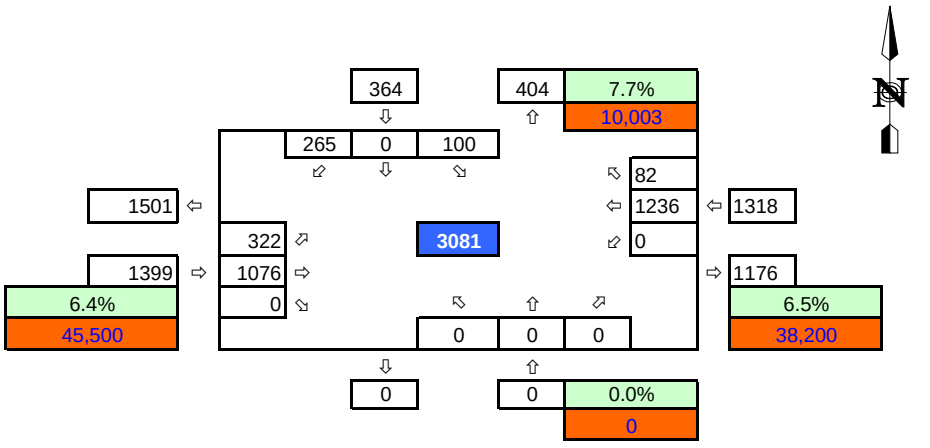
Existing K-Factor	xx%
ADT Volume	xx

Int 8 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**
Intersection #:	8
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**

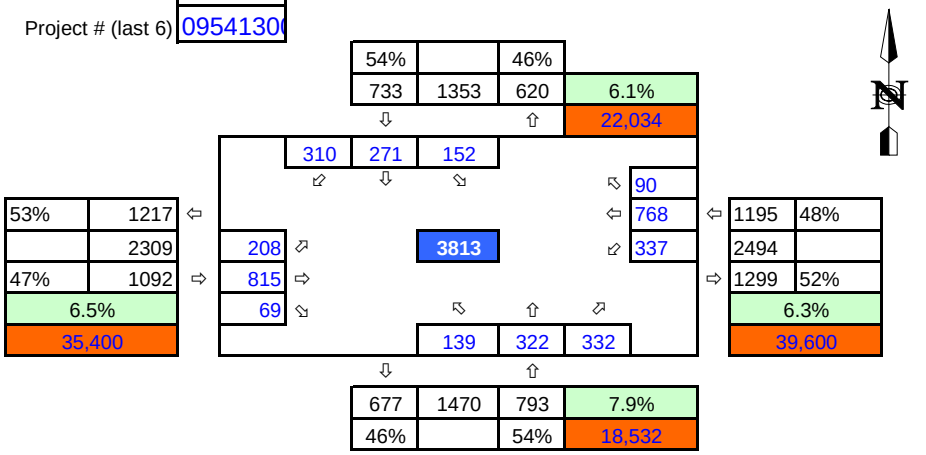


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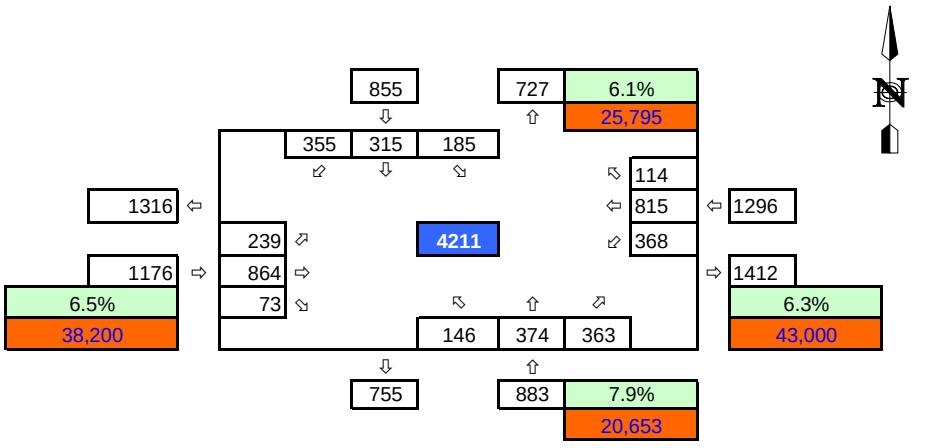
Existing K-Factor	xx%
ADT Volume	xx

Int 9 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**
Intersection #:	9
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**

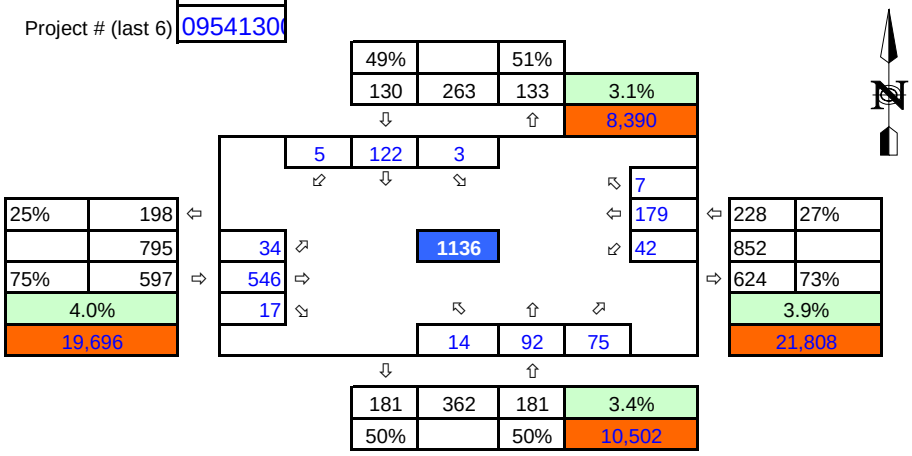


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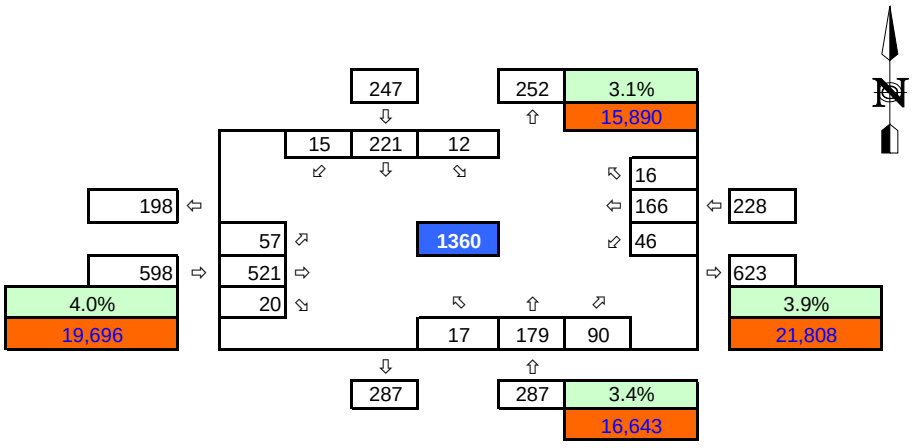
Existing K-Factor	xx%
ADT Volume	xx

Int 10 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**
Intersection #:	10
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**

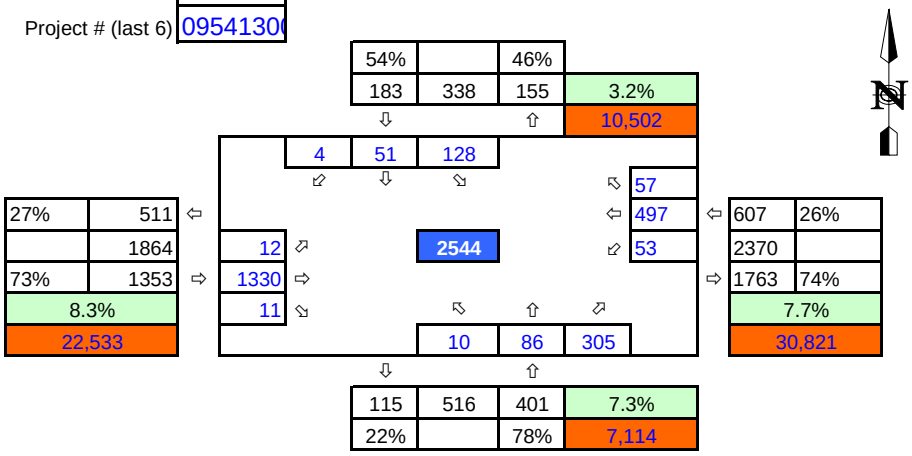


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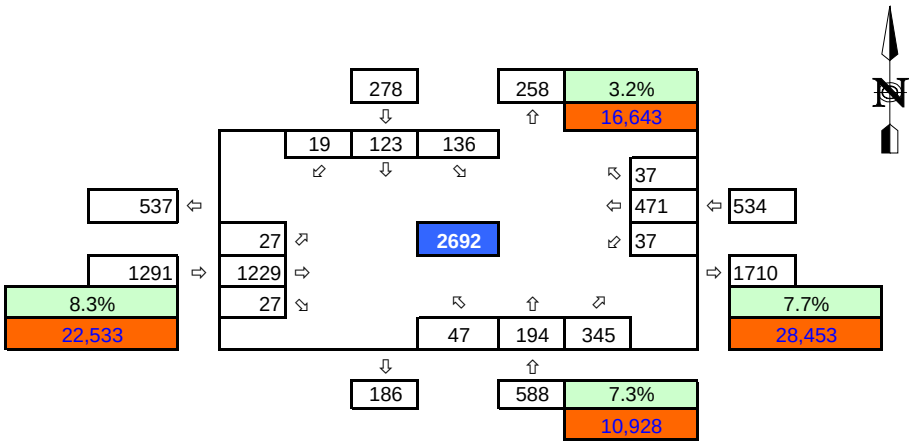
Existing K-Factor	xx%
ADT Volume	xx

Int 11 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Grand Ave**
Intersection #:	11
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Grand Ave**

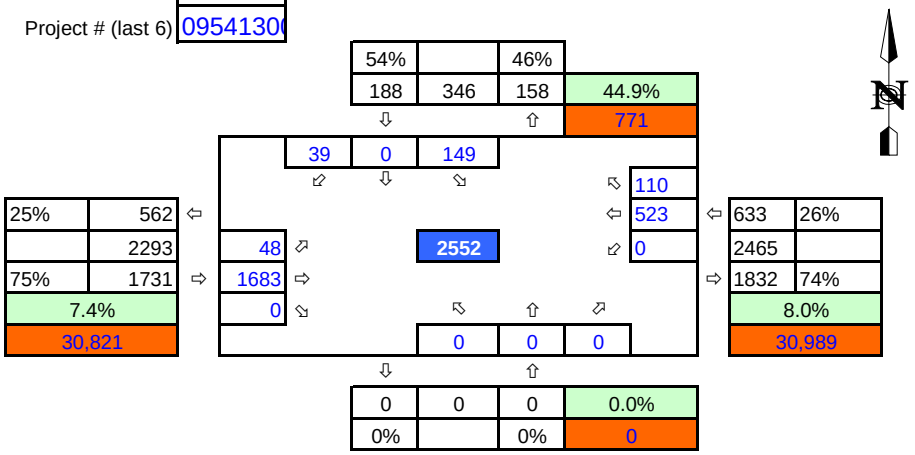


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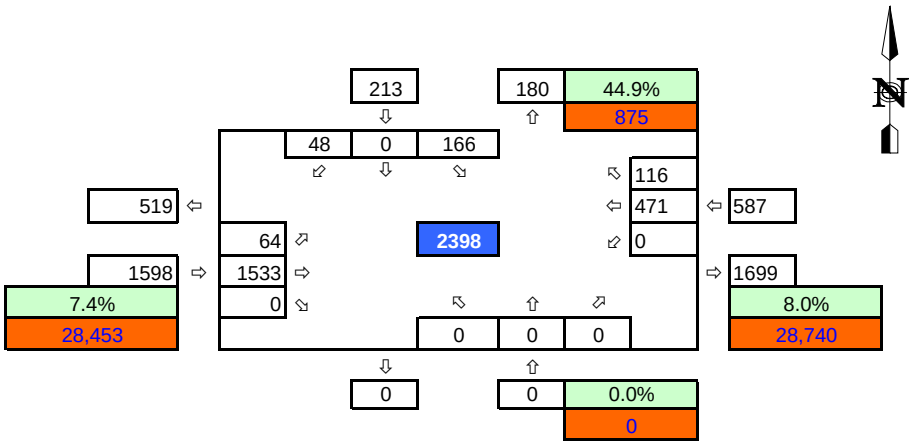
Existing K-Factor	xx%
ADT Volume	xx

Int 12 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**
Intersection #:	12
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**

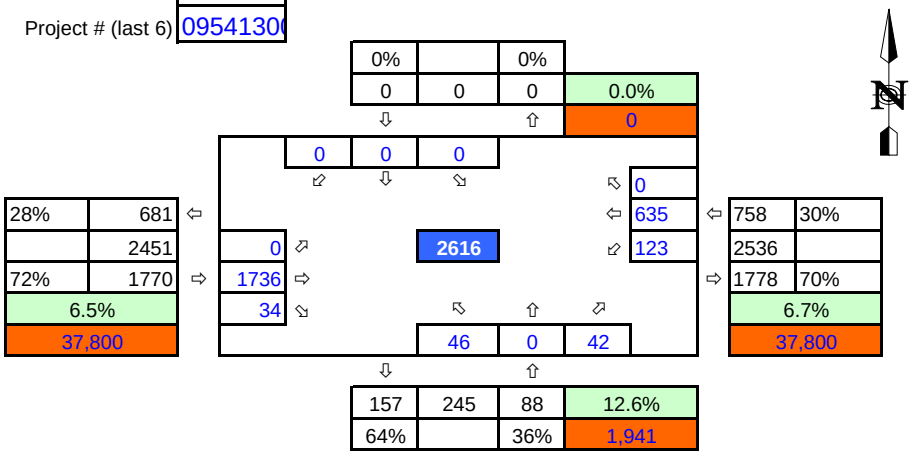


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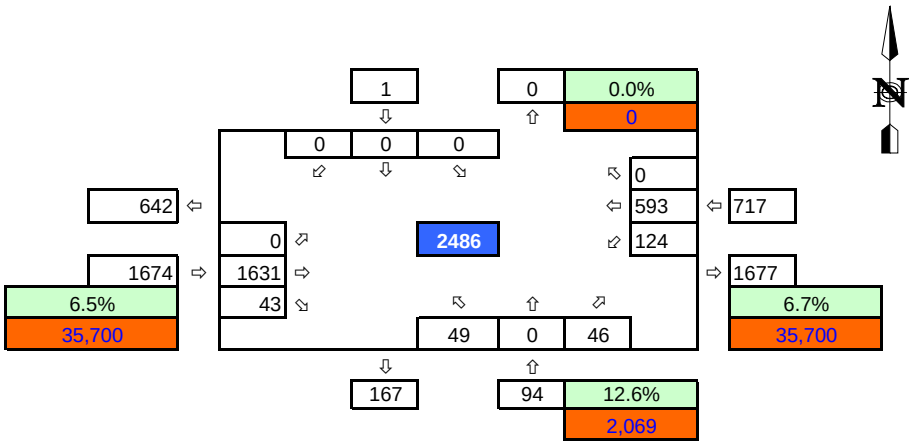
Existing K-Factor	xx%
ADT Volume	xx

Int 13 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**
Intersection #:	13
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**

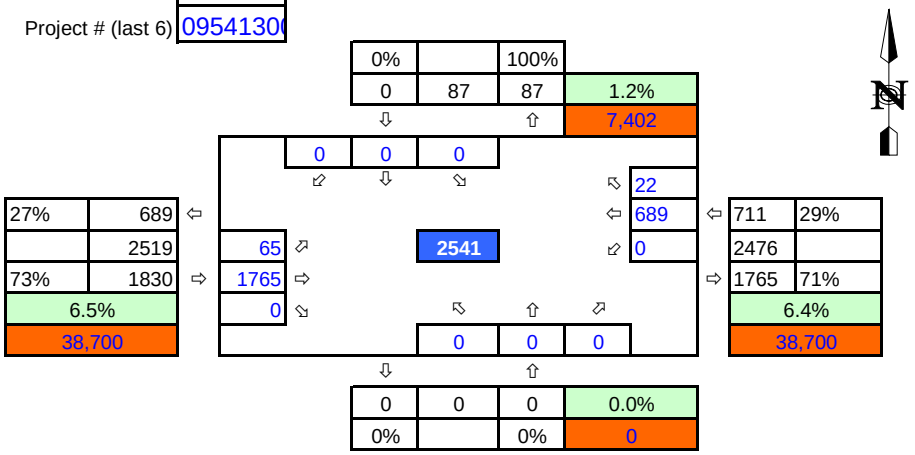


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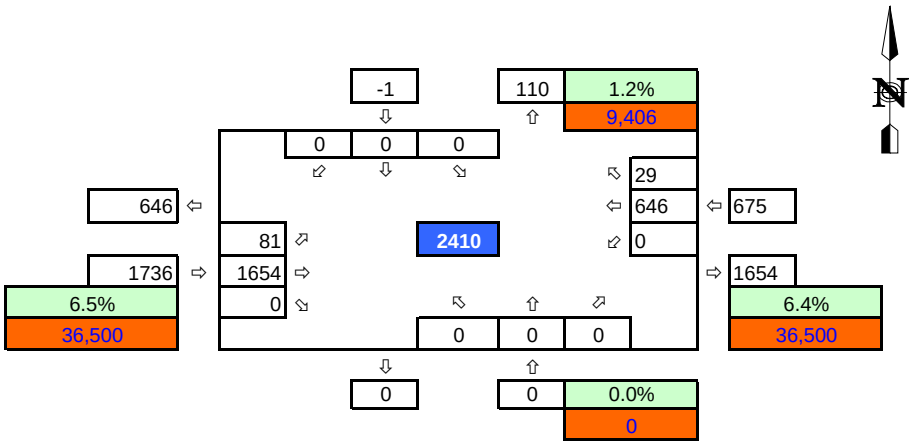
Existing K-Factor	xx%
ADT Volume	xx

Int 14 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**
Intersection #:	14
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**

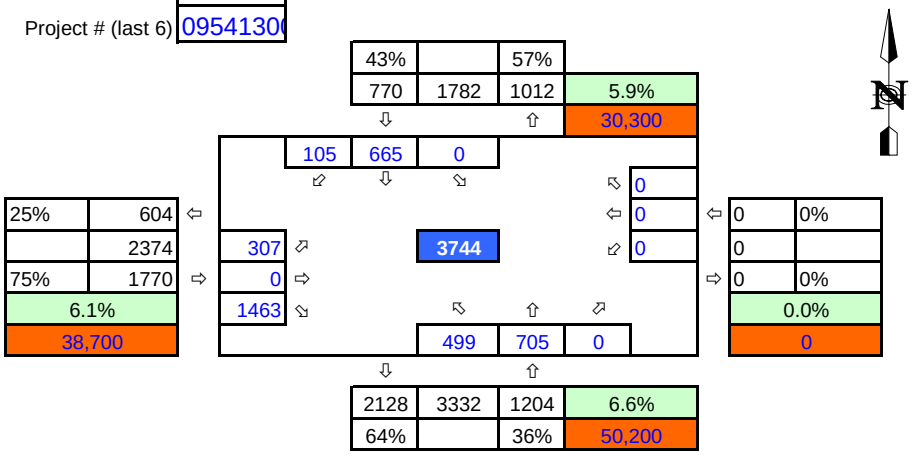


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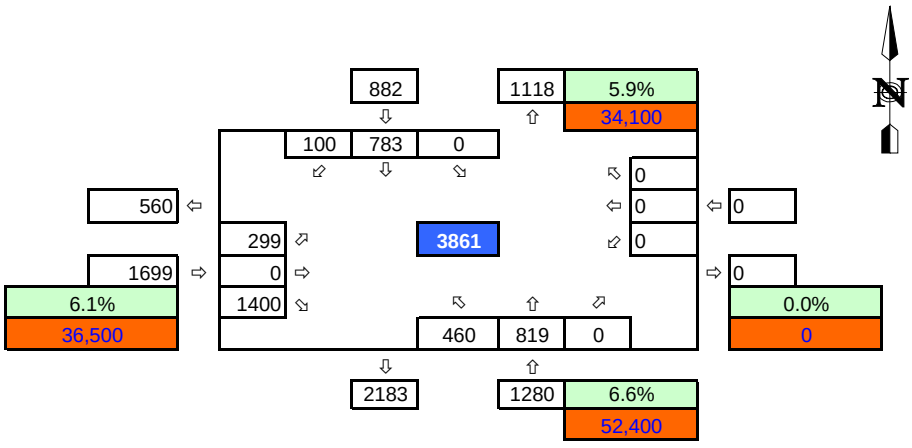
Existing K-Factor	xx%
ADT Volume	xx

Int 15 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**
Intersection #:	15
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**

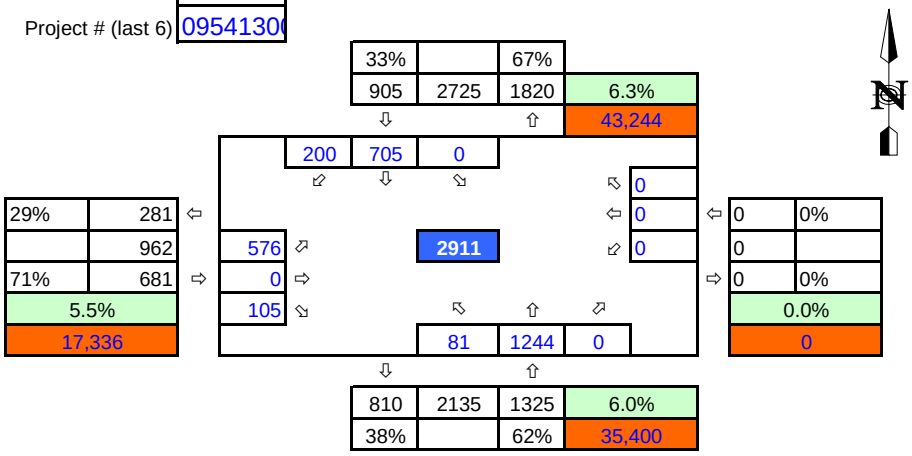


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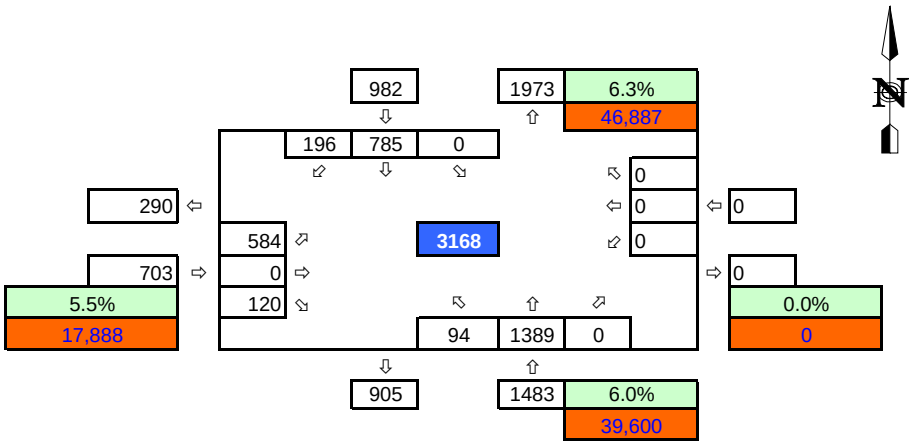
Existing K-Factor	xx%
ADT Volume	xx

Int 16 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**
Intersection #:	16
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**

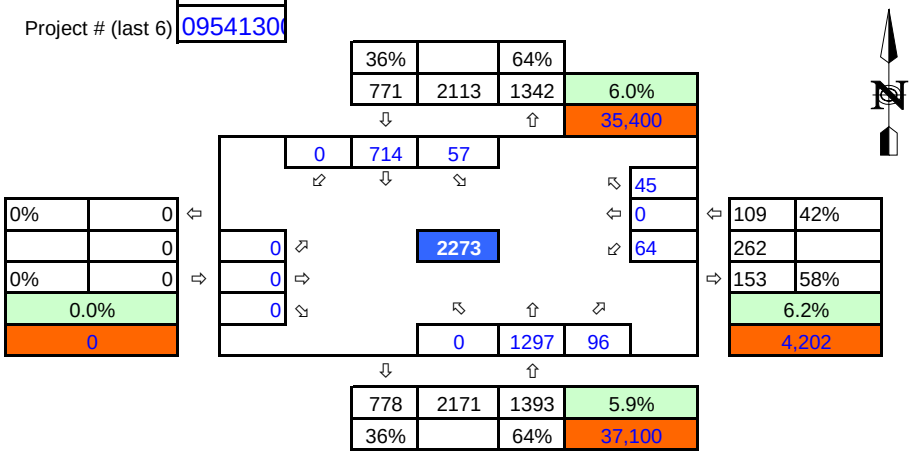


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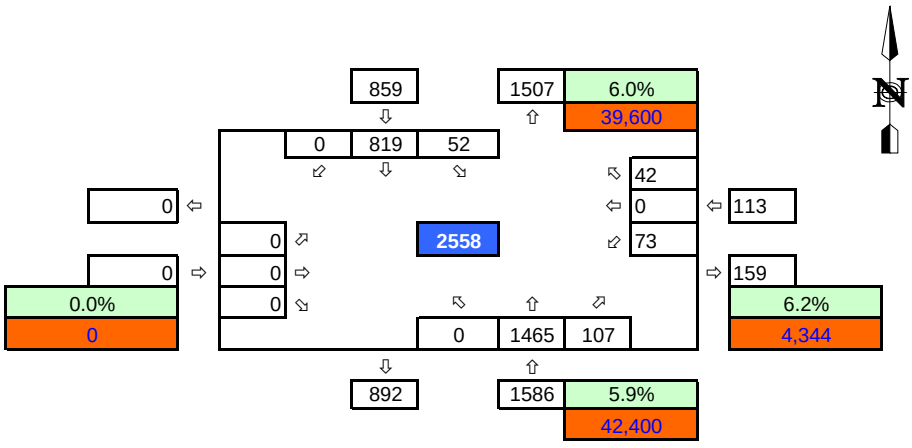
Existing K-Factor	xx%
ADT Volume	xx

Int 17 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**
Intersection #:	17
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**

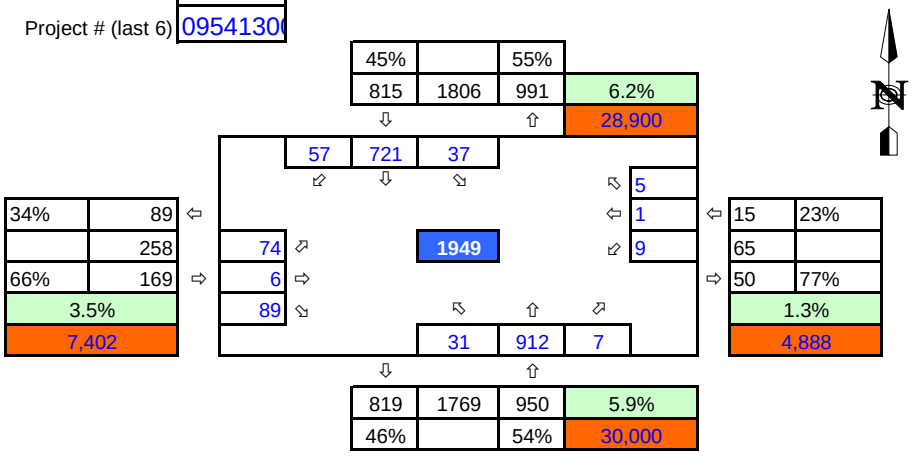


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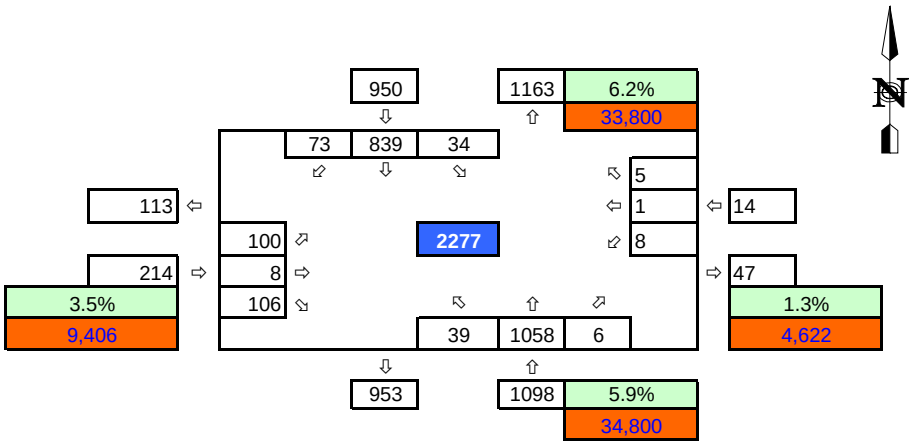
Existing K-Factor	xx%
ADT Volume	xx

Int 18 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**
Intersection #:	18
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**

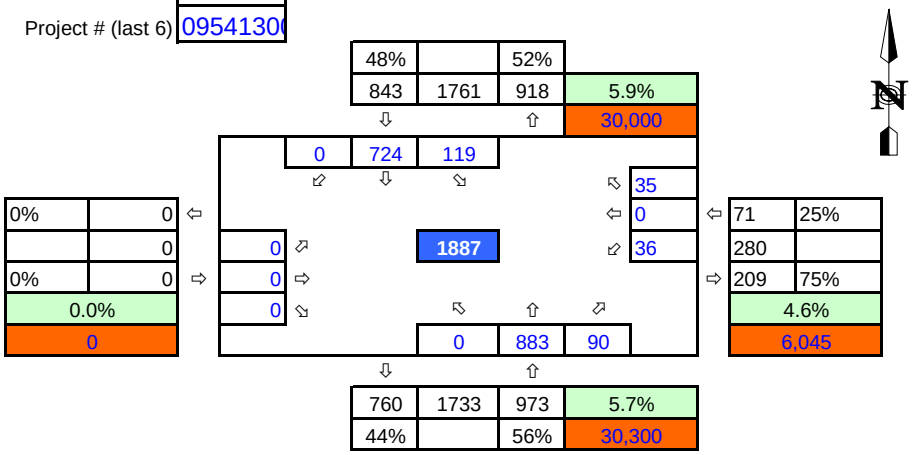


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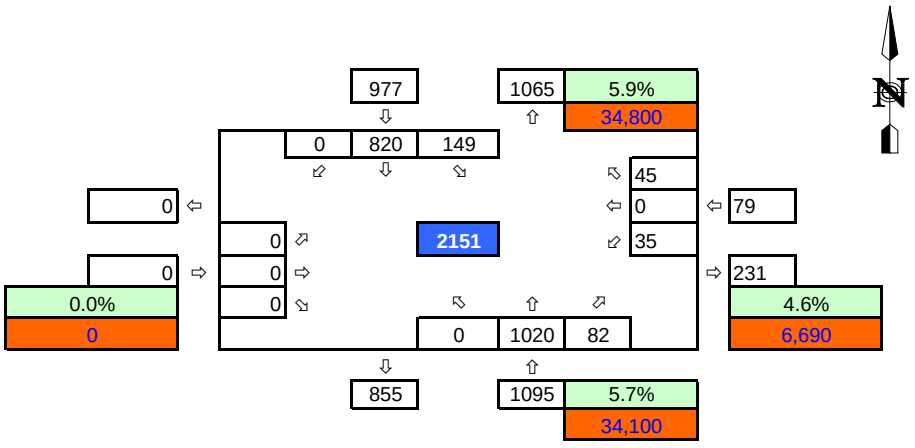
Existing K-Factor	xx%
ADT Volume	xx

Int 19 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Driveway / Bunker Hill St**
Intersection #:	19
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Driveway / Bunker Hill St**

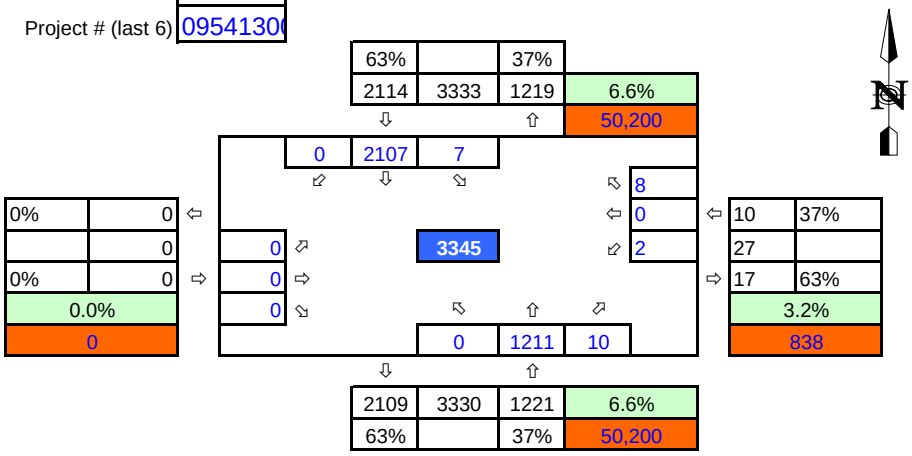


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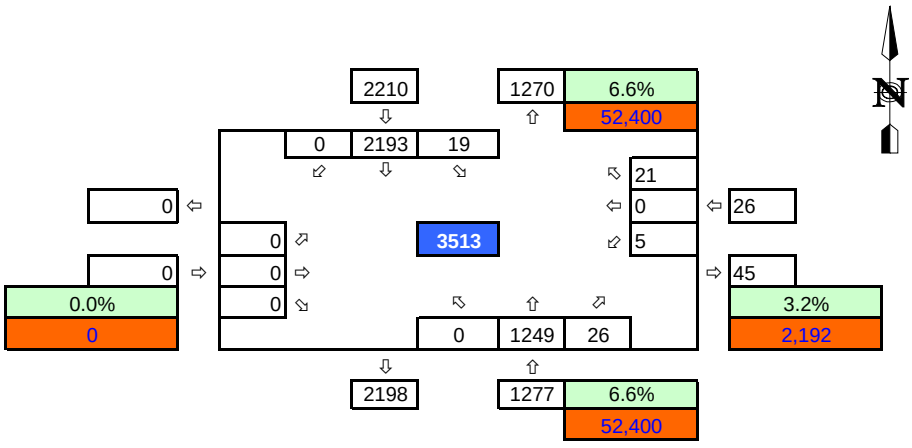
Existing K-Factor	xx%
ADT Volume	xx

Int 20 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Rosewood St**
Intersection #:	20
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Rosewood St**

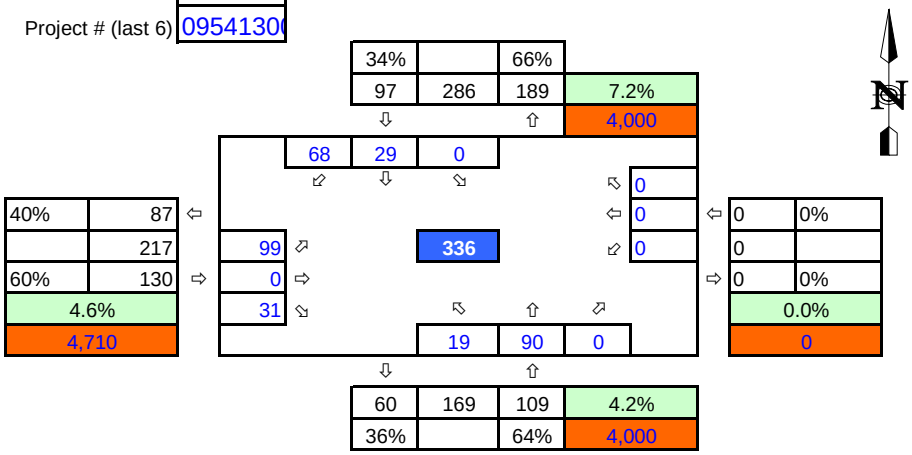


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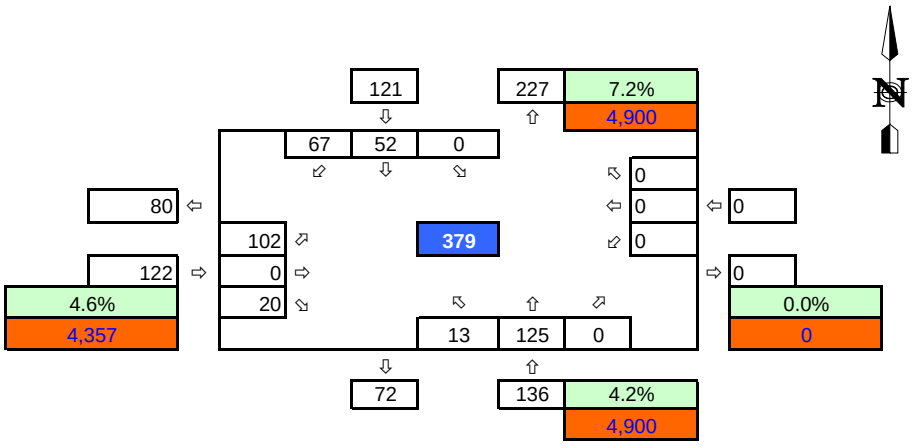
Existing K-Factor	xx%
ADT Volume	xx

Int 21 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**
Intersection #:	21
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**

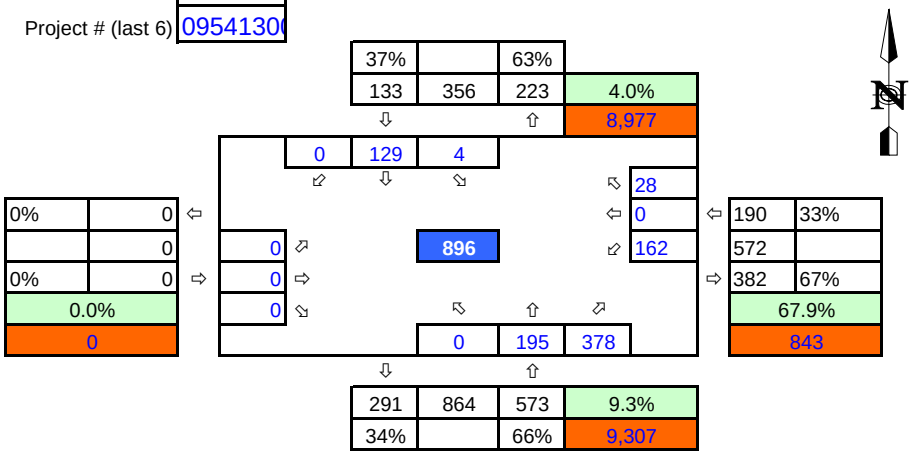


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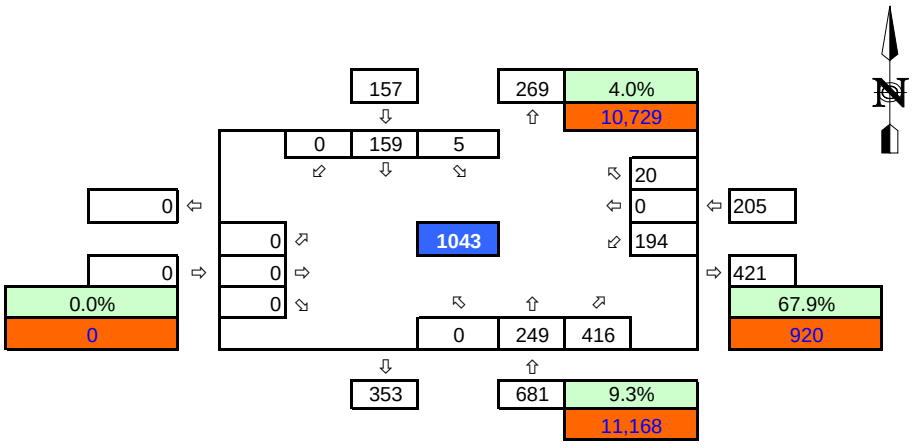
Existing K-Factor	xx%
ADT Volume	xx

Int 22 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**
Intersection #:	22
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**

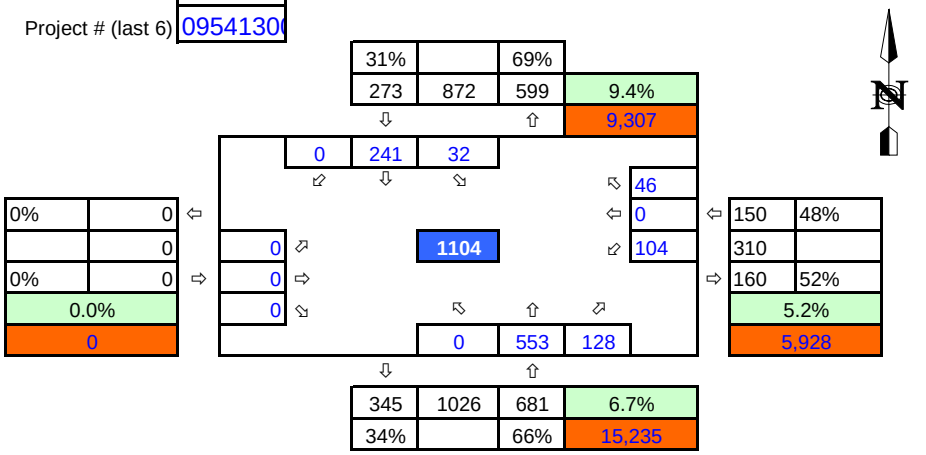


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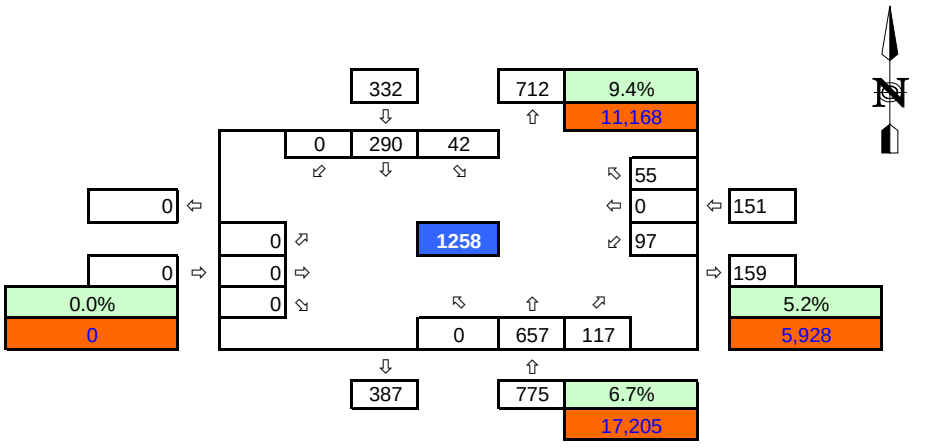
Existing K-Factor	xx%
ADT Volume	xx

Int 23 AM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Morena Blvd
E/W Street:	Costco Dwy
Intersection #:	23
Project # (last 6)	095413



Scenario:	Horizon Year Conditions
N/S Street:	Morena Blvd
E/W Street:	Costco Dwy

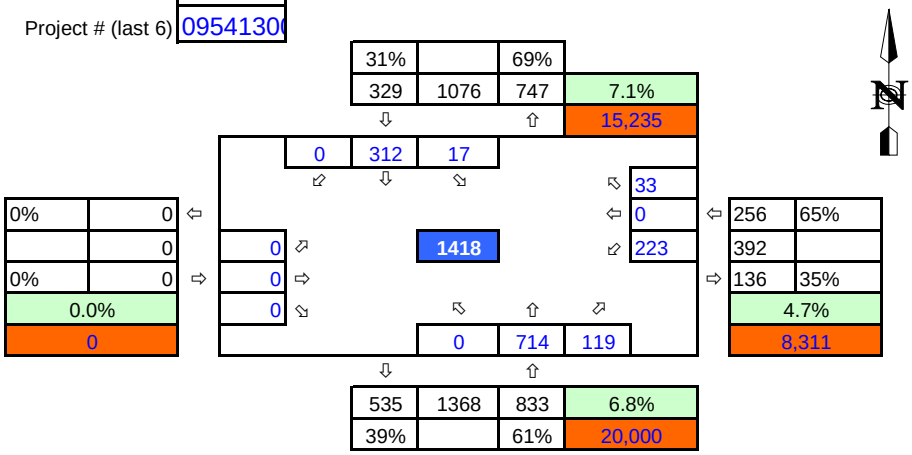


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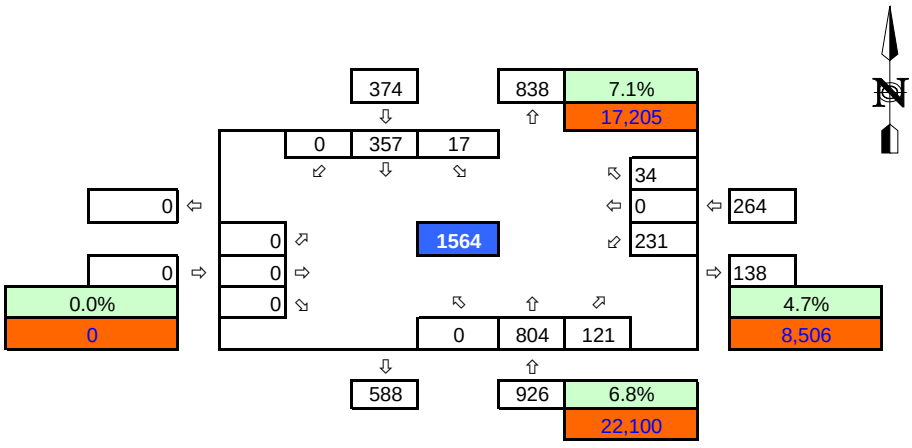
Existing K-Factor	xx%
ADT Volume	xx

Int 24 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Avati Dr**
Intersection #:	24
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Avati Dr**

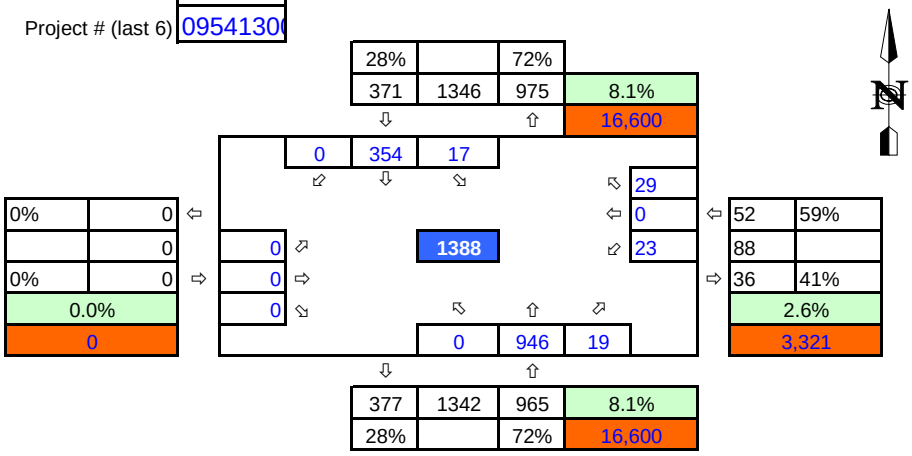


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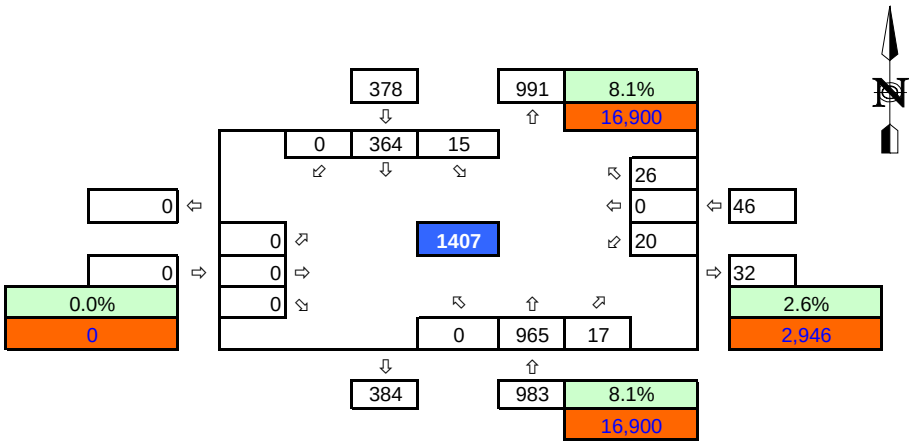
Existing K-Factor	xx%
ADT Volume	xx

Int 27 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**
Intersection #:	27
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**

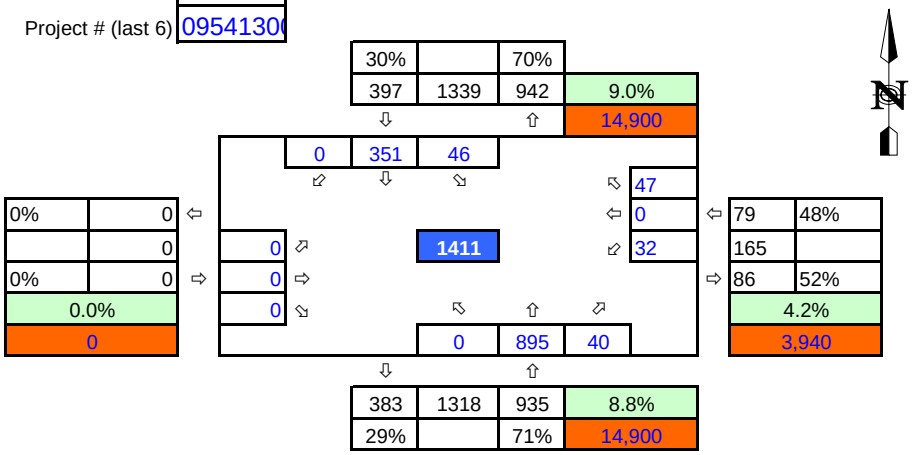


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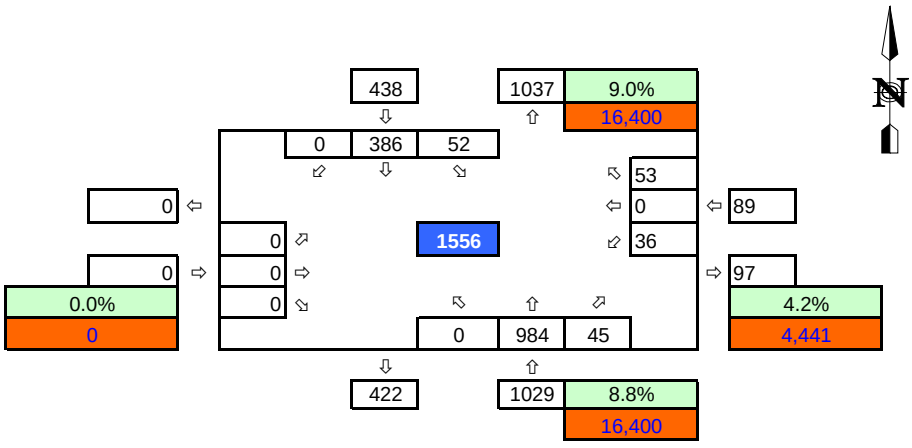
Existing K-Factor	xx%
ADT Volume	xx

Int 28 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**
Intersection #:	28
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**

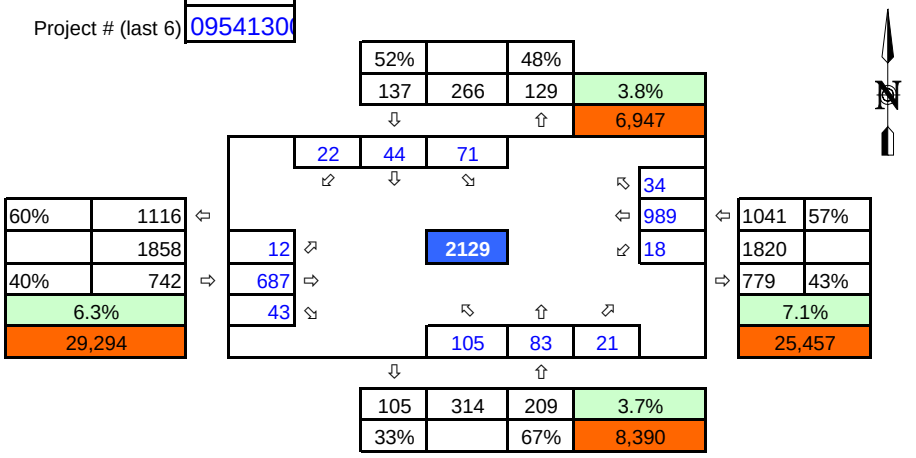


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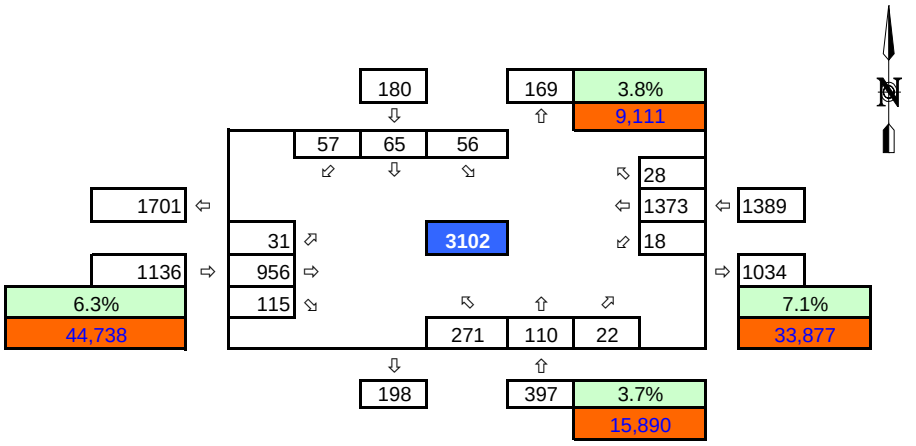
Existing K-Factor	xx%
ADT Volume	xx

Int 1 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Olney Street
E/W Street:	Garnet Ave
Intersection #:	1
Project # (last 6)	0954130



Scenario:	Horizon Year Conditions
N/S Street:	Olney Street
E/W Street:	Garnet Ave

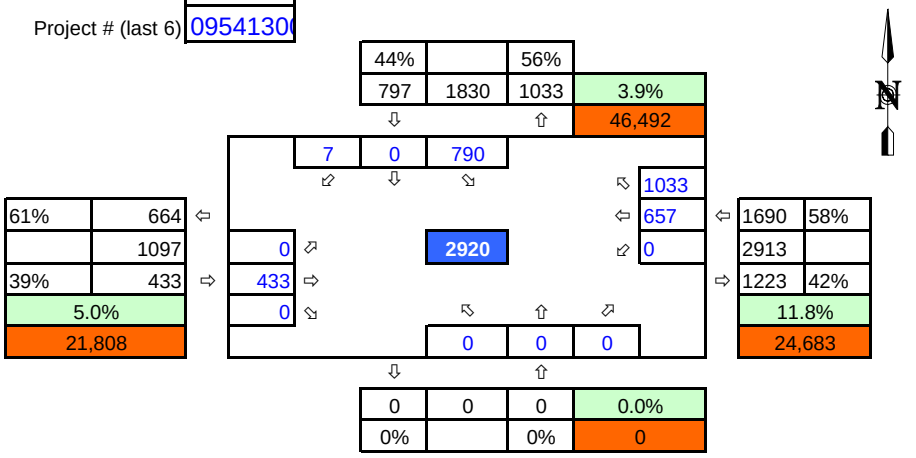


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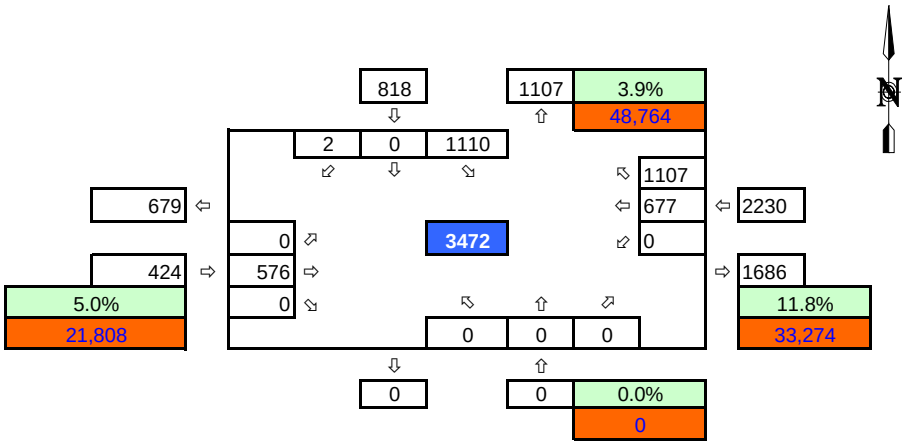
Existing K-Factor	xx%
ADT Volume	xx

Int 2 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Garnet Ave
E/W Street:	Balboa Ave / Garnet Ave
Intersection #:	2
Project # (last 6)	095413(



Scenario:	Horizon Year Conditions
N/S Street:	Garnet Ave
E/W Street:	Balboa Ave / Garnet Ave

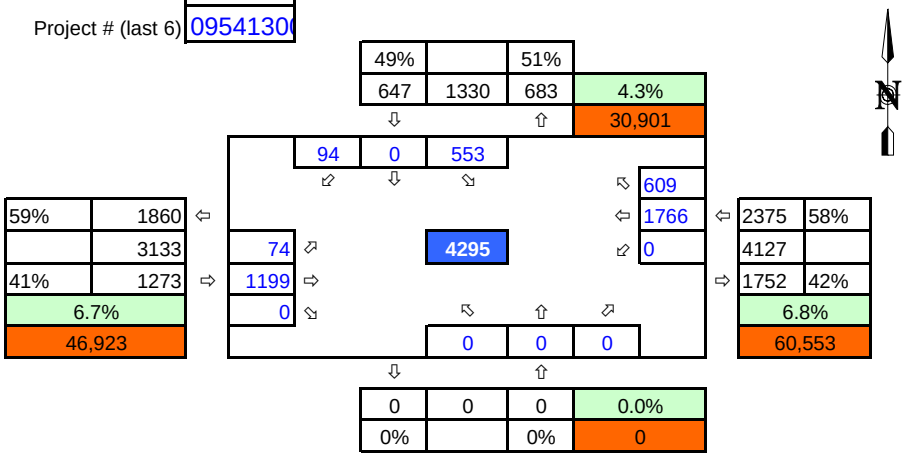


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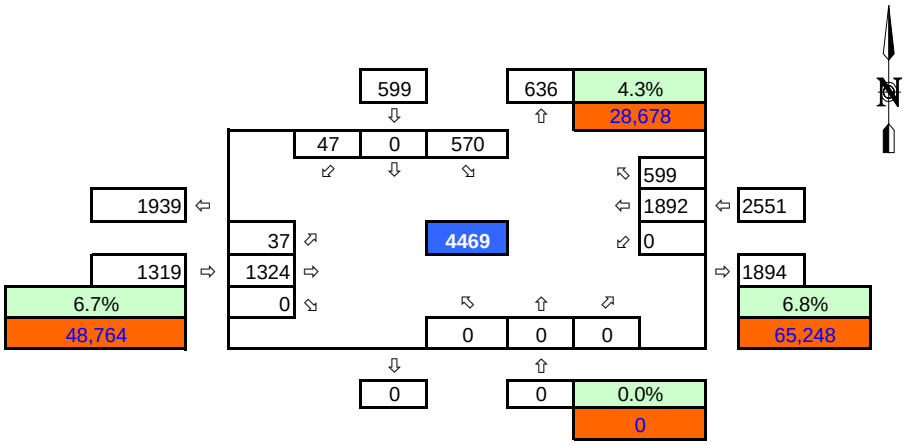
Existing K-Factor	xx%
ADT Volume	xx

Int 3 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**
Intersection #:	3
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**

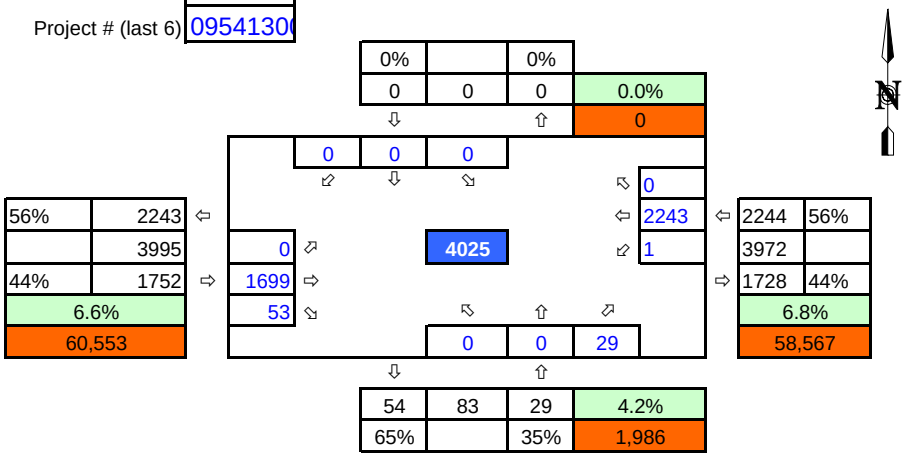


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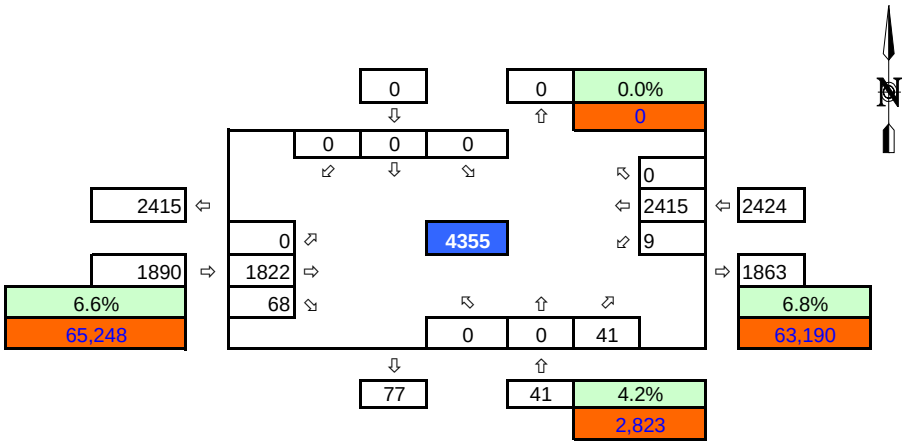
Existing K-Factor	xx%
ADT Volume	xx

Int 4 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Bond St**
E/W Street:	**Garnet Ave**
Intersection #:	4
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Bond St**
E/W Street:	**Garnet Ave**

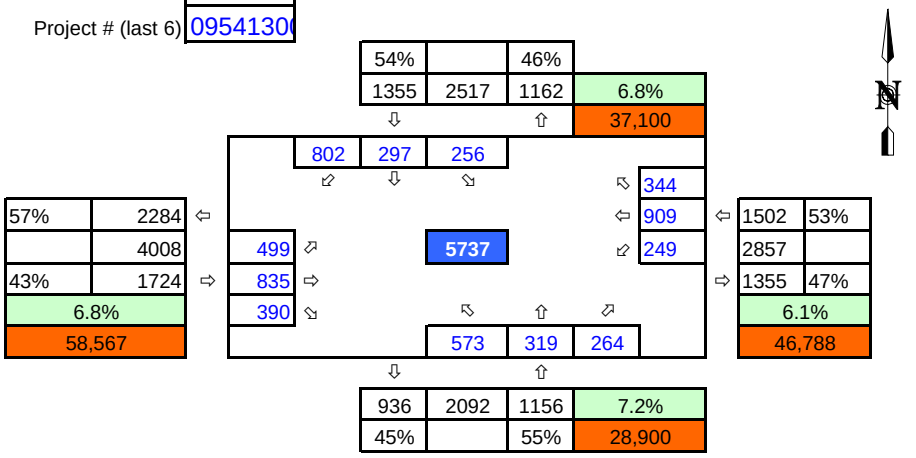


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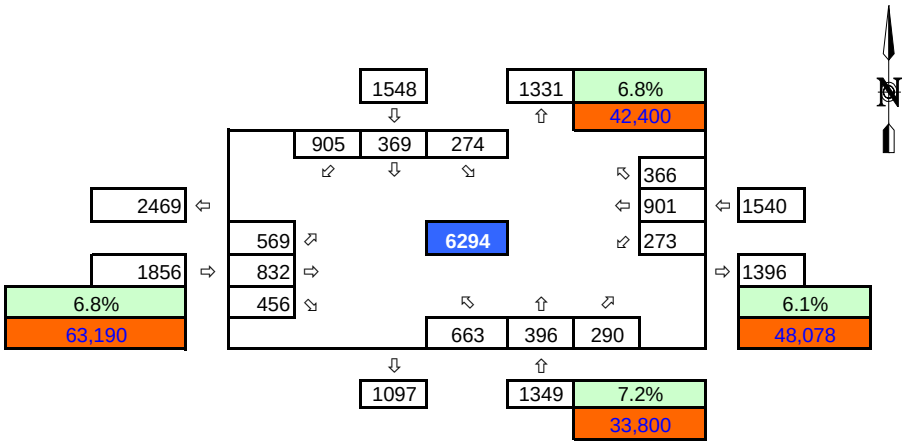
Existing K-Factor	xx%
ADT Volume	xx

Int 5 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**
Intersection #:	5
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**

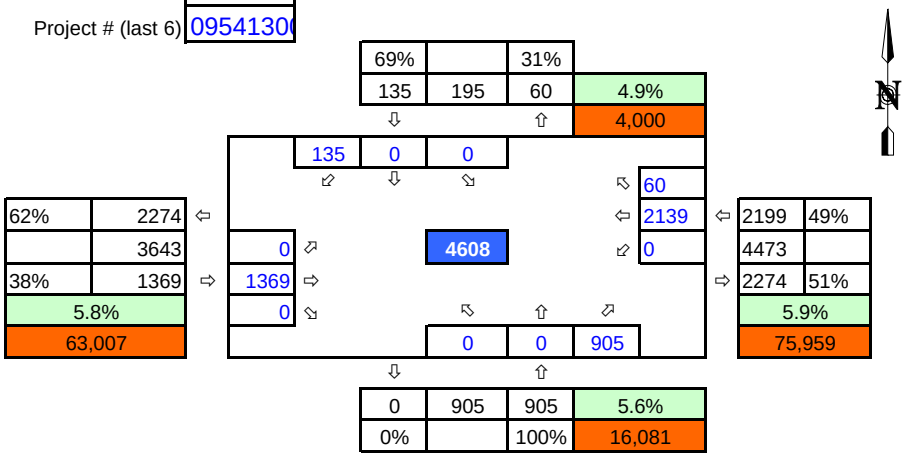


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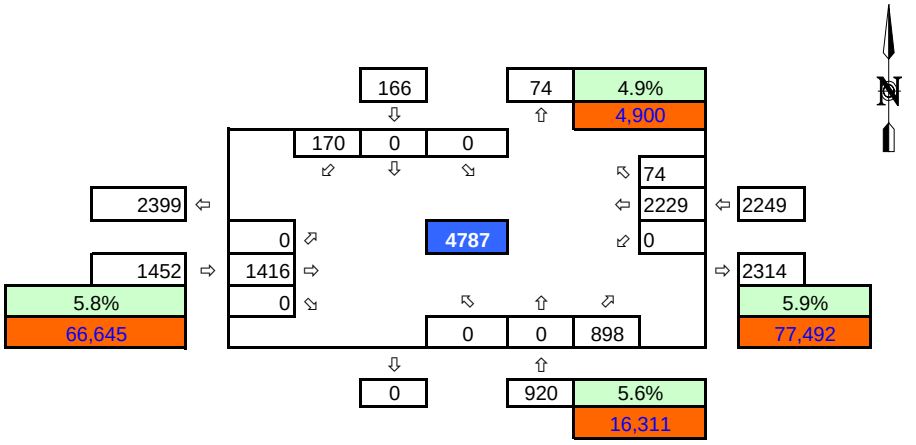
Existing K-Factor	xx%
ADT Volume	xx

Int 6 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**
Intersection #:	6
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**

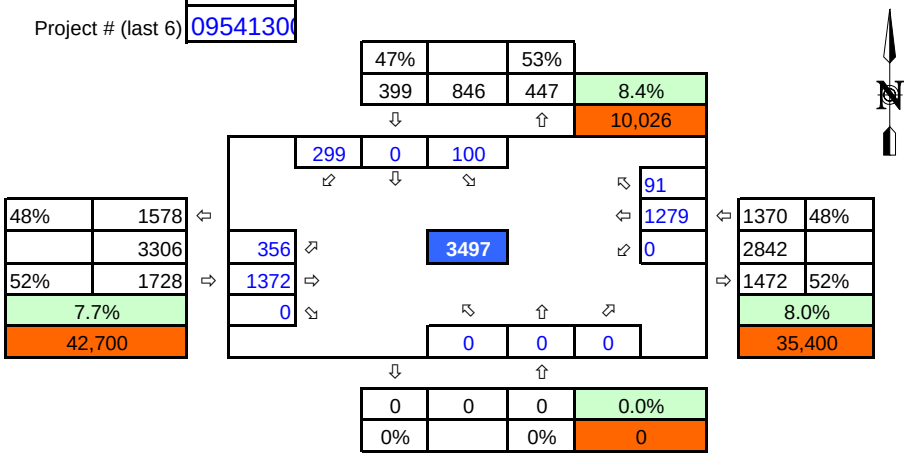


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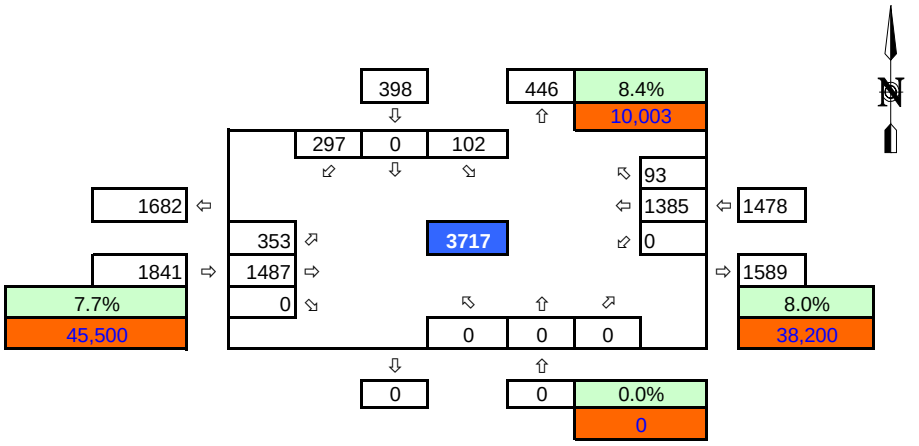
Existing K-Factor	xx%
ADT Volume	xx

Int 8 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**
Intersection #:	8
Project # (last 6)	095413(



Scenario:	**Horizon Year Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**

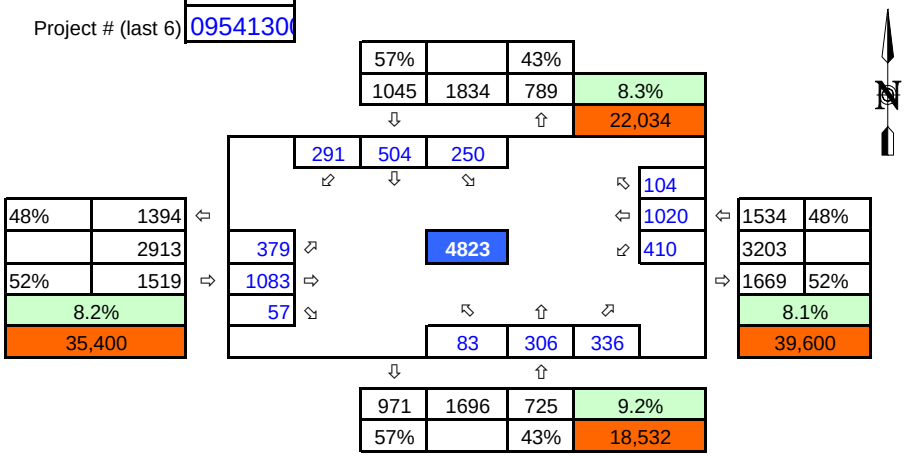


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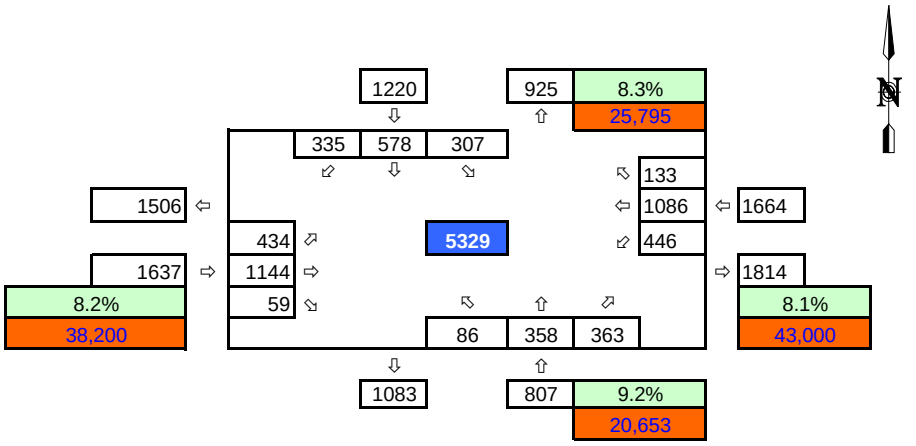
Existing K-Factor	xx%
ADT Volume	xx

Int 9 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**
Intersection #:	9
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**

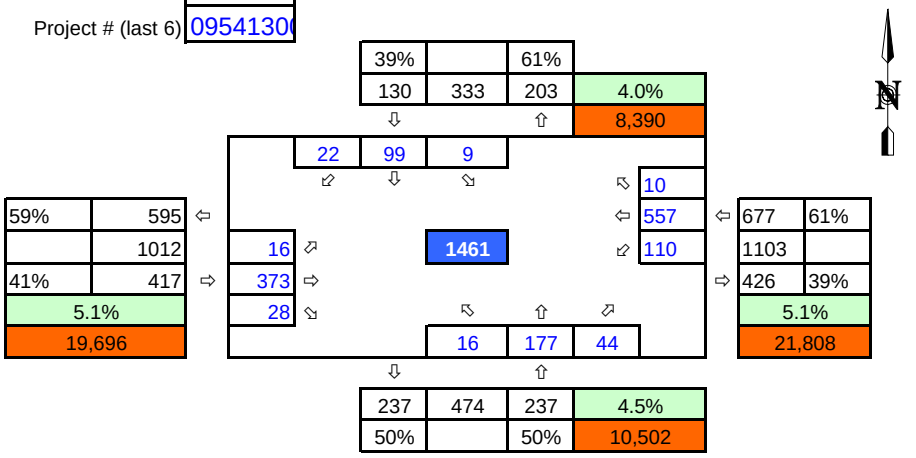


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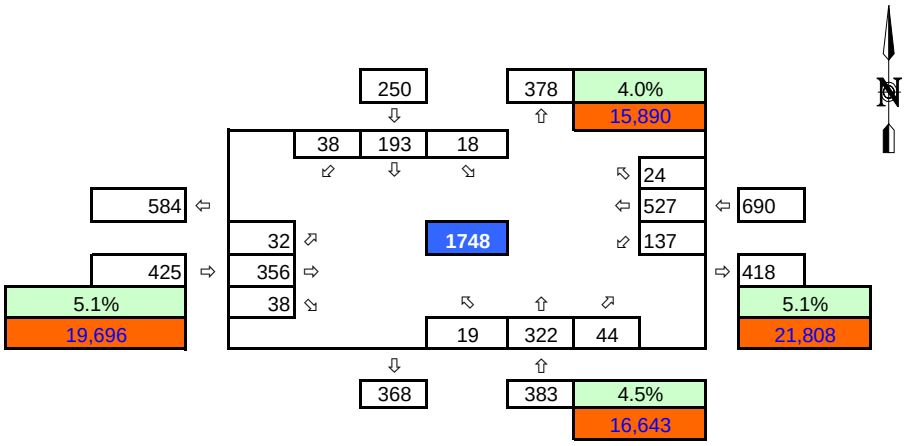
Existing K-Factor	xx%
ADT Volume	xx

Int 10 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**
Intersection #:	10
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**

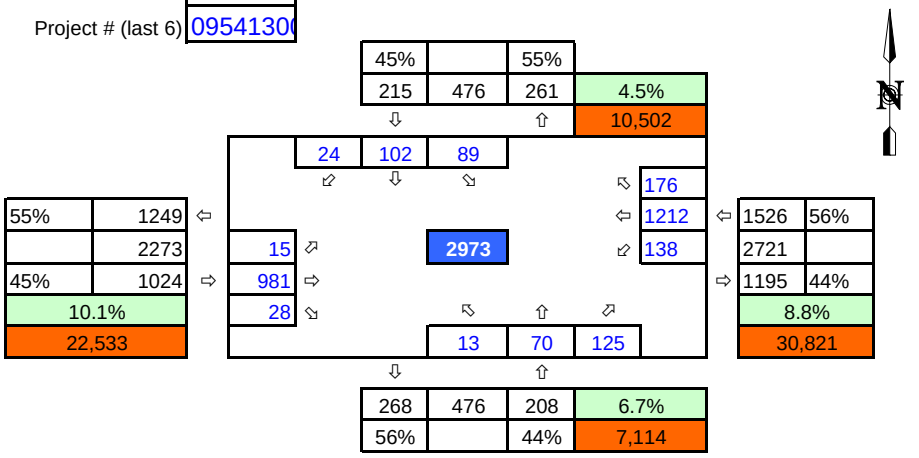


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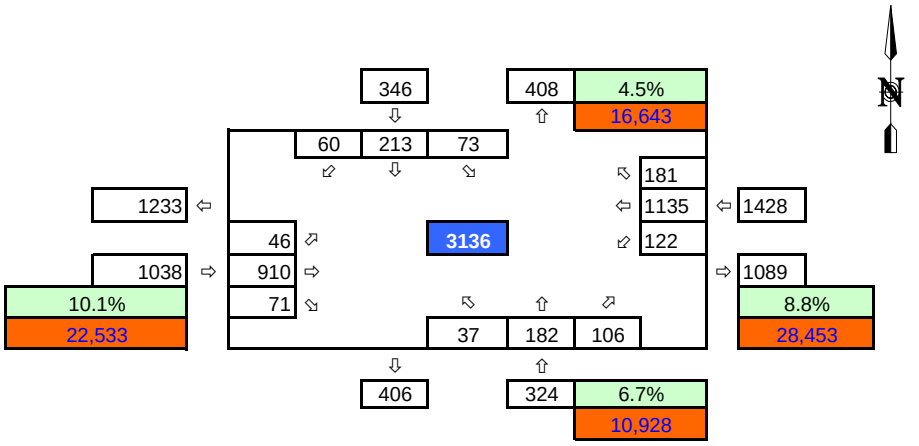
Existing K-Factor	xx%
ADT Volume	xx

Int 11 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Olney Street
E/W Street:	Grand Ave
Intersection #:	11
Project # (last 6)	095413(



Scenario:	Horizon Year Conditions
N/S Street:	Olney Street
E/W Street:	Grand Ave

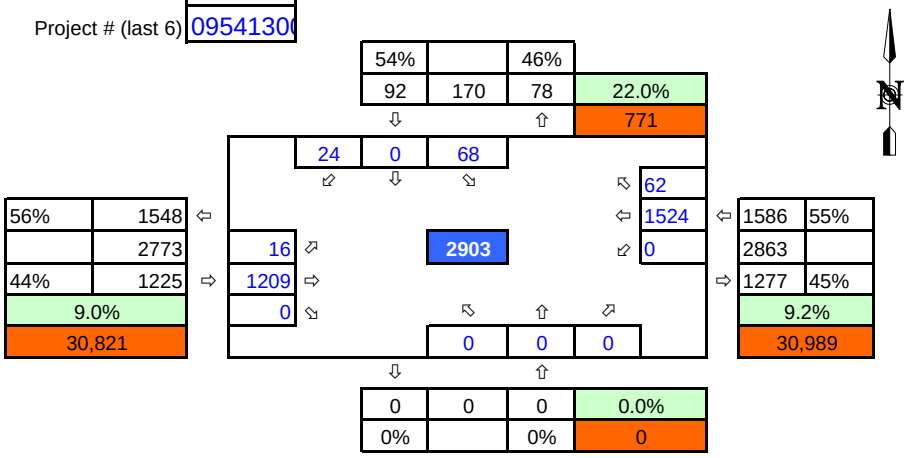


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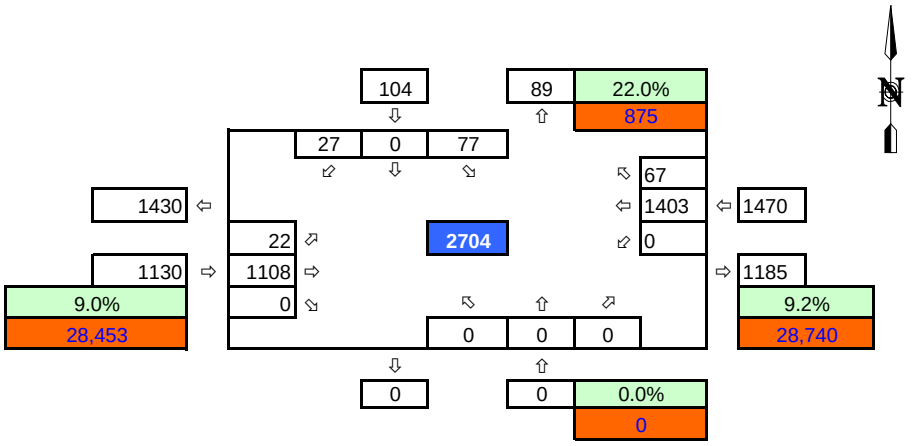
Existing K-Factor	xx%
ADT Volume	xx

Int 12 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**
Intersection #:	12
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**

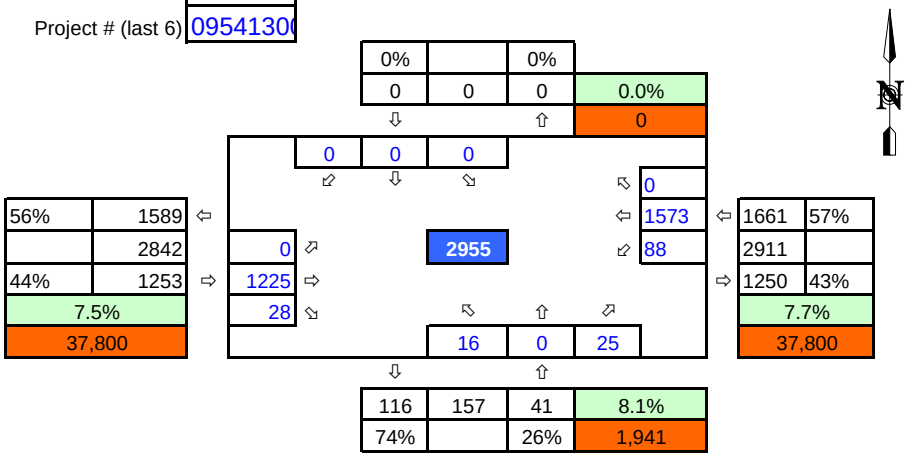


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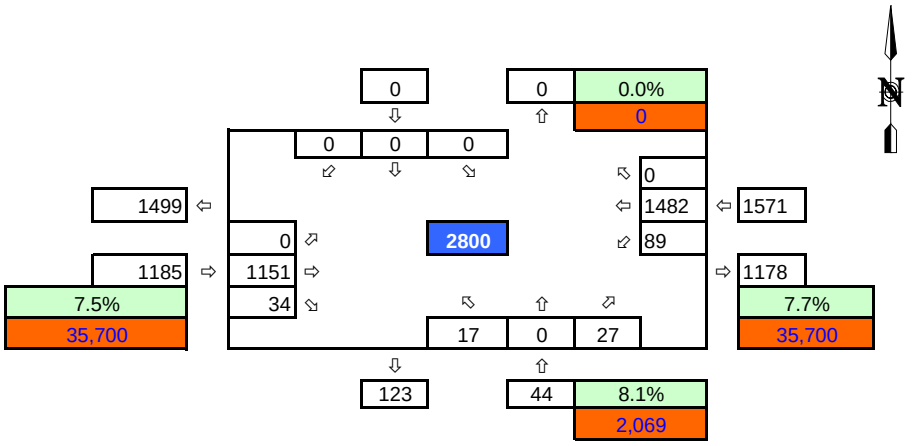
Existing K-Factor	xx%
ADT Volume	xx

Int 13 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**
Intersection #:	13
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**

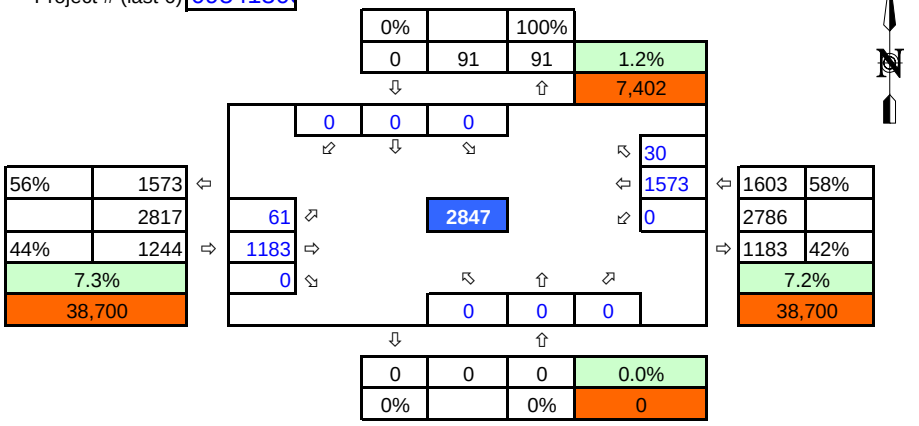


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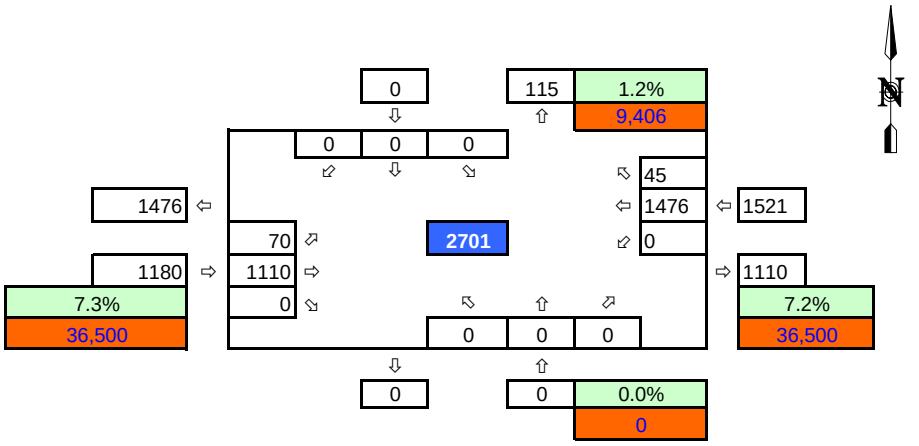
Existing K-Factor	xx%
ADT Volume	xx

Int 14 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**
Intersection #:	14
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**

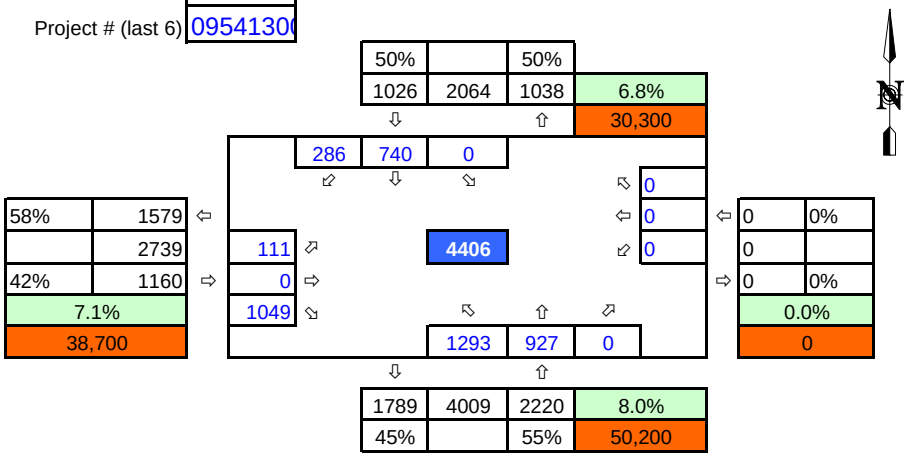


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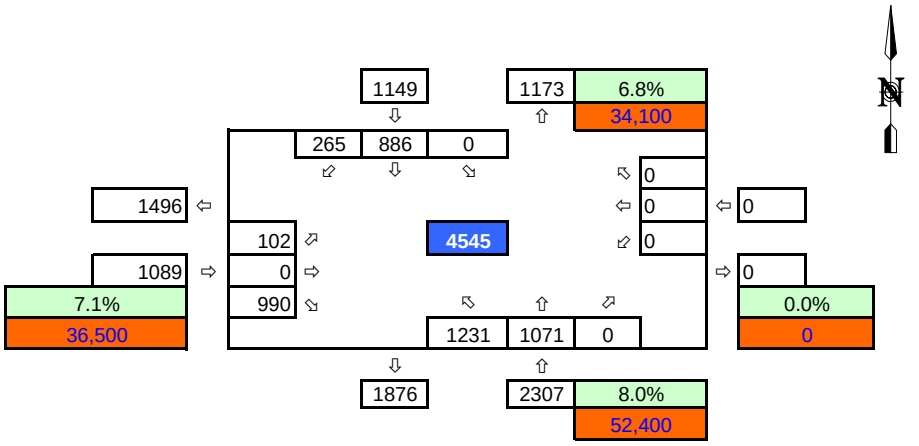
Existing K-Factor	xx%
ADT Volume	xx

Int 15 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**
Intersection #:	15
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**

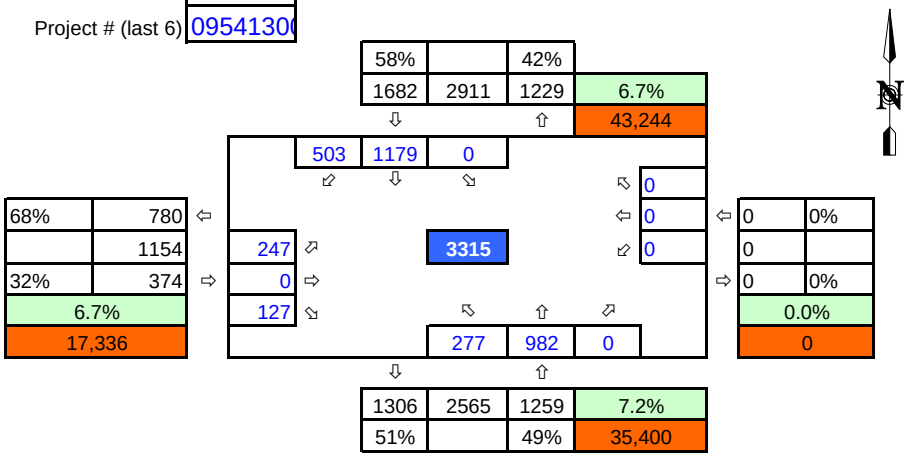


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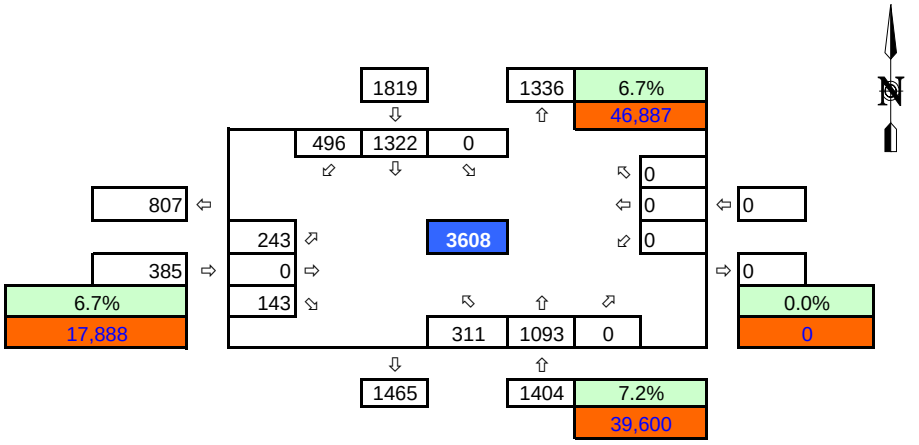
Existing K-Factor	xx%
ADT Volume	xx

Int 16 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**
Intersection #:	16
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**

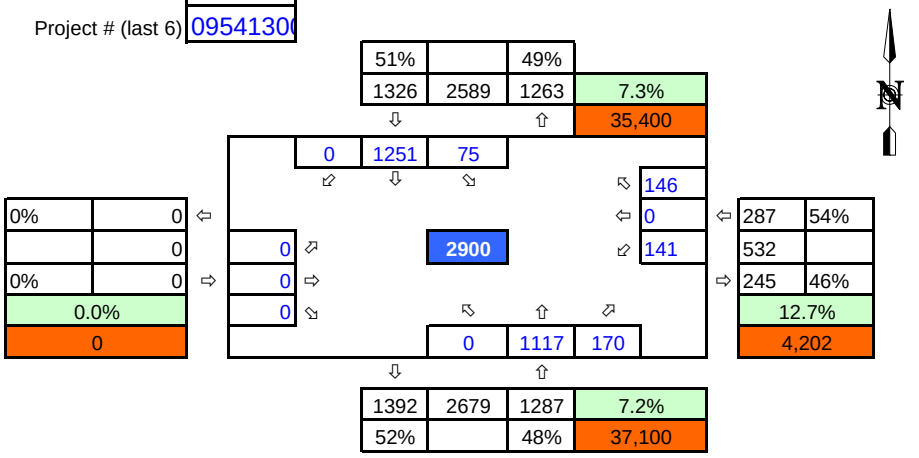


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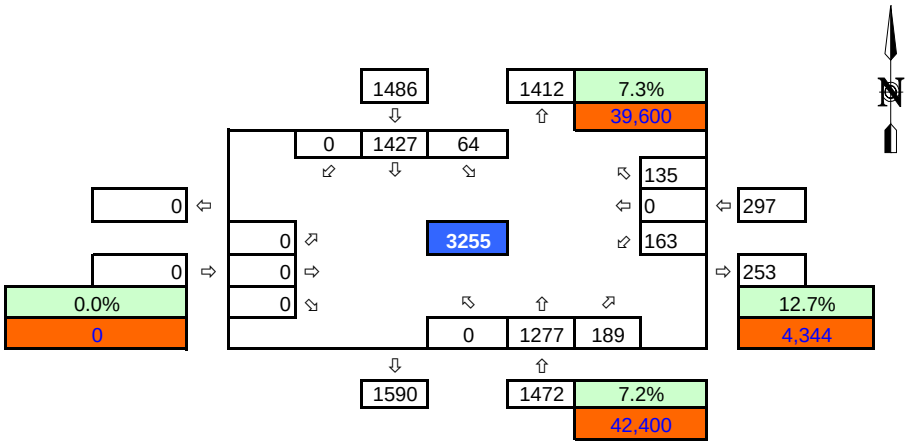
Existing K-Factor	xx%
ADT Volume	xx

Int 17 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**
Intersection #:	17
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**

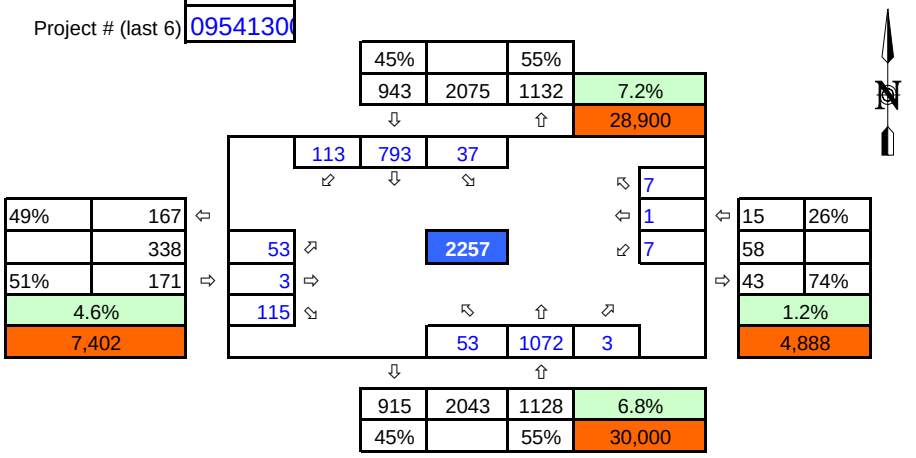


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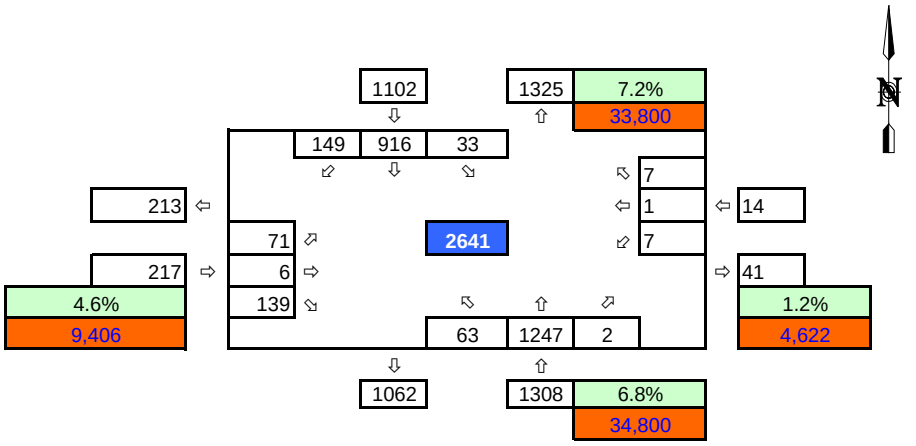
Existing K-Factor	xx%
ADT Volume	xx

Int 18 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**
Intersection #:	18
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**

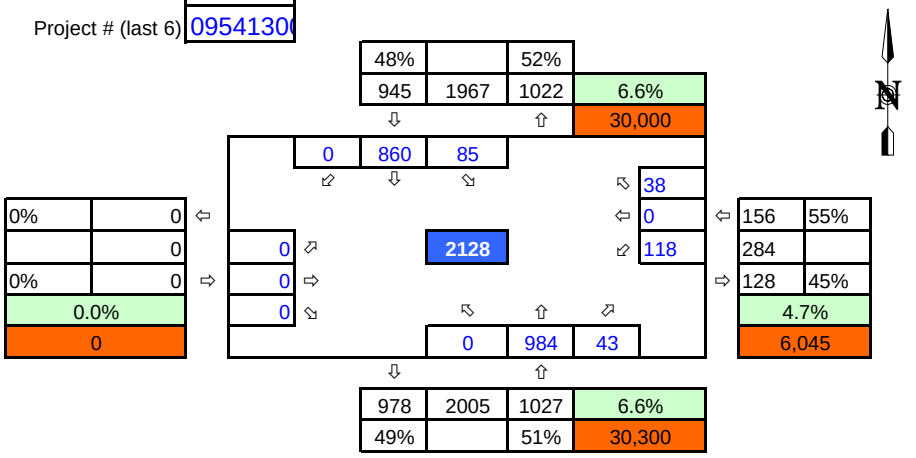


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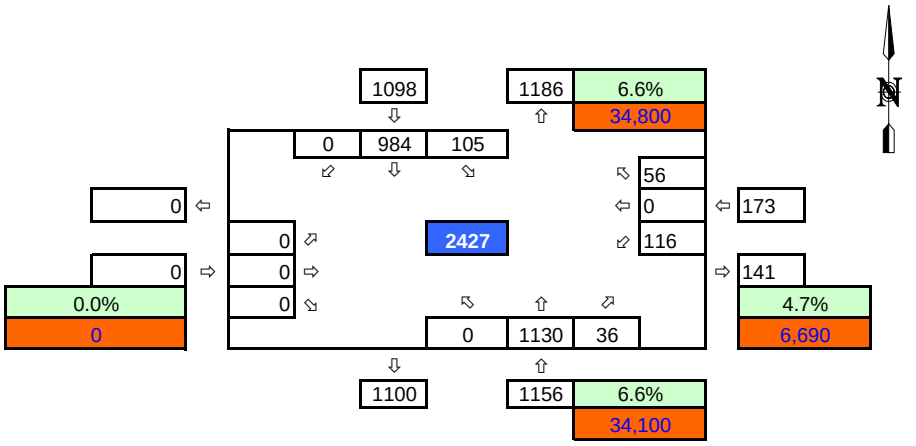
Existing K-Factor	xx%
ADT Volume	xx

Int 19 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Driveway / Bunker Hill St**
Intersection #:	19
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Driveway / Bunker Hill St**

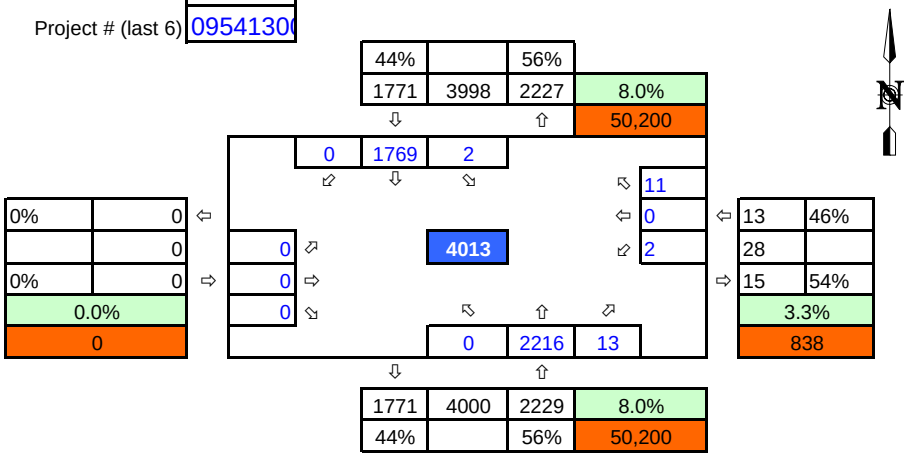


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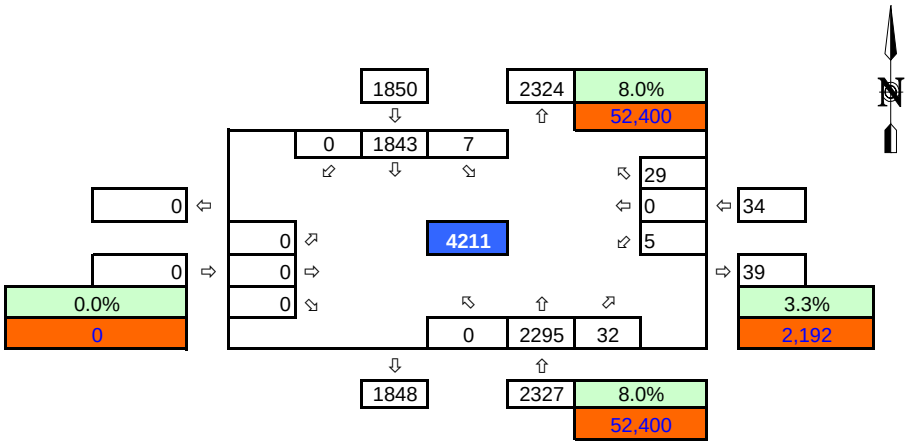
Existing K-Factor	xx%
ADT Volume	xx

Int 20 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Mission Bay Dr
E/W Street:	Rosewood St
Intersection #:	20
Project # (last 6)	0954130



Scenario:	Horizon Year Conditions
N/S Street:	Mission Bay Dr
E/W Street:	Rosewood St

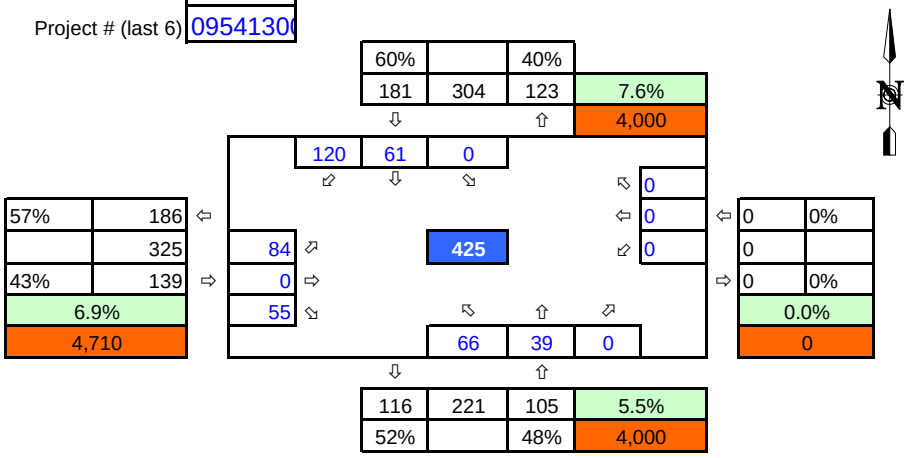


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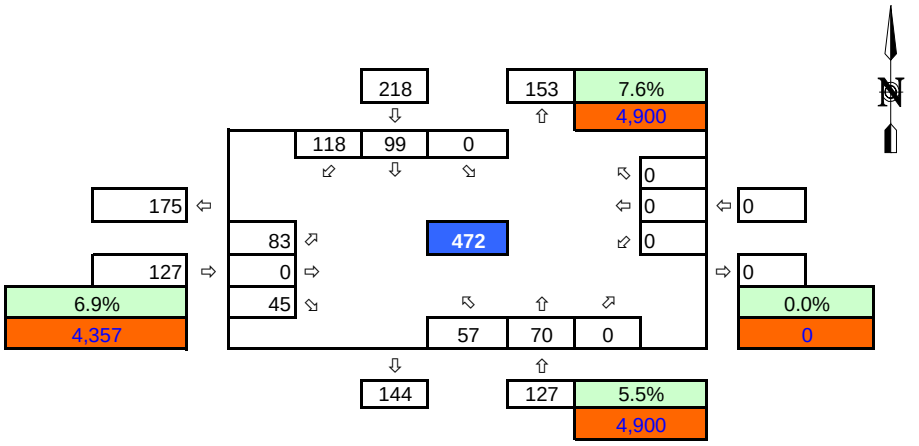
Existing K-Factor	xx%
ADT Volume	xx

Int 21 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**
Intersection #:	21
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**

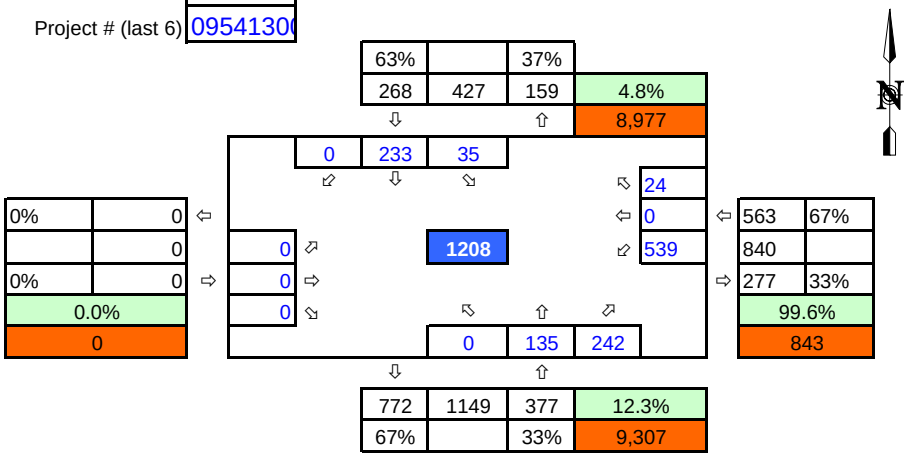


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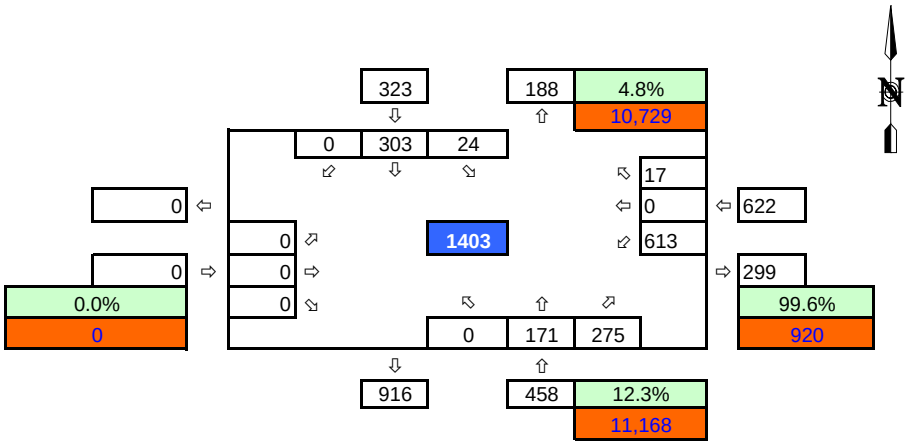
Existing K-Factor	xx%
ADT Volume	xx

Int 22 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**
Intersection #:	22
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**

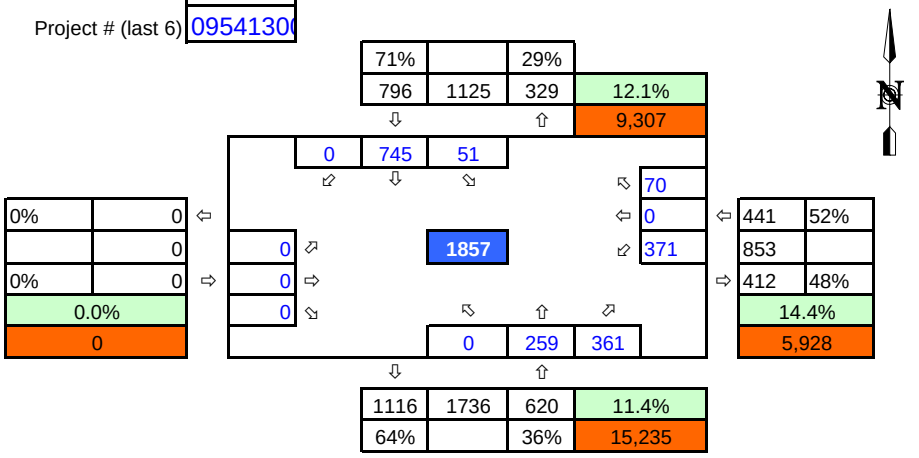


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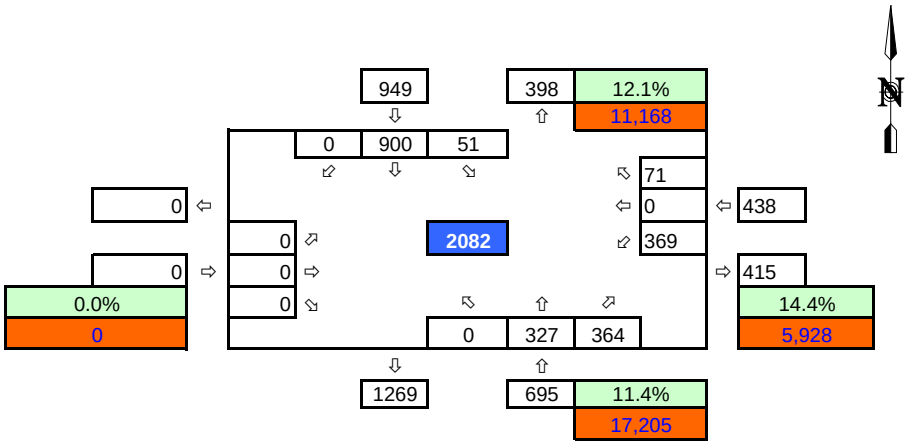
Existing K-Factor	xx%
ADT Volume	xx

Int 23 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Morena Blvd
E/W Street:	Costco Dwy
Intersection #:	23
Project # (last 6)	095413(



Scenario:	Horizon Year Conditions
N/S Street:	Morena Blvd
E/W Street:	Costco Dwy

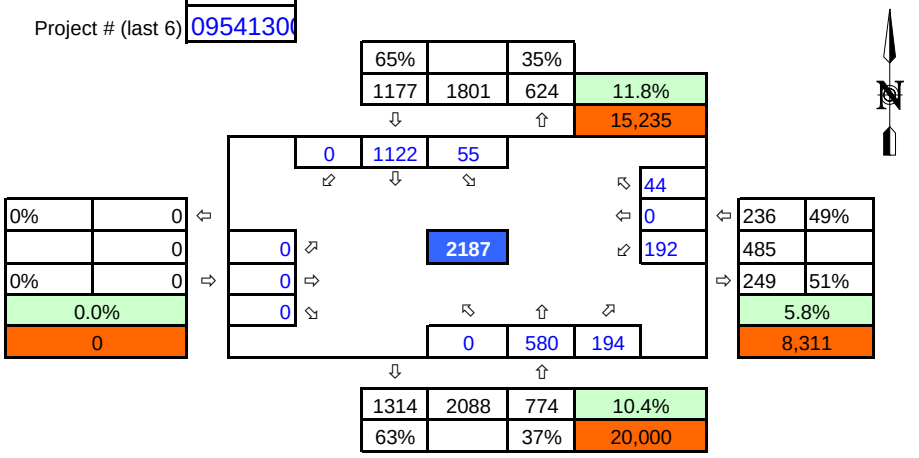


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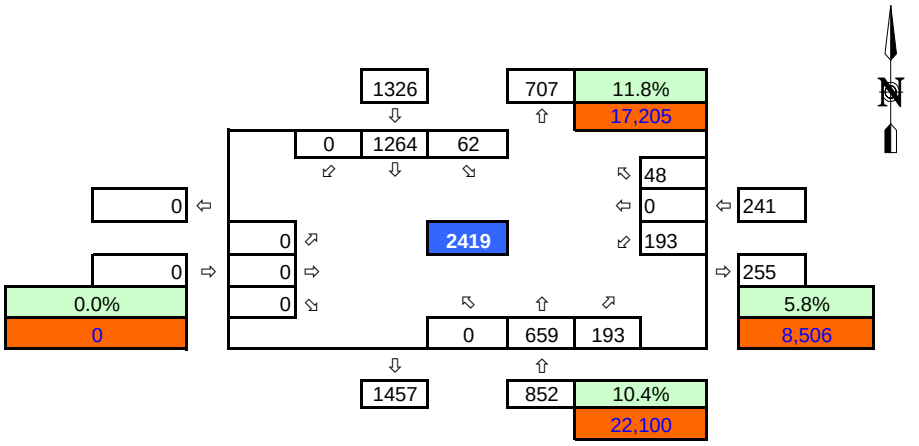
Existing K-Factor	xx%
ADT Volume	xx

Int 24 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Morena Blvd
E/W Street:	Avati Dr
Intersection #:	24
Project # (last 6)	095413(



Scenario:	Horizon Year Conditions
N/S Street:	Morena Blvd
E/W Street:	Avati Dr

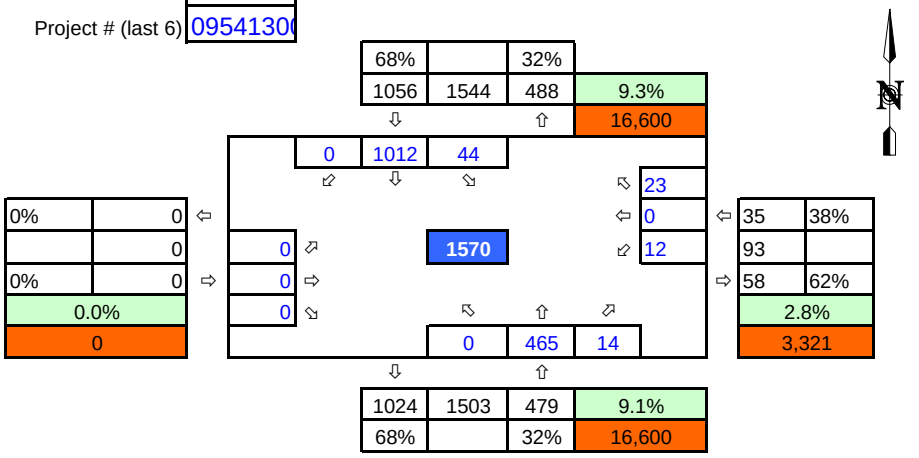


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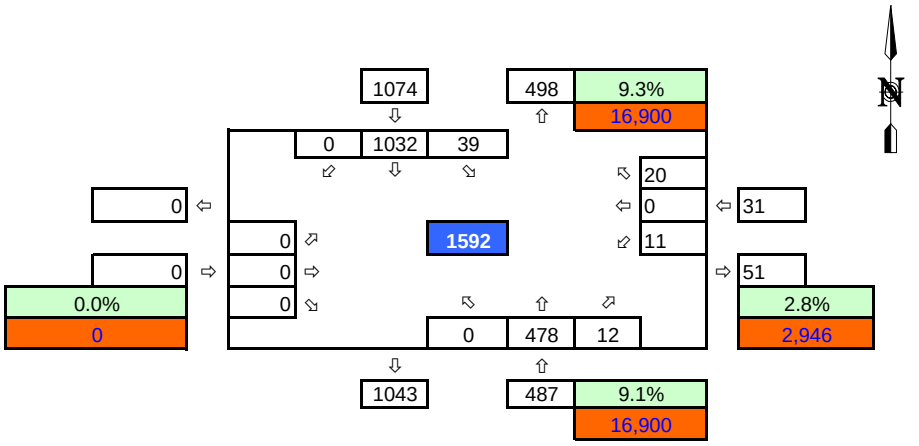
Existing K-Factor	xx%
ADT Volume	xx

Int 27 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**
Intersection #:	27
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**

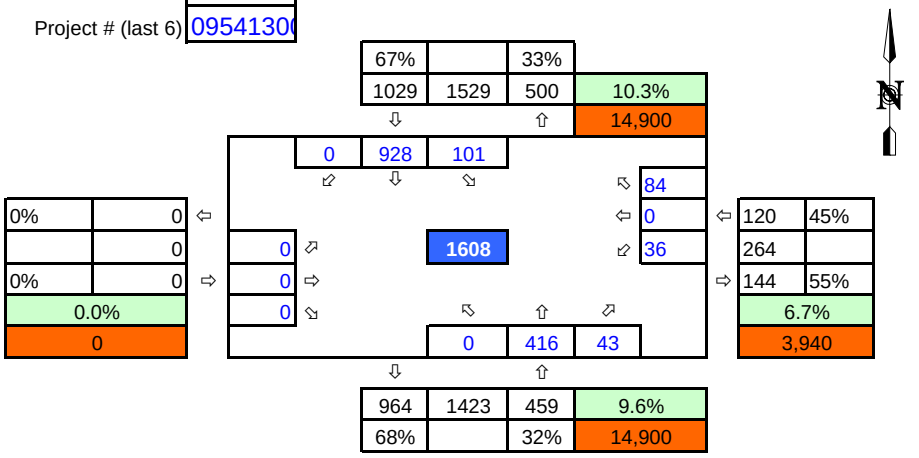


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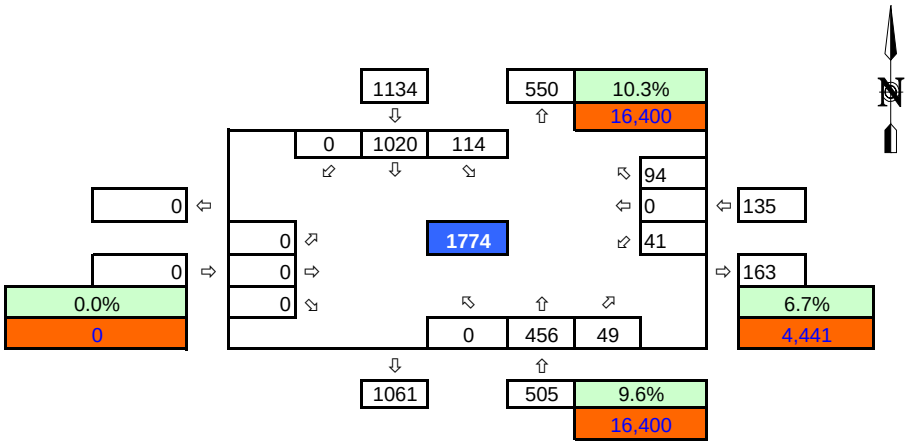
Existing K-Factor	xx%
ADT Volume	xx

Int 28 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**
Intersection #:	28
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**

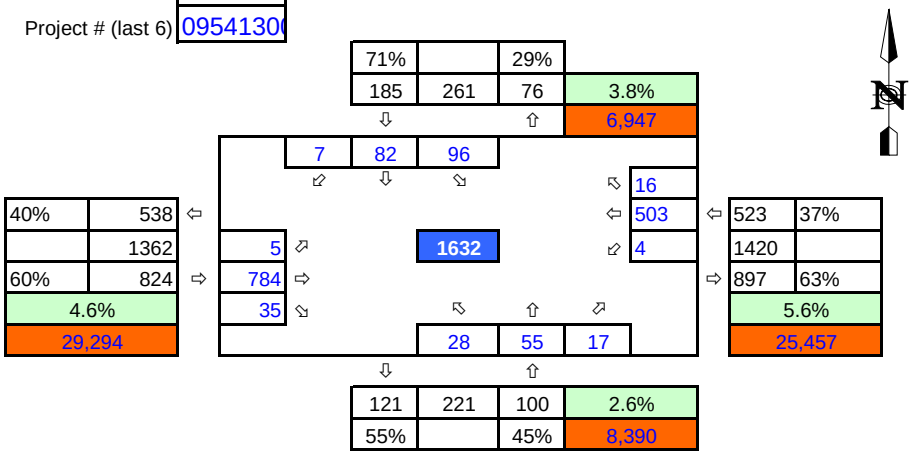


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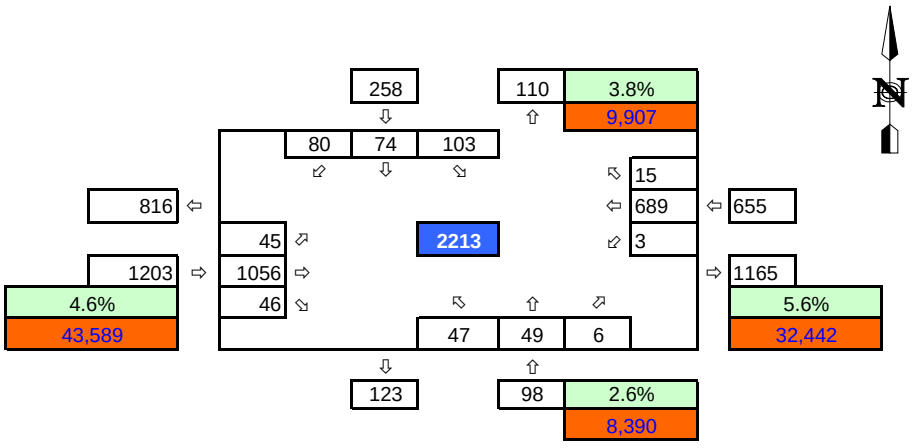
Existing K-Factor	xx%
ADT Volume	xx

Int 1 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Garnet Ave**
Intersection #:	1
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Garnet Ave**

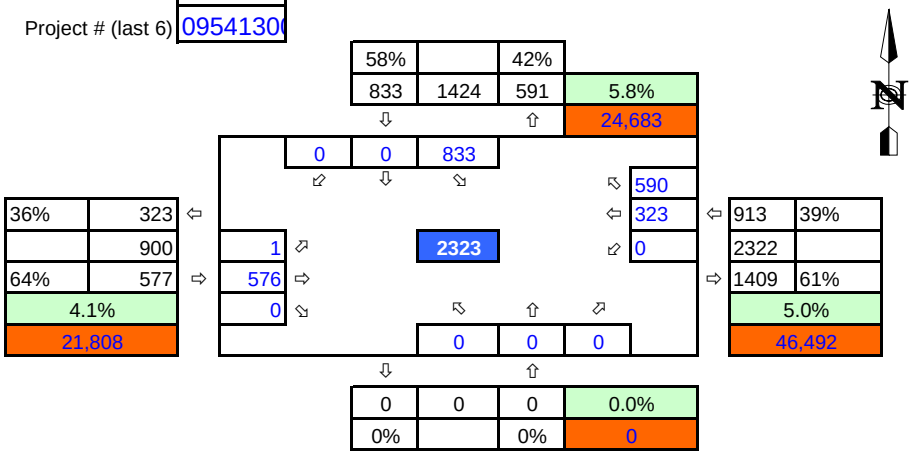


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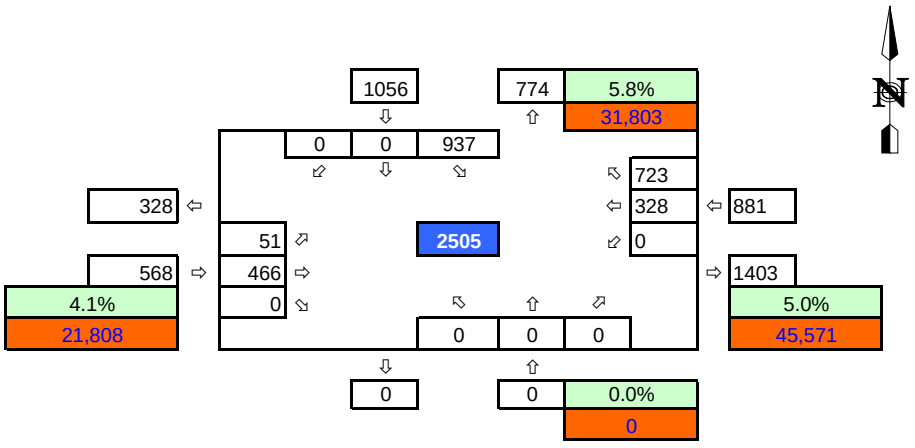
Existing K-Factor	xx%
ADT Volume	xx

Int 2 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Garnet Ave**
E/W Street:	**Balboa Ave / Garnet Ave**
Intersection #:	2
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Garnet Ave**
E/W Street:	**Balboa Ave / Garnet Ave**

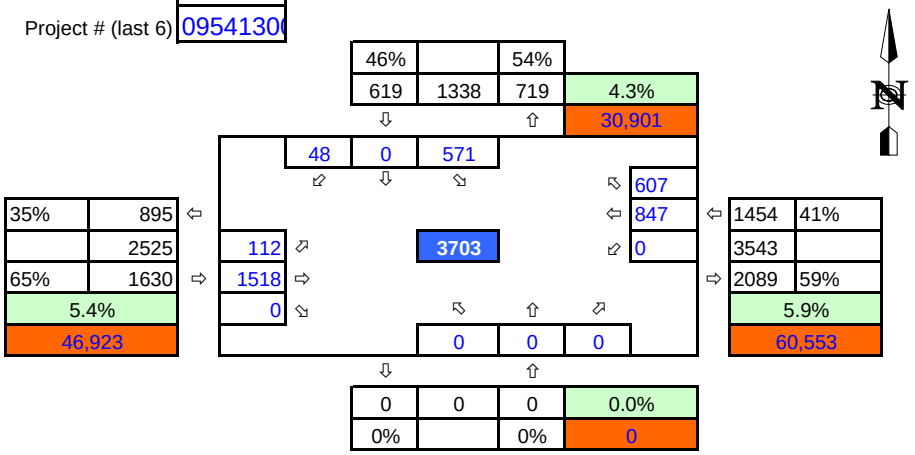


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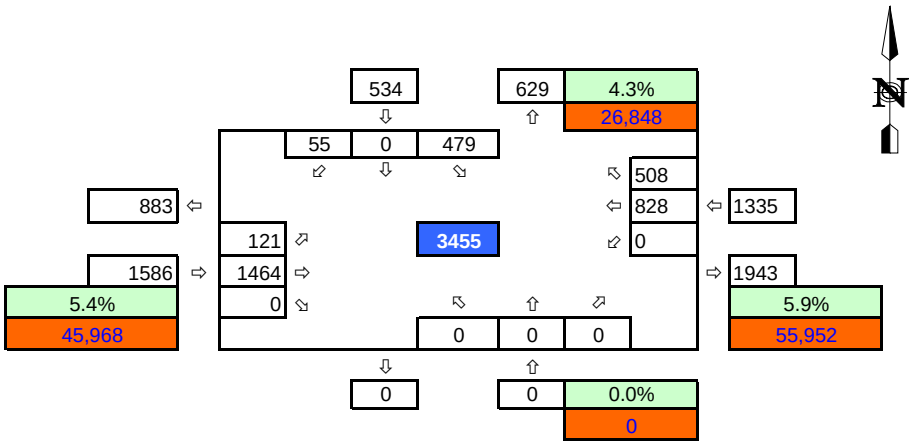
Existing K-Factor	xx%
ADT Volume	xx

Int 3 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**
Intersection #:	3
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**

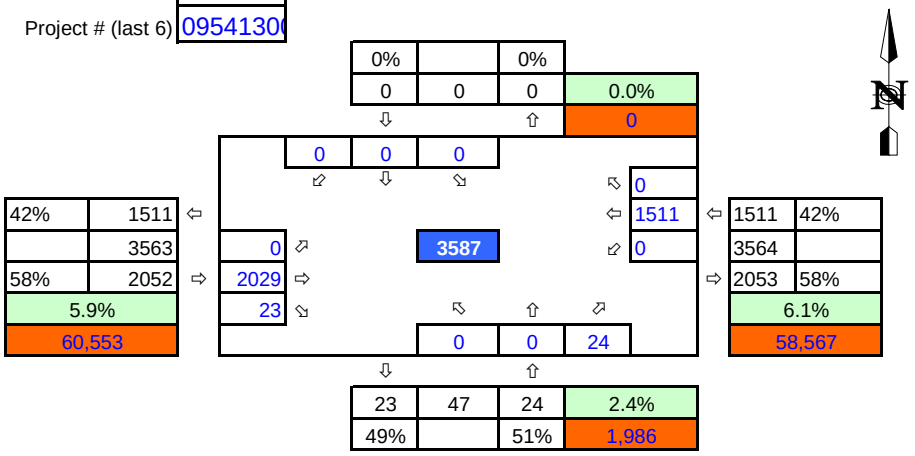


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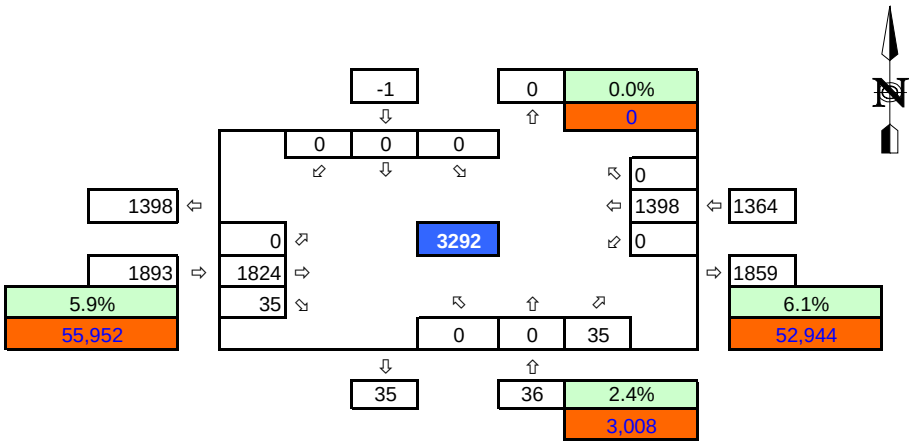
Existing K-Factor	xx%
ADT Volume	xx

Int 4 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Bond St**
E/W Street:	**Garnet Ave**
Intersection #:	4
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Bond St**
E/W Street:	**Garnet Ave**

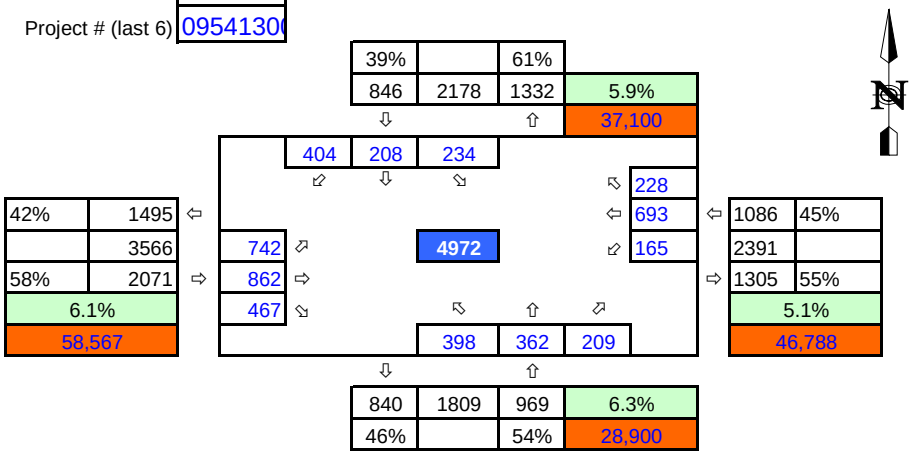


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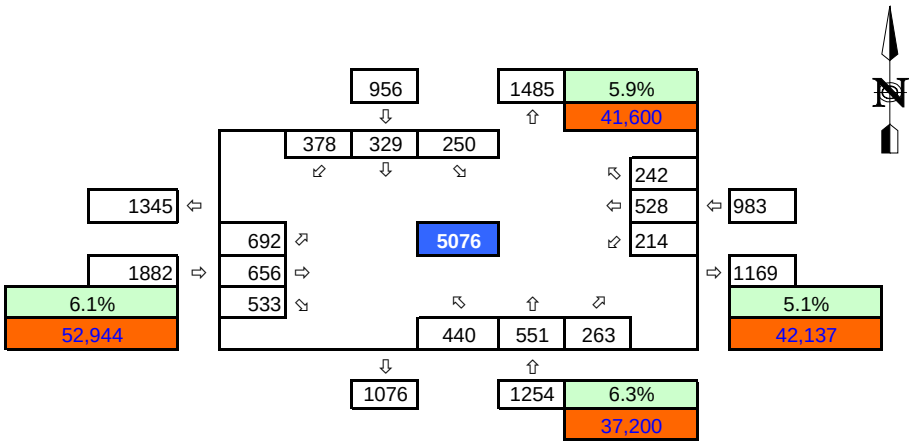
Existing K-Factor	xx%
ADT Volume	xx

Int 5 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**
Intersection #:	5
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**

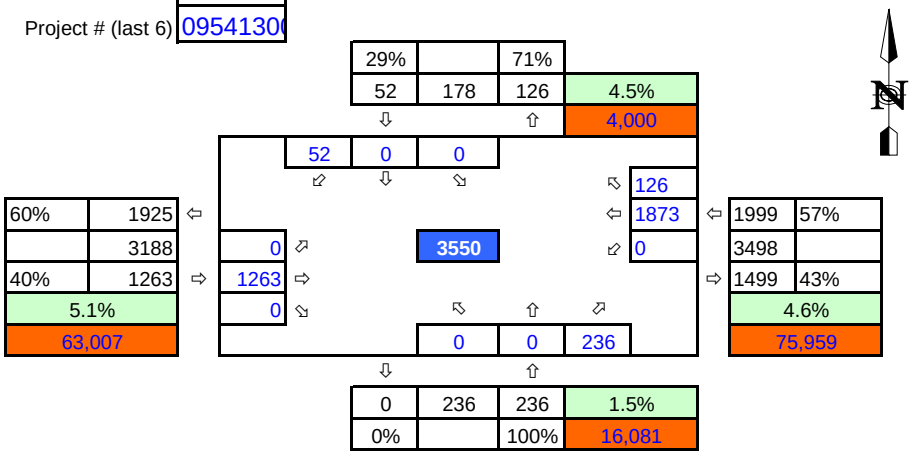


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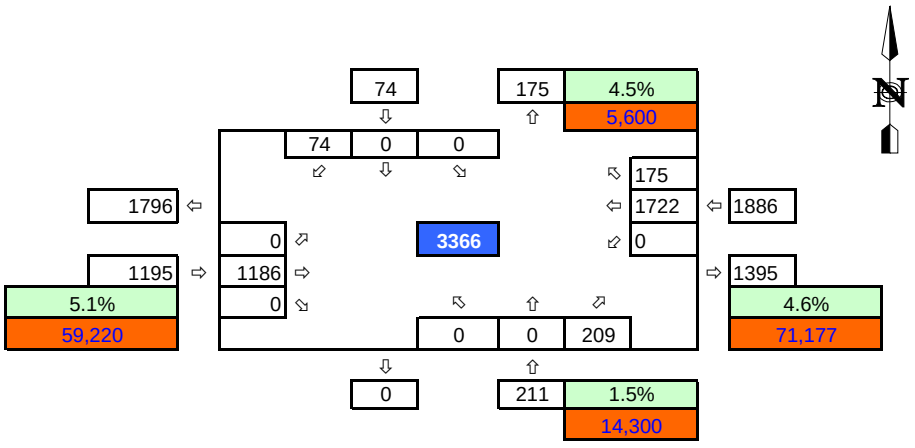
Existing K-Factor	xx%
ADT Volume	xx

Int 6 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**
Intersection #:	6
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**

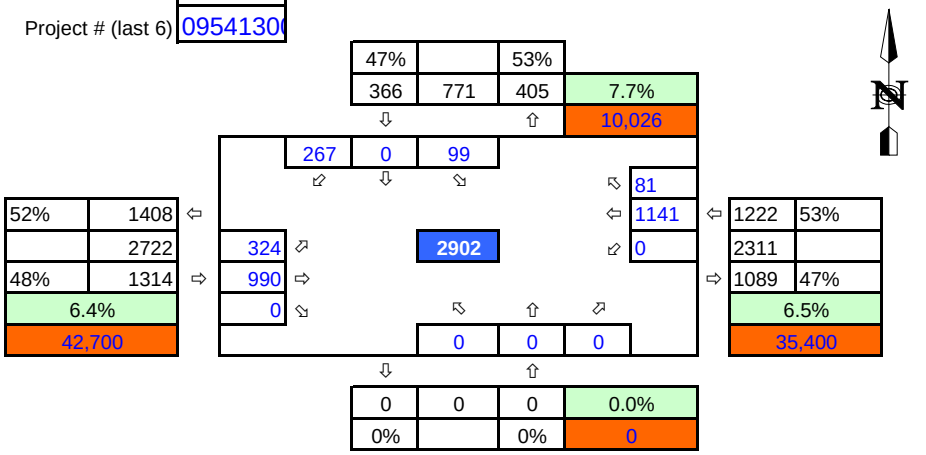


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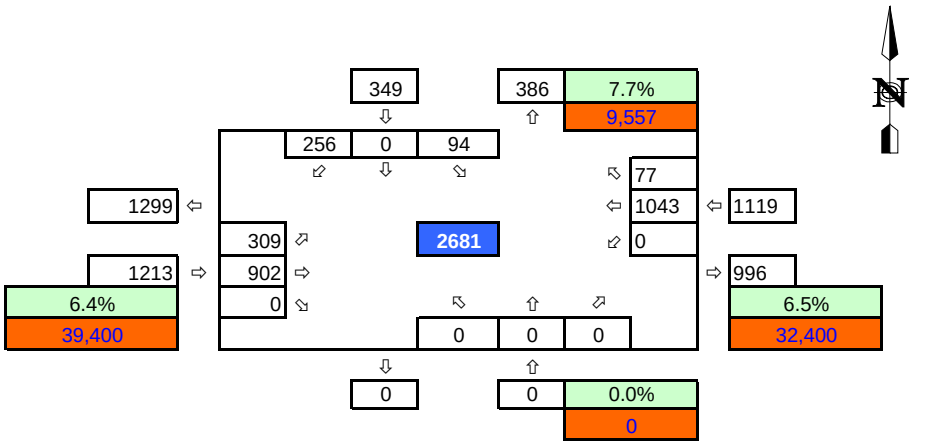
Existing K-Factor	xx%
ADT Volume	xx

Int 8 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**
Intersection #:	8
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**

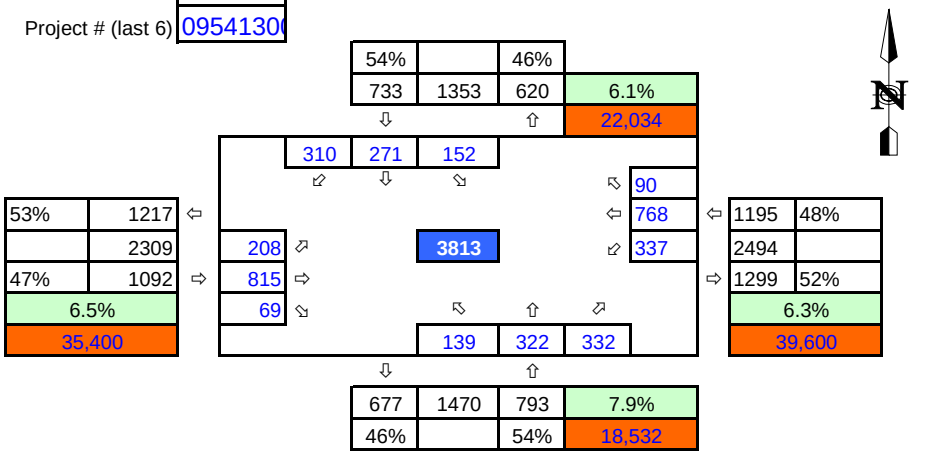


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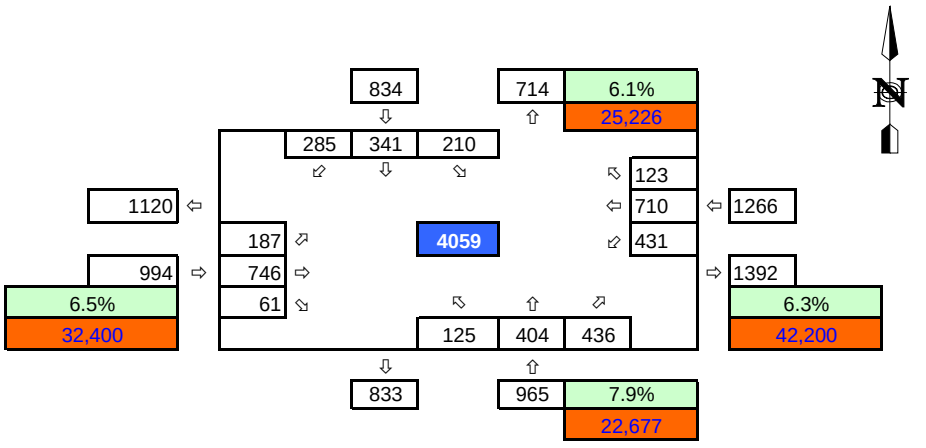
Existing K-Factor	xx%
ADT Volume	xx

Int 9 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**
Intersection #:	9
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**

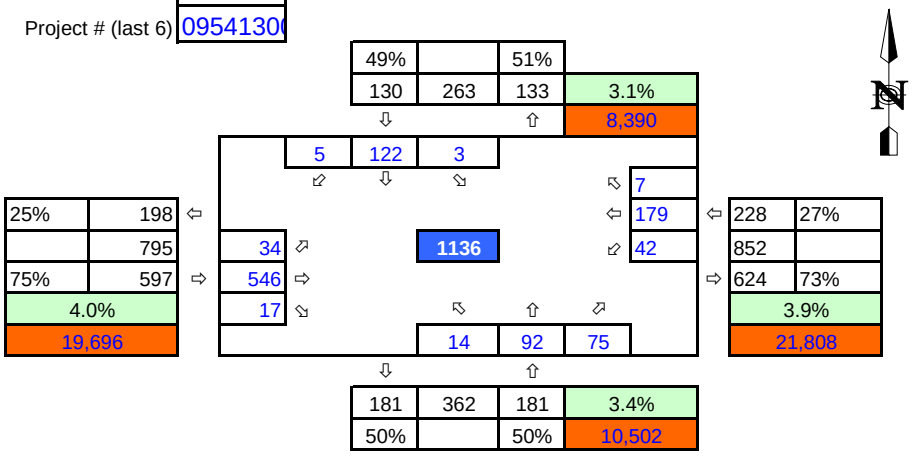


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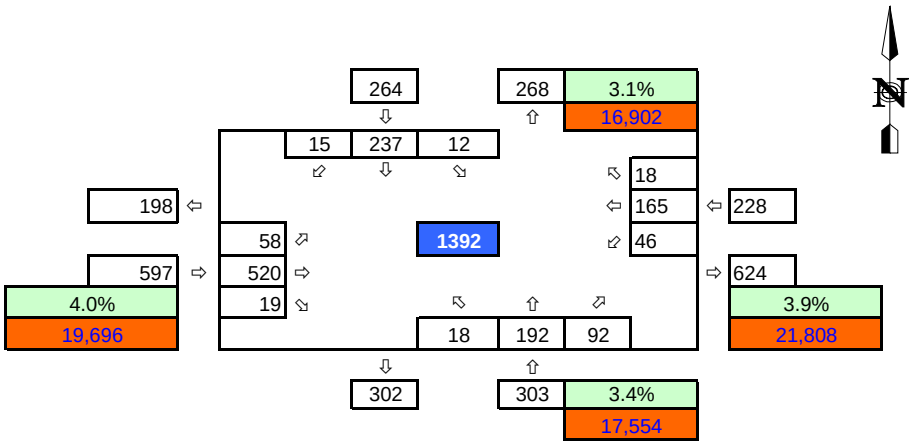
Existing K-Factor	xx%
ADT Volume	xx

Int 10 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**
Intersection #:	10
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**

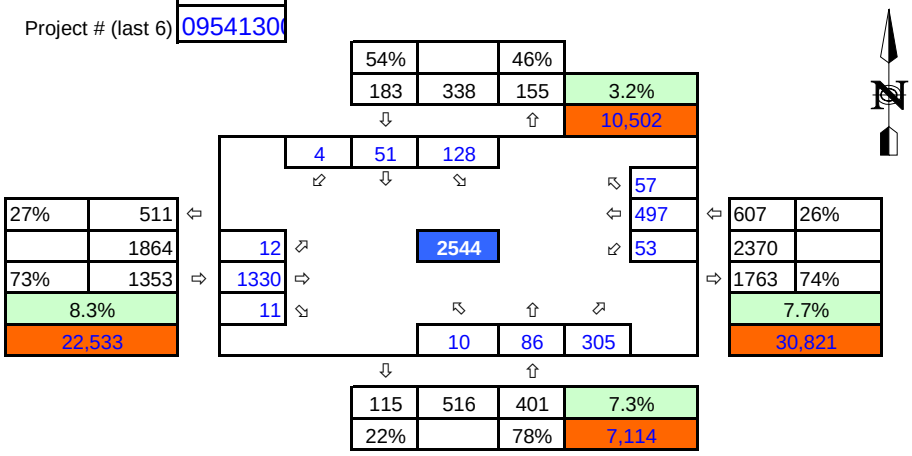


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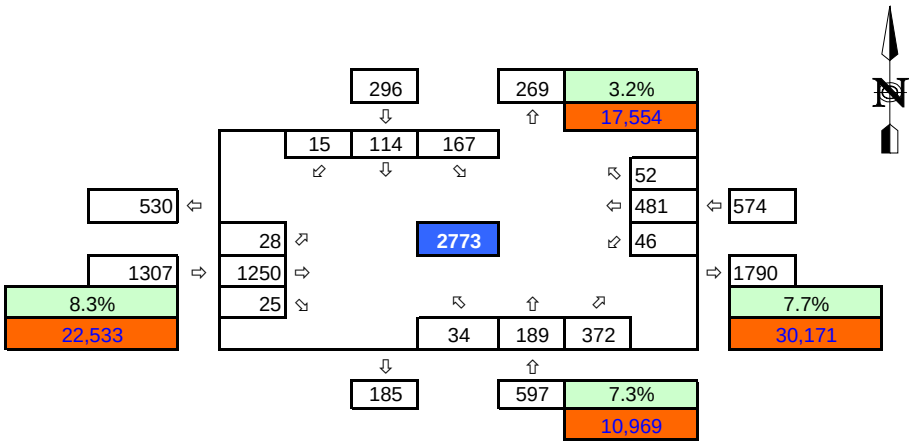
Existing K-Factor	xx%
ADT Volume	xx

Int 11 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Grand Ave**
Intersection #:	11
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Grand Ave**

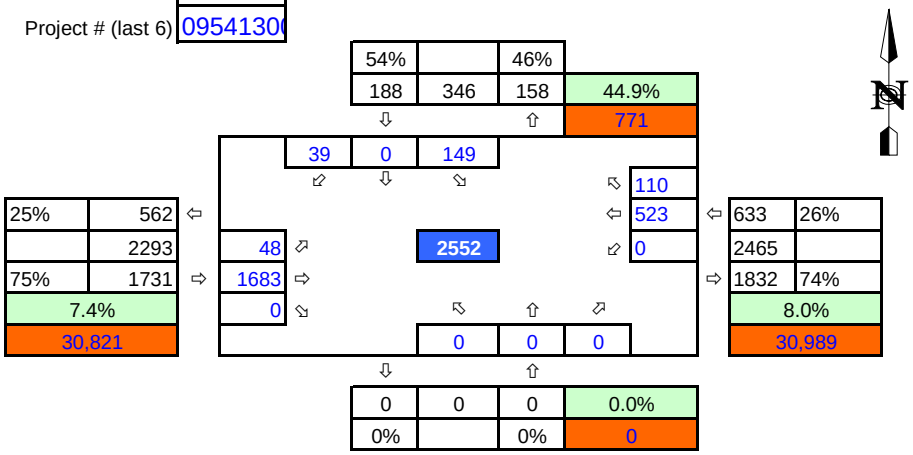


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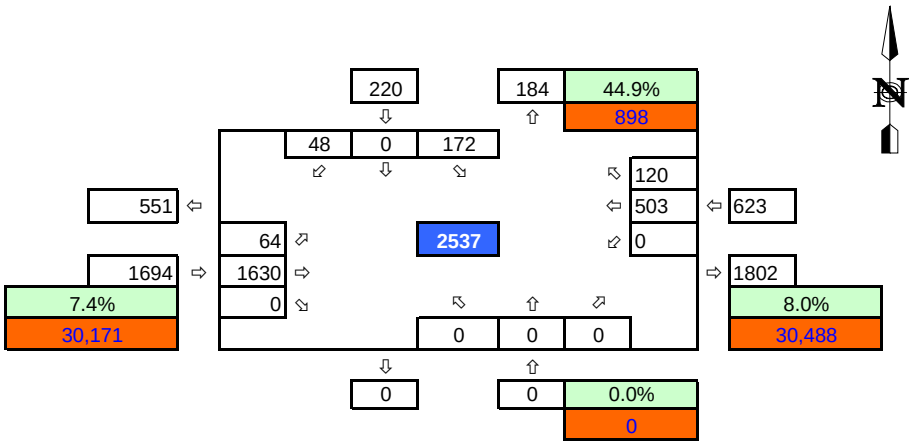
Existing K-Factor	xx%
ADT Volume	xx

Int 12 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**
Intersection #:	12
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**

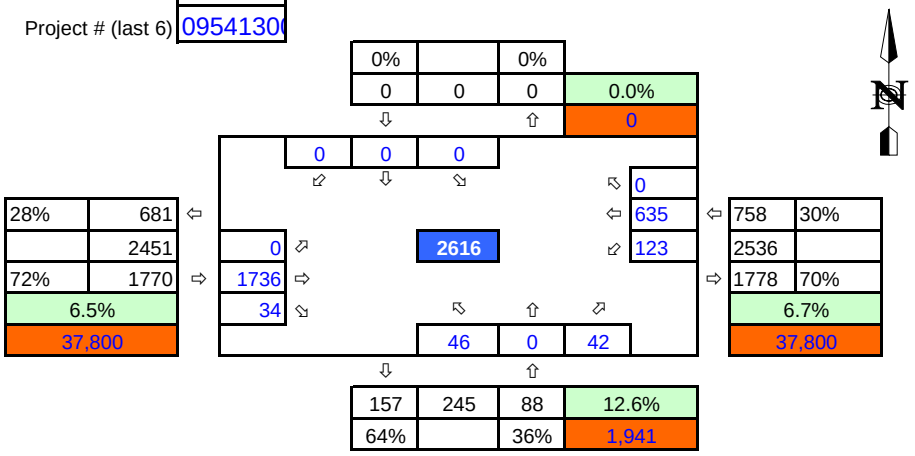


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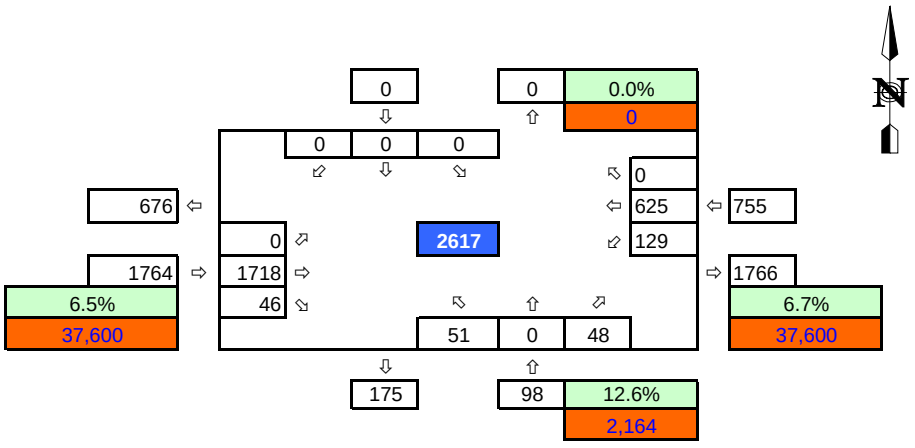
Existing K-Factor	xx%
ADT Volume	xx

Int 13 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**
Intersection #:	13
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**

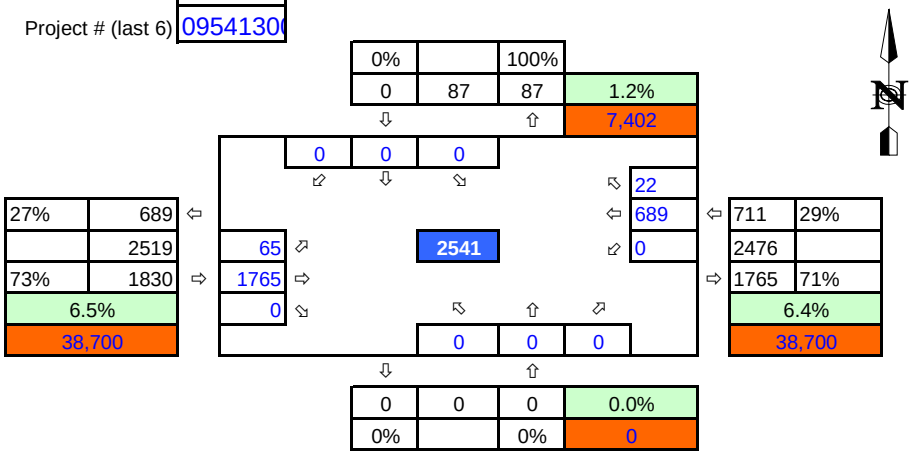


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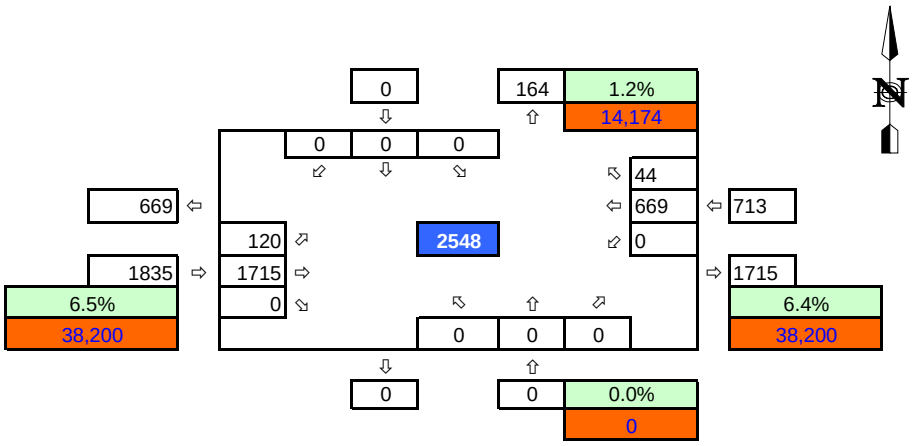
Existing K-Factor	xx%
ADT Volume	xx

Int 14 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**
Intersection #:	14
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**

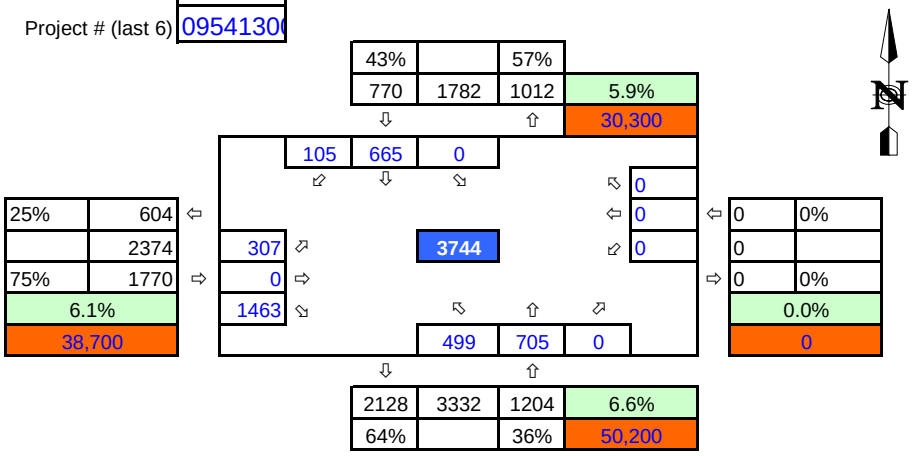


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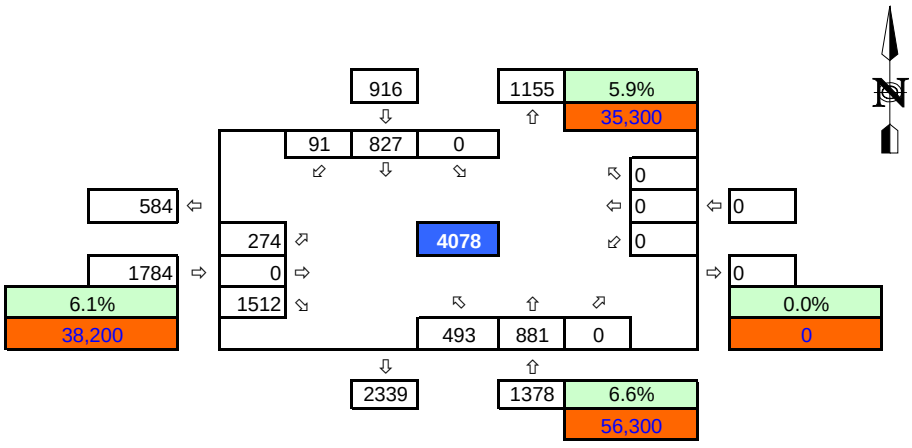
Existing K-Factor	xx%
ADT Volume	xx

Int 15 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**
Intersection #:	15
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**

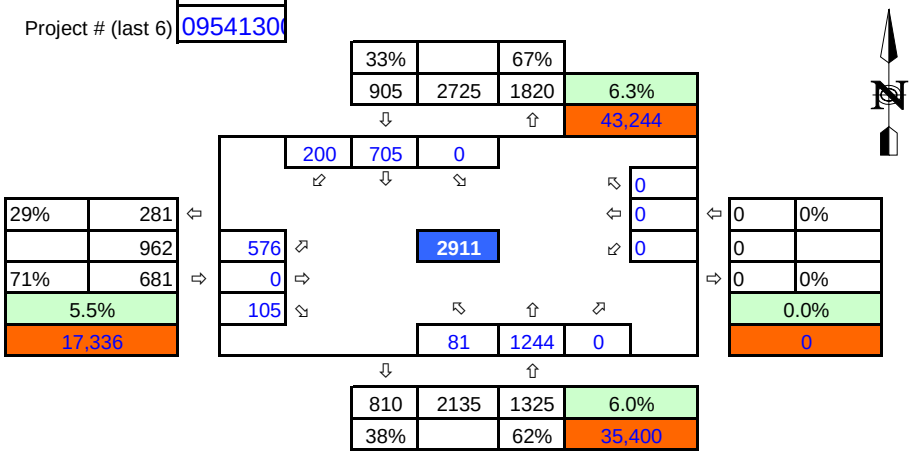


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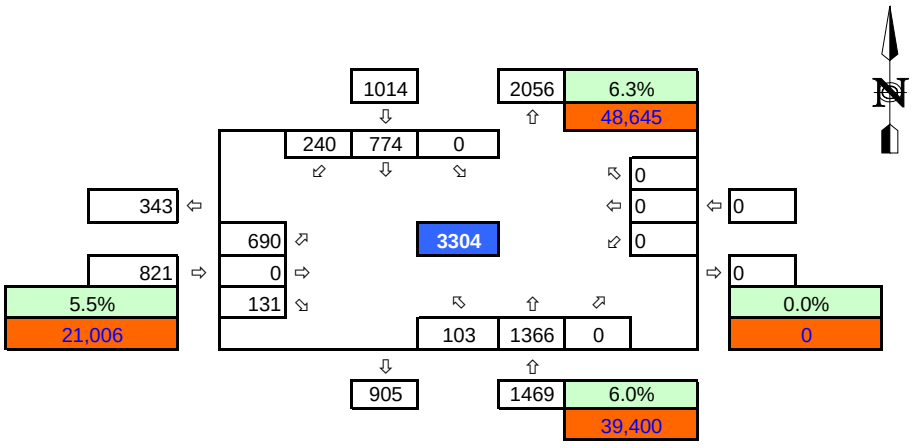
Existing K-Factor	xx%
ADT Volume	xx

Int 16 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**
Intersection #:	16
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**

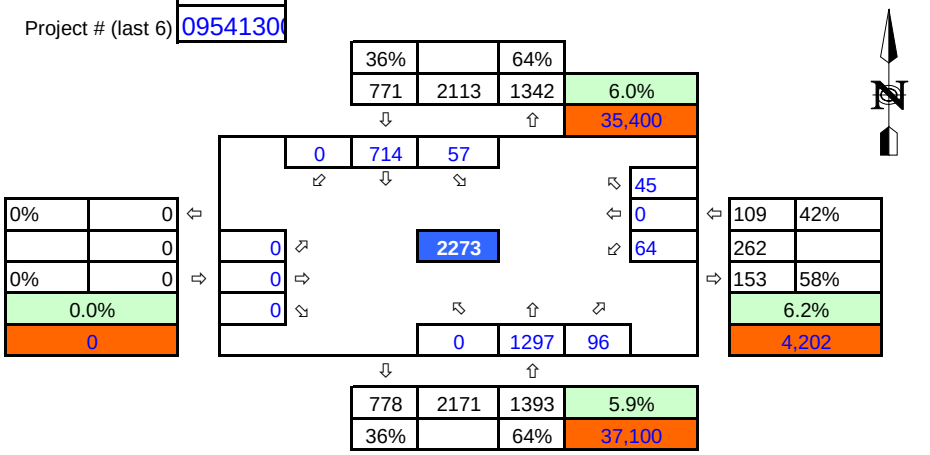


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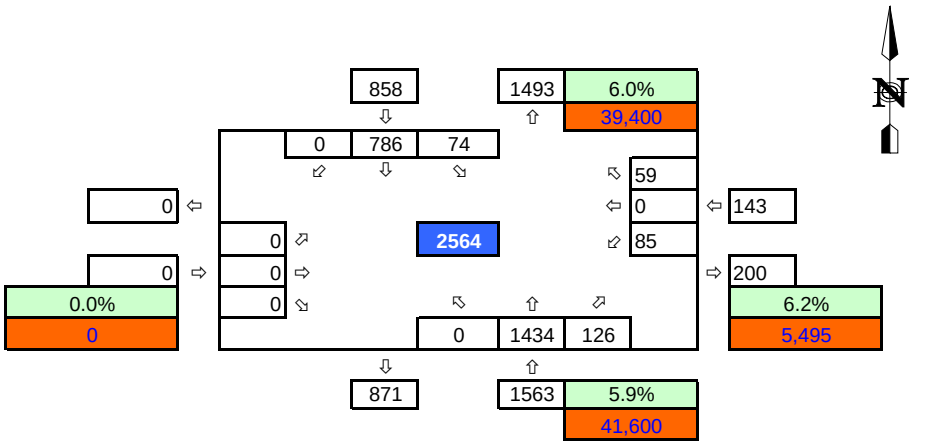
Existing K-Factor	xx%
ADT Volume	xx

Int 17 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**
Intersection #:	17
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**

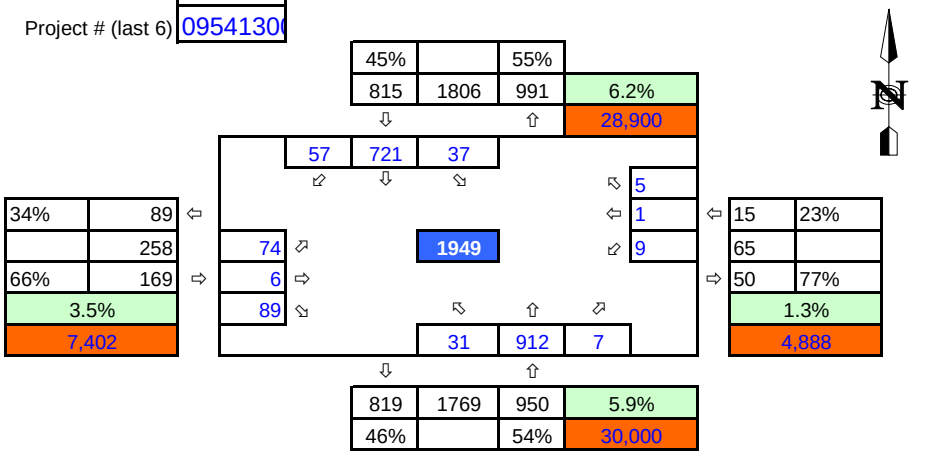


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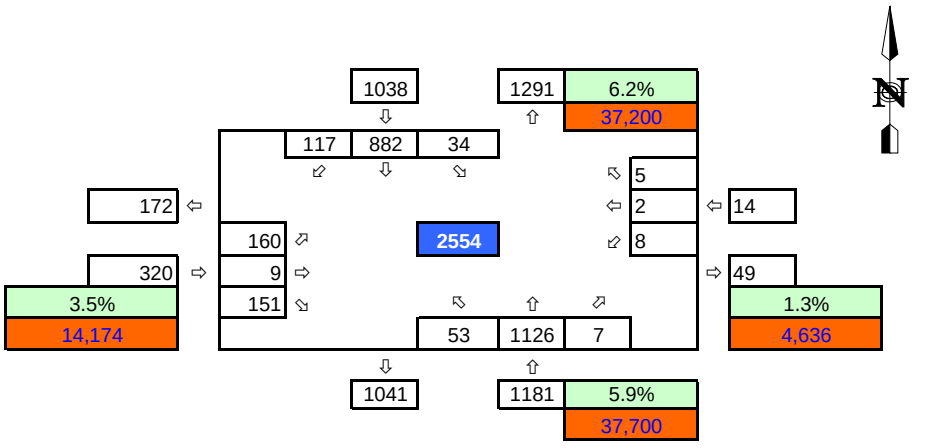
Existing K-Factor	xx%
ADT Volume	xx

Int 18 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**
Intersection #:	18
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**

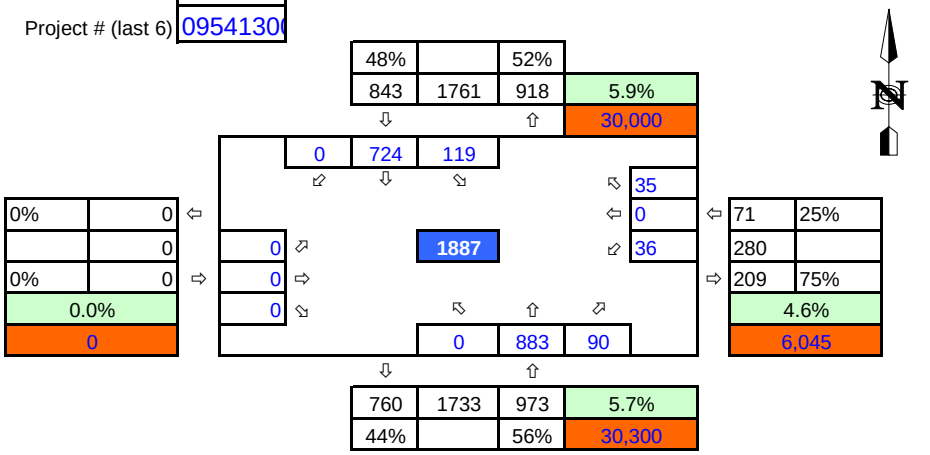


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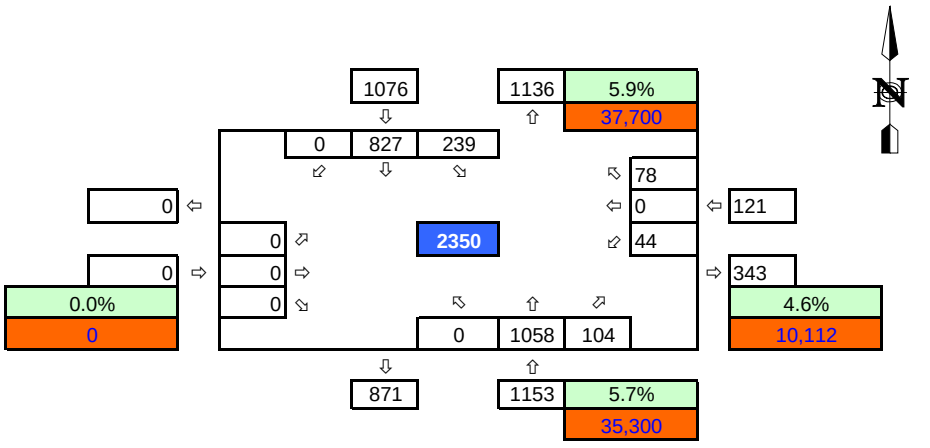
Existing K-Factor	xx%
ADT Volume	xx

Int 19 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Driveway / Bunker Hill St**
Intersection #:	19
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Driveway / Bunker Hill St**

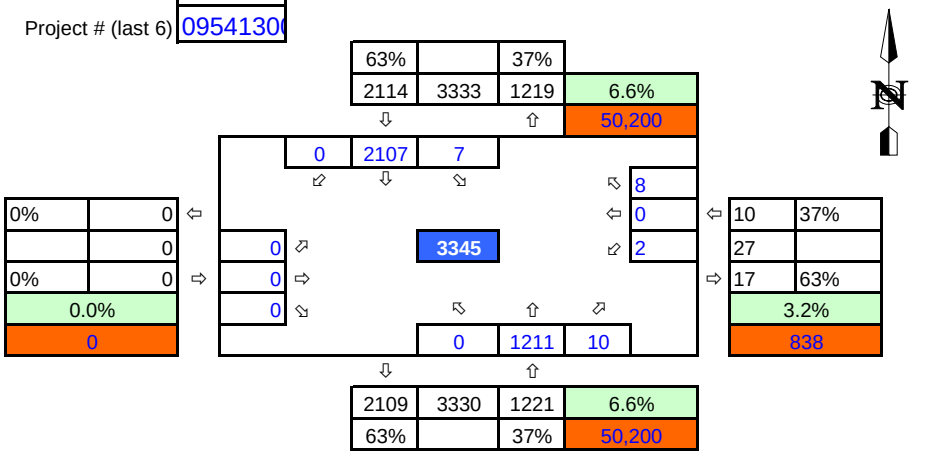


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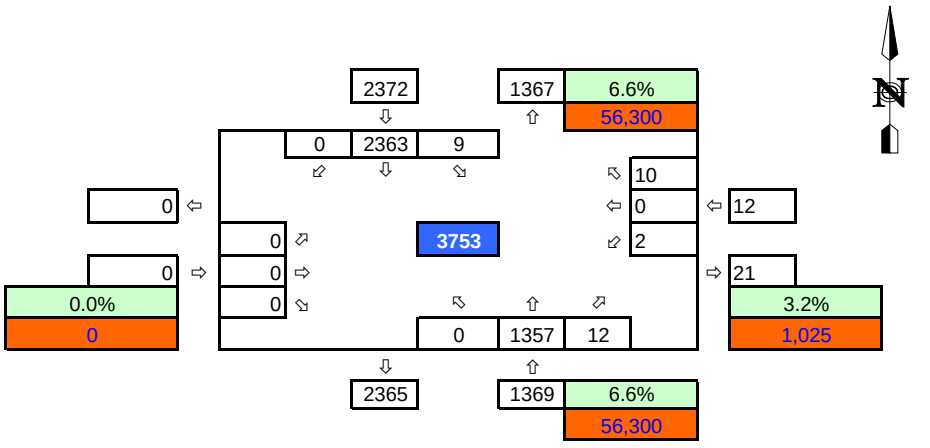
Existing K-Factor	xx%
ADT Volume	xx

Int 20 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Rosewood St**
Intersection #:	20
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Rosewood St**

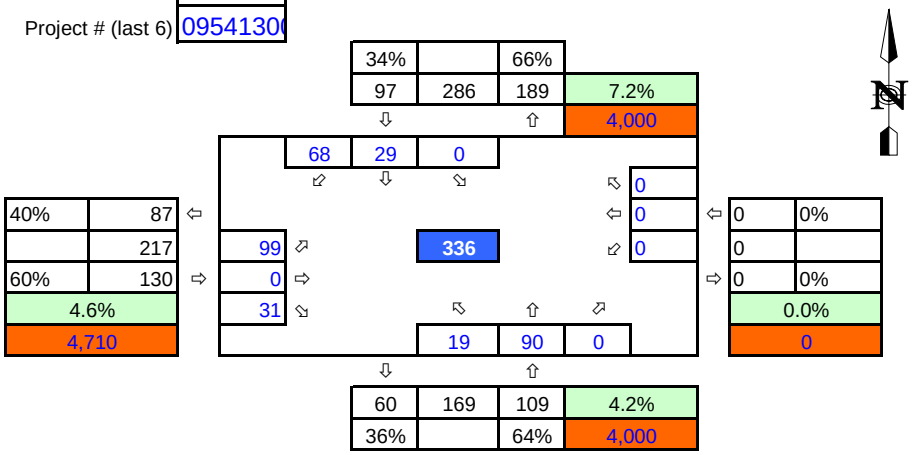


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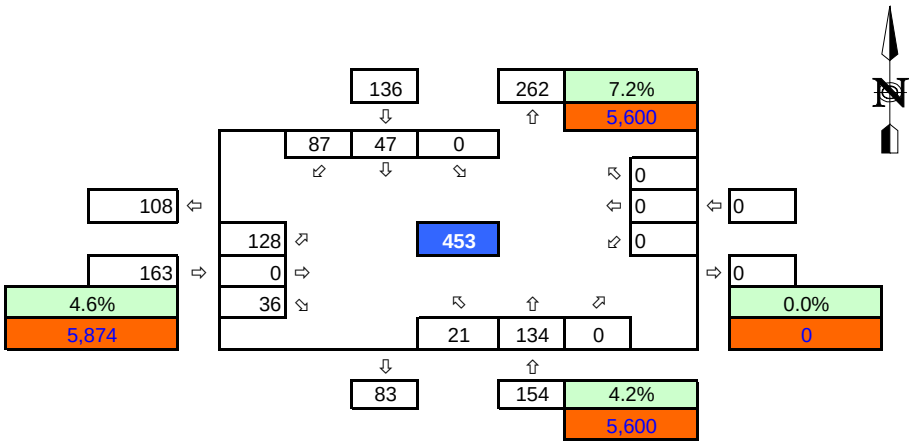
Existing K-Factor	xx%
ADT Volume	xx

Int 21 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**
Intersection #:	21
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**

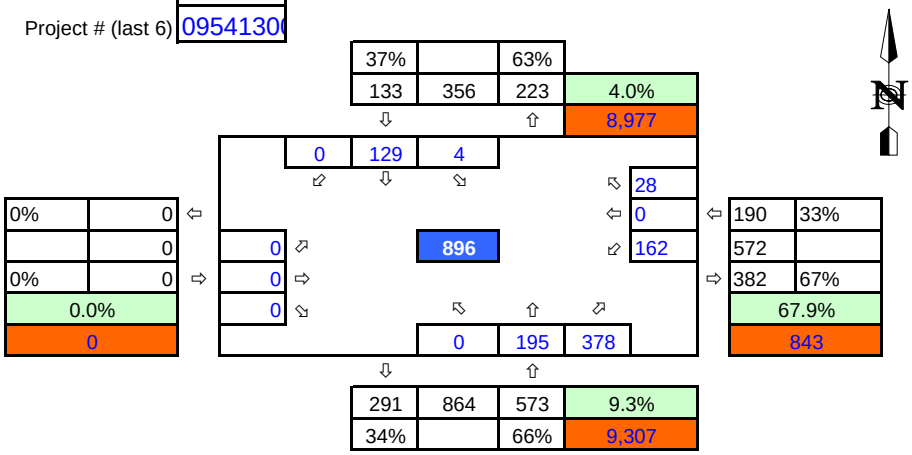


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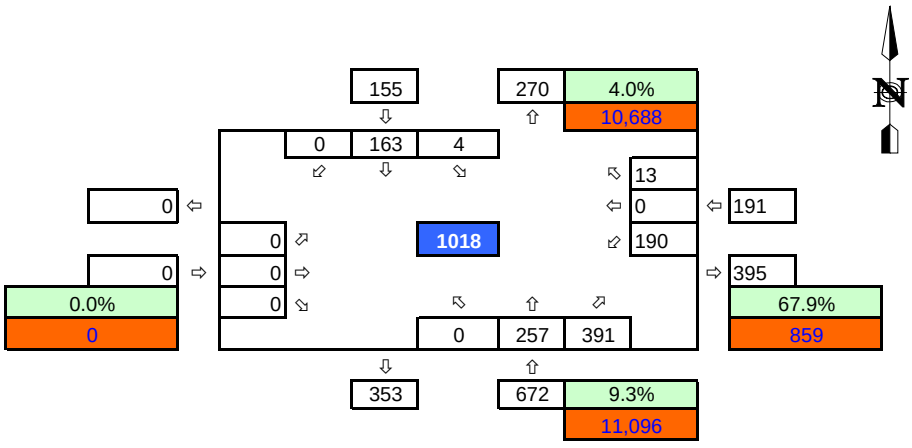
Existing K-Factor	xx%
ADT Volume	xx

Int 22 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**
Intersection #:	22
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**

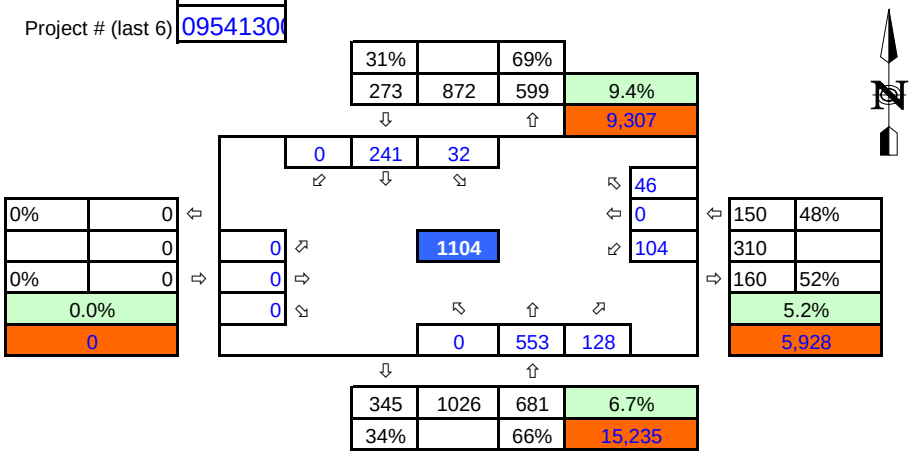


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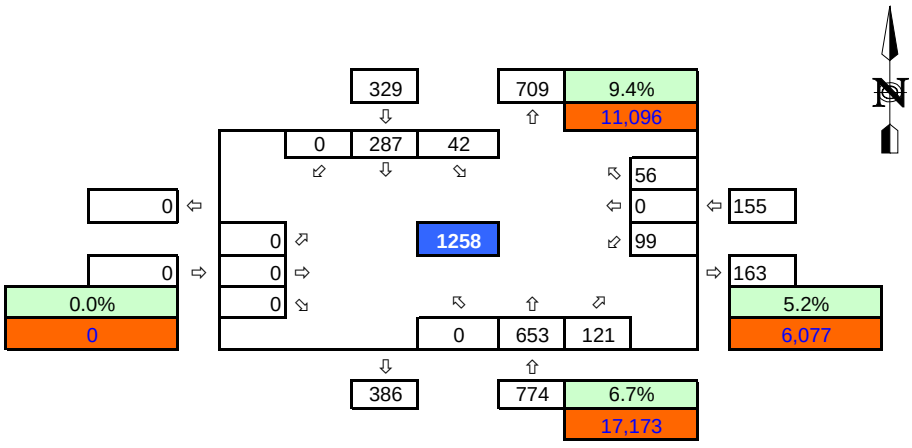
Existing K-Factor	xx%
ADT Volume	xx

Int 23 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Costco Dwy**
Intersection #:	23
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Costco Dwy**

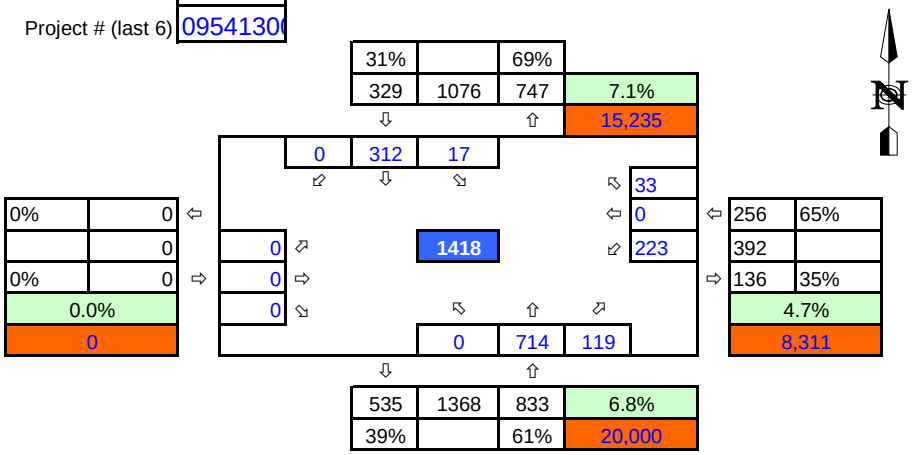


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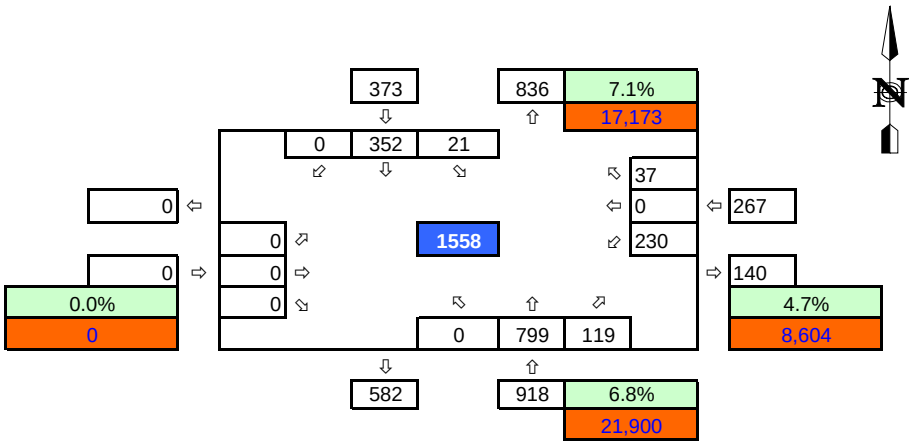
Existing K-Factor	xx%
ADT Volume	xx

Int 24 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Avati Dr**
Intersection #:	24
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Avati Dr**

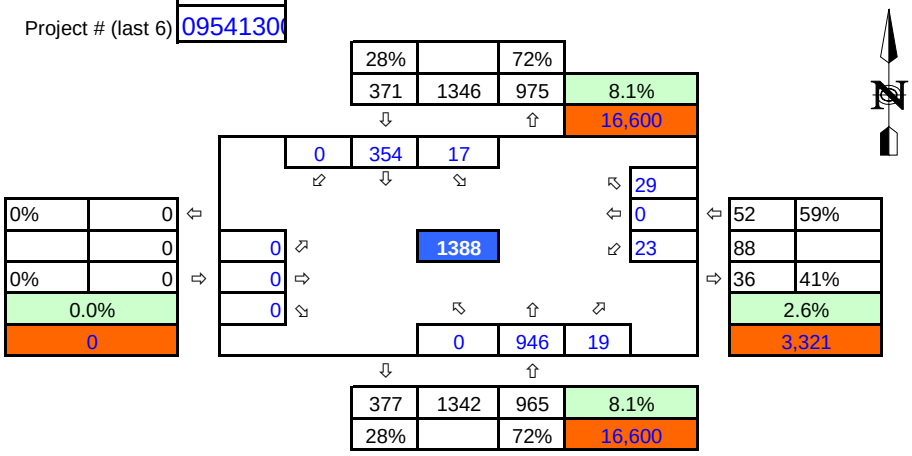


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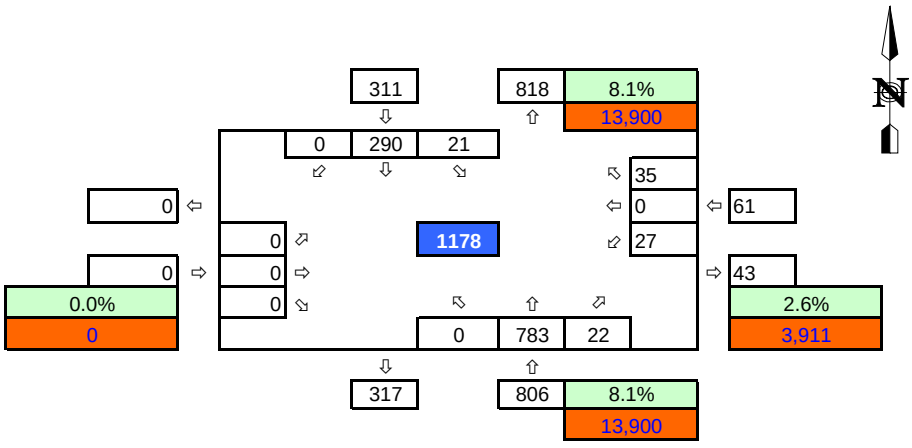
Existing K-Factor	xx%
ADT Volume	xx

Int 27 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**
Intersection #:	27
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**

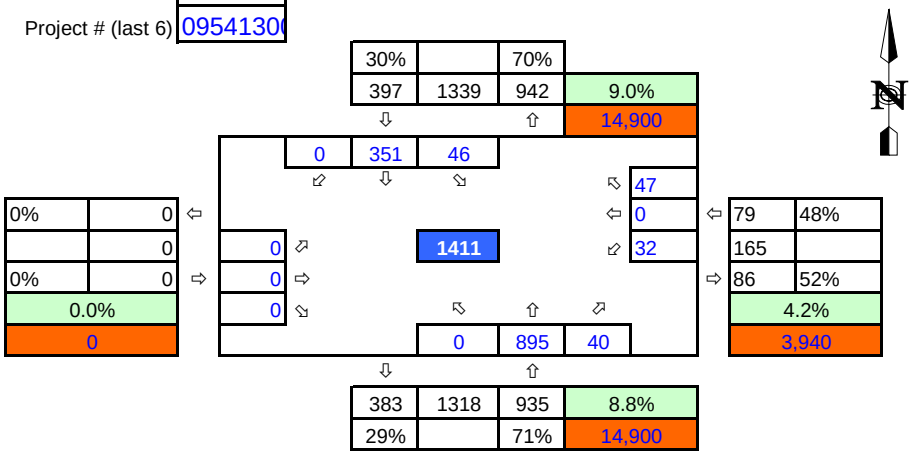


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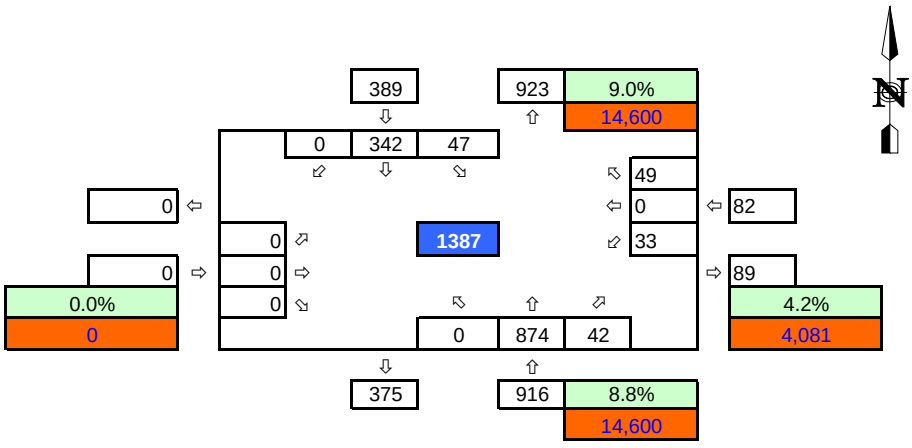
Existing K-Factor	xx%
ADT Volume	xx

Int 28 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**
Intersection #:	28
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**

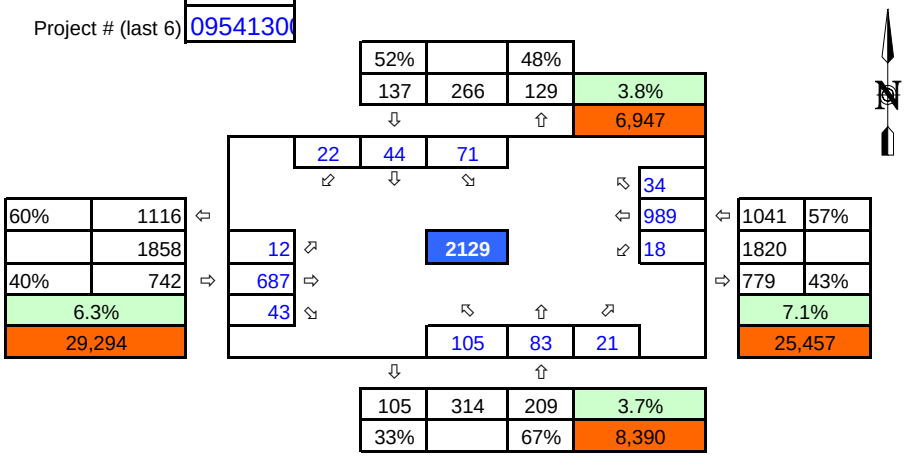


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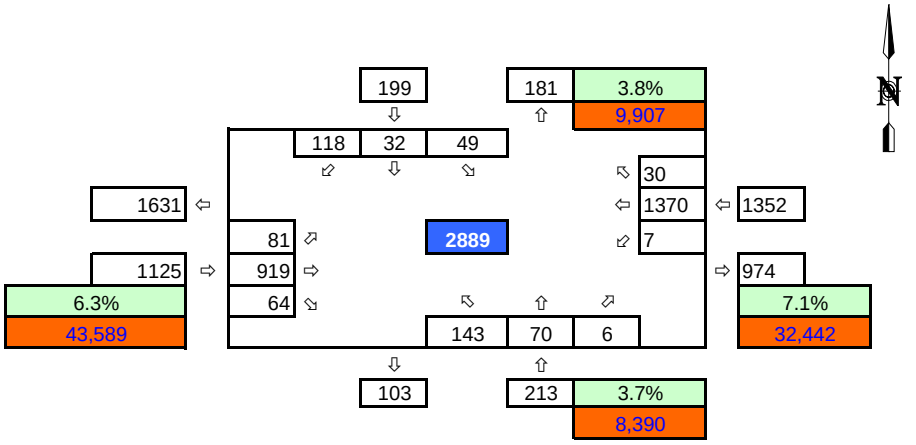
Existing K-Factor	xx%
ADT Volume	xx

Int 1 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Garnet Ave**
Intersection #:	1
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Garnet Ave**

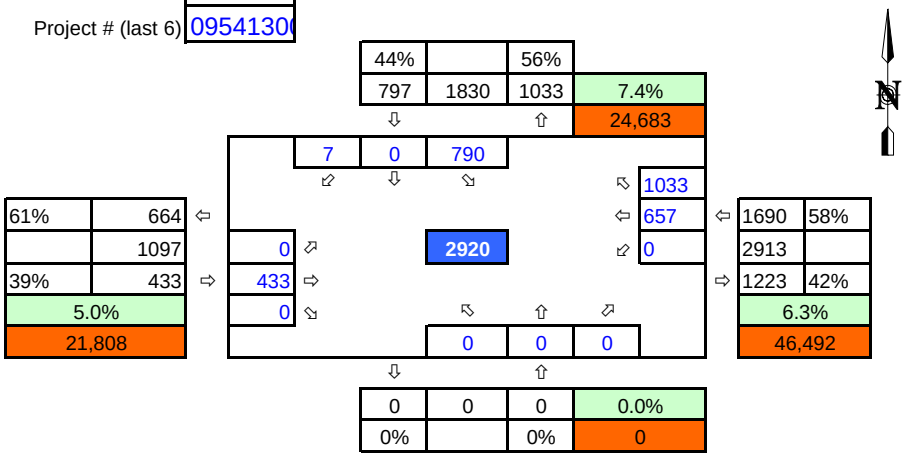


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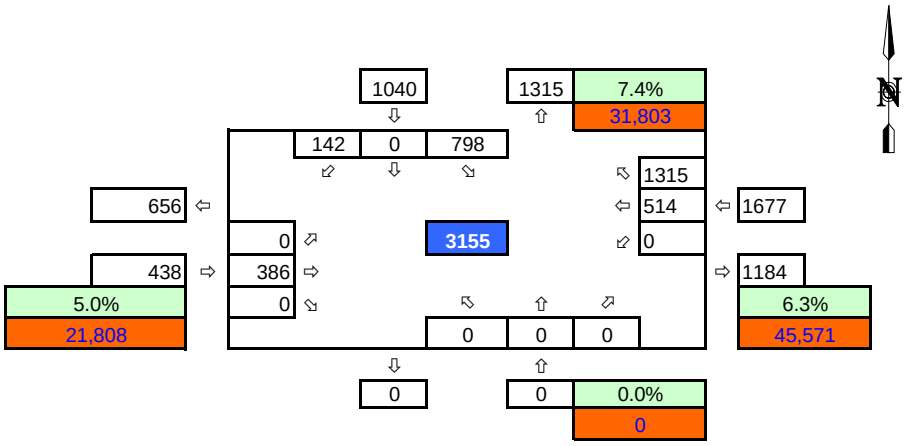
Existing K-Factor	xx%
ADT Volume	xx

Int 2 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Garnet Ave**
E/W Street:	**Balboa Ave / Garnet Ave**
Intersection #:	2
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Garnet Ave**
E/W Street:	**Balboa Ave / Garnet Ave**

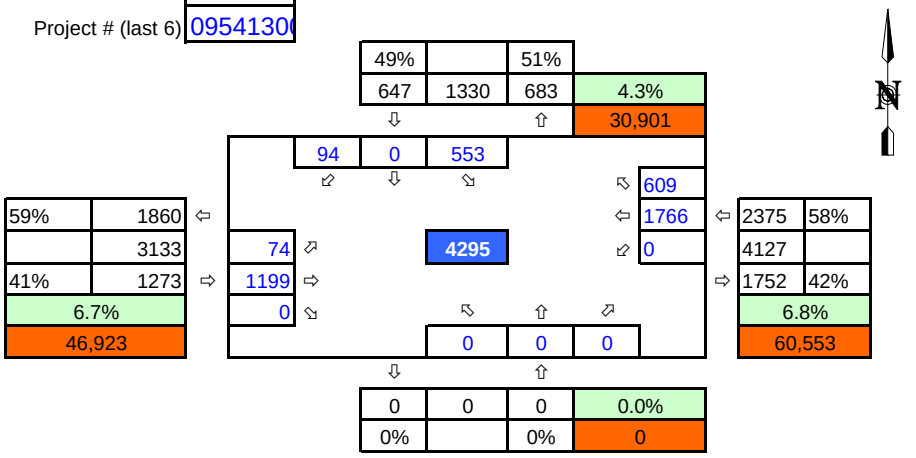


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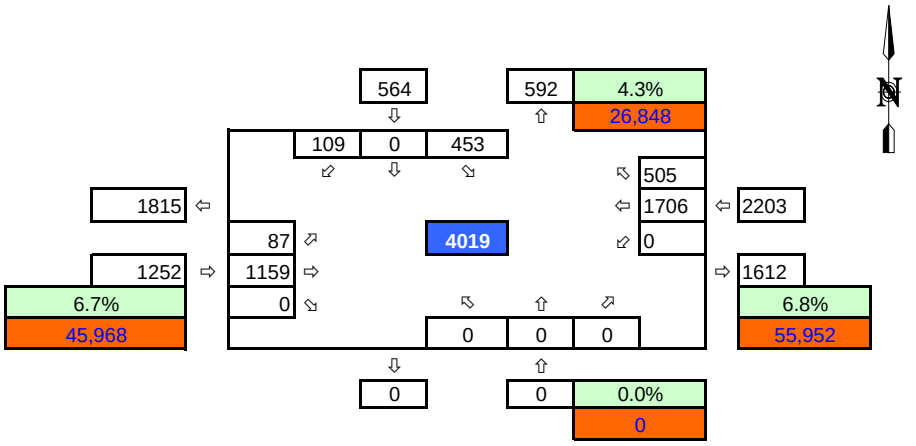
Existing K-Factor	xx%
ADT Volume	xx

Int 3 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**
Intersection #:	3
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**

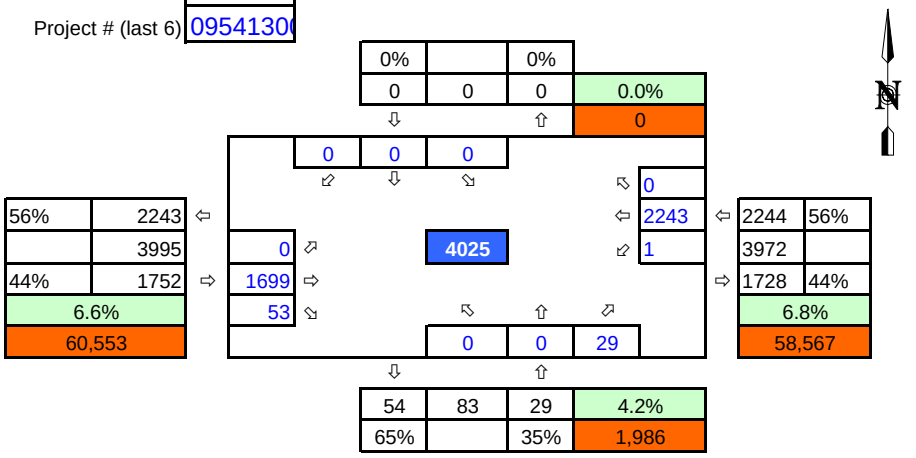


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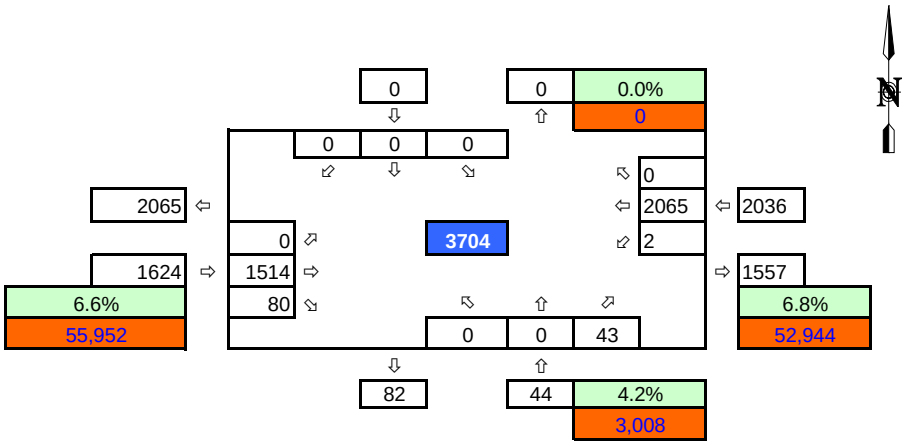
Existing K-Factor	xx%
ADT Volume	xx

Int 4 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Bond St**
E/W Street:	**Garnet Ave**
Intersection #:	4
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Bond St**
E/W Street:	**Garnet Ave**

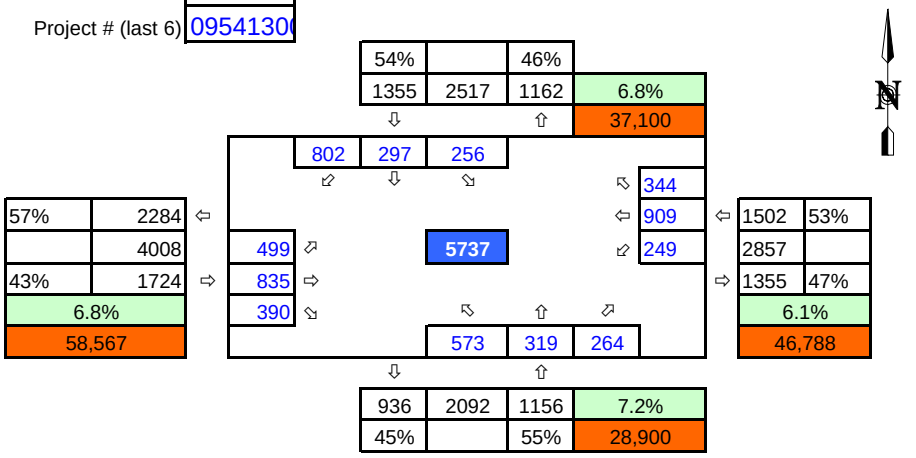


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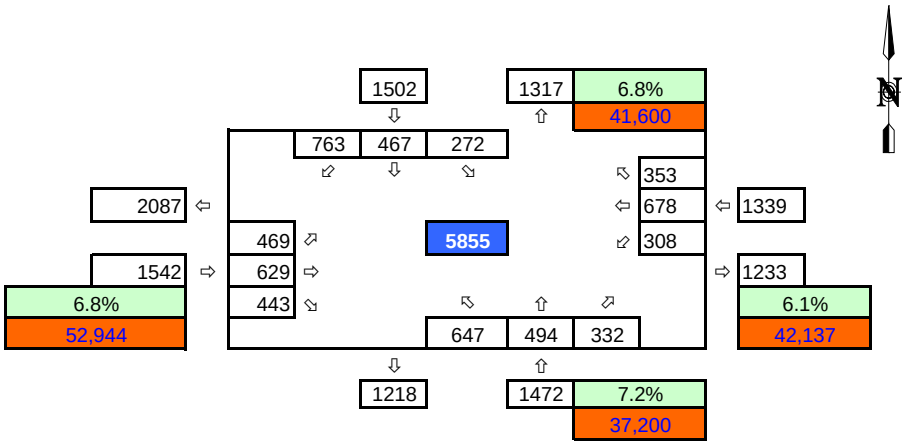
Existing K-Factor	xx%
ADT Volume	xx

Int 5 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**
Intersection #:	5
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**

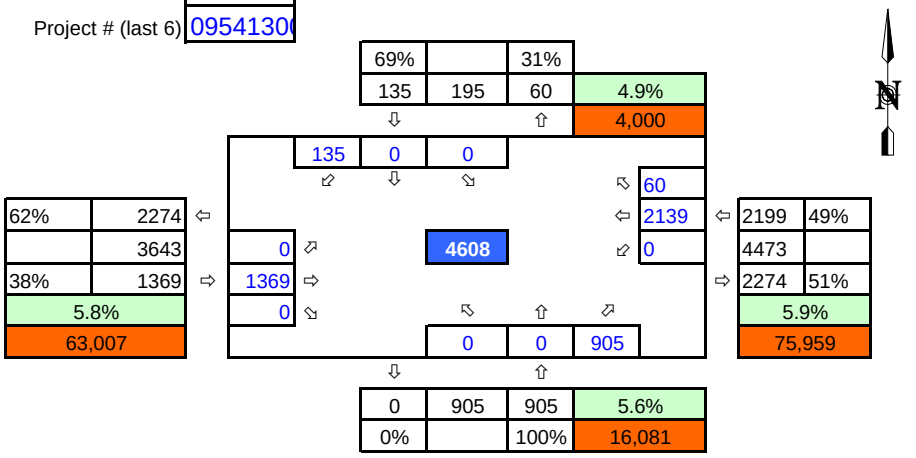


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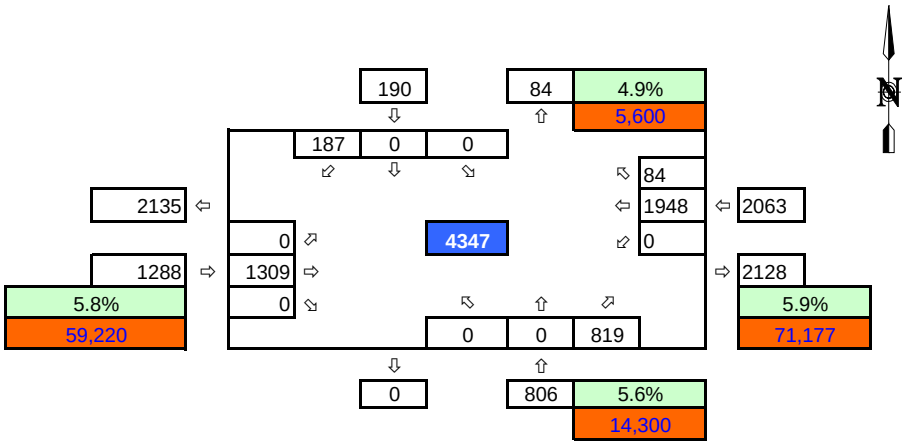
Existing K-Factor	xx%
ADT Volume	xx

Int 6 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**
Intersection #:	6
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**

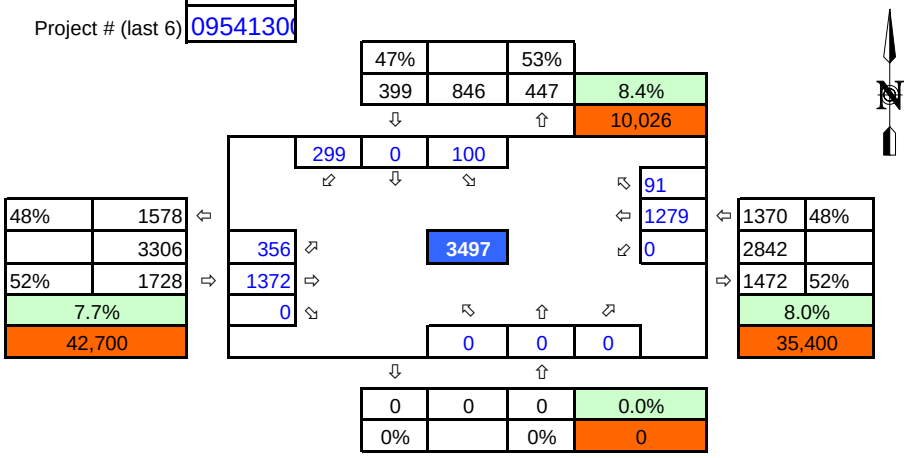


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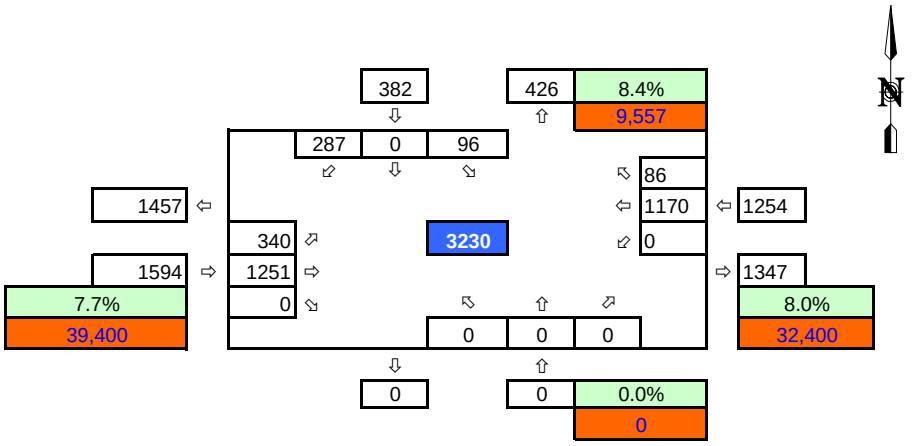
Existing K-Factor	xx%
ADT Volume	xx

Int 8 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**
Intersection #:	8
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**

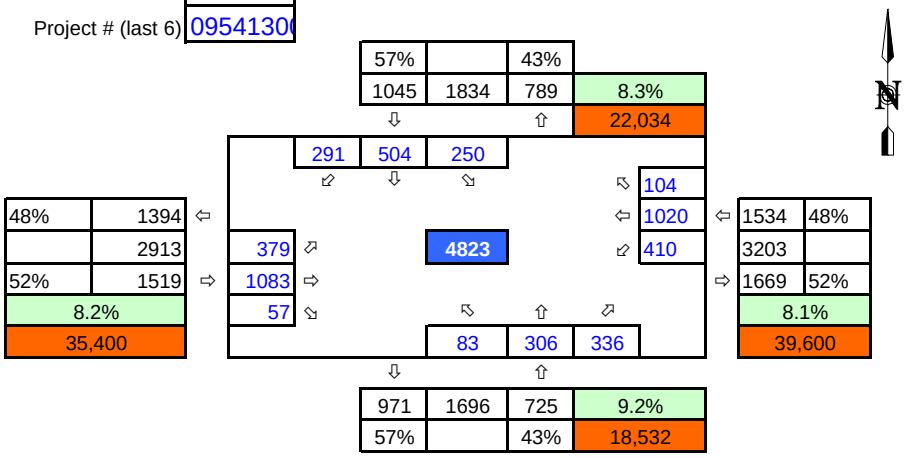


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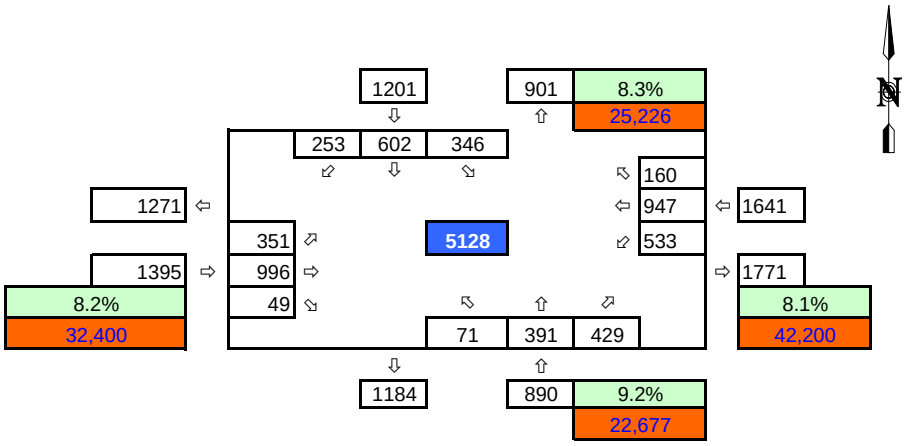
Existing K-Factor	xx%
ADT Volume	xx

Int 9 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**
Intersection #:	9
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**

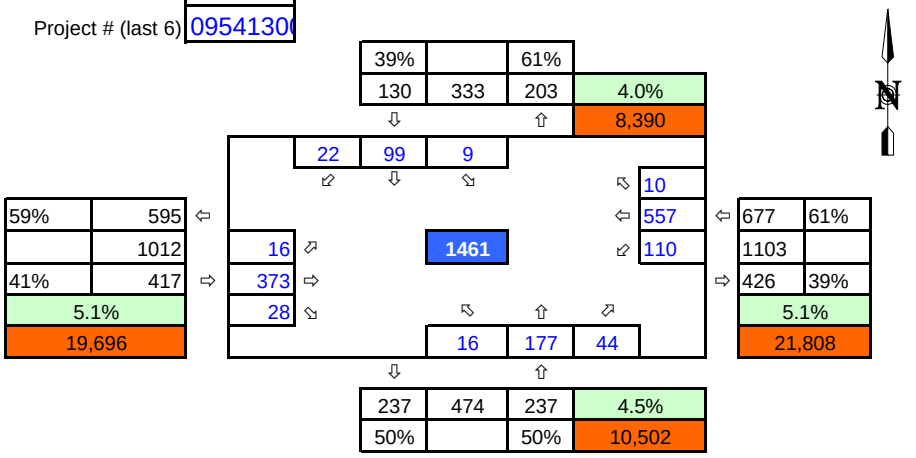


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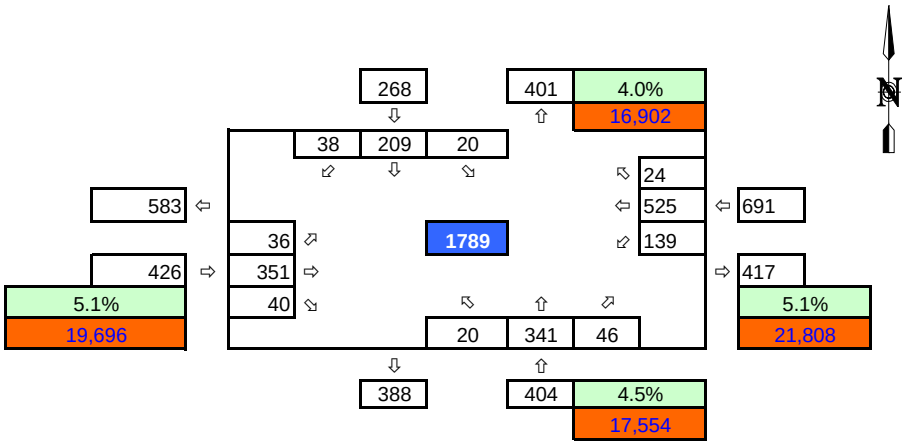
Existing K-Factor	xx%
ADT Volume	xx

Int 10 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**
Intersection #:	10
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**

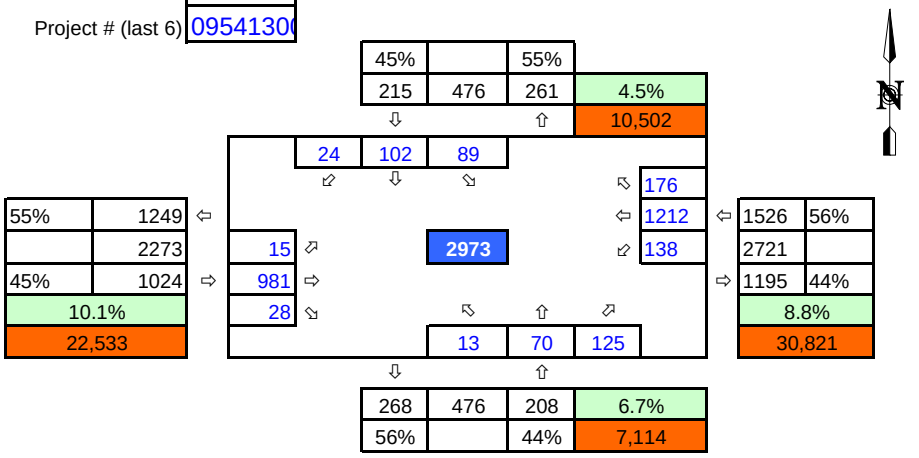


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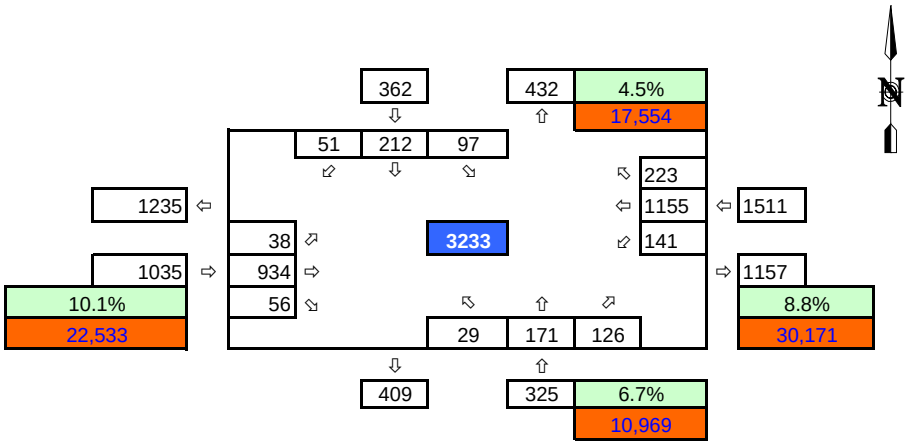
Existing K-Factor	xx%
ADT Volume	xx

Int 11 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Olney Street
E/W Street:	Grand Ave
Intersection #:	11
Project # (last 6)	0954130



Scenario:	Horizon Year Conditions
N/S Street:	Olney Street
E/W Street:	Grand Ave

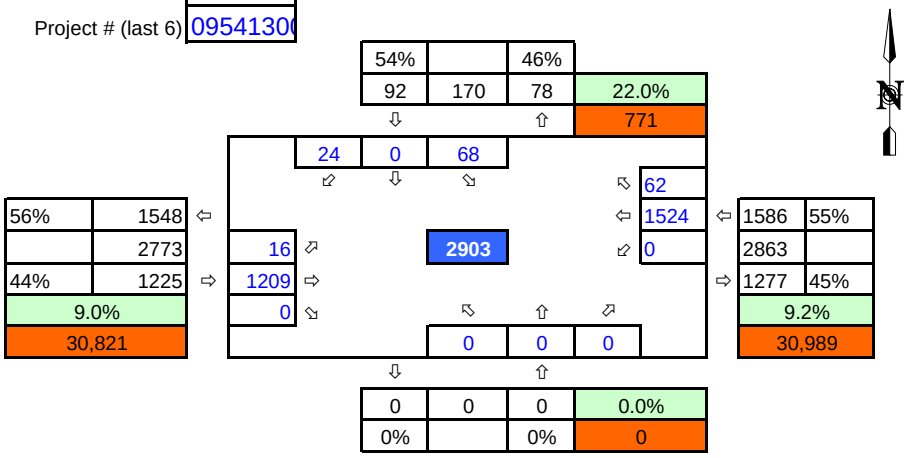


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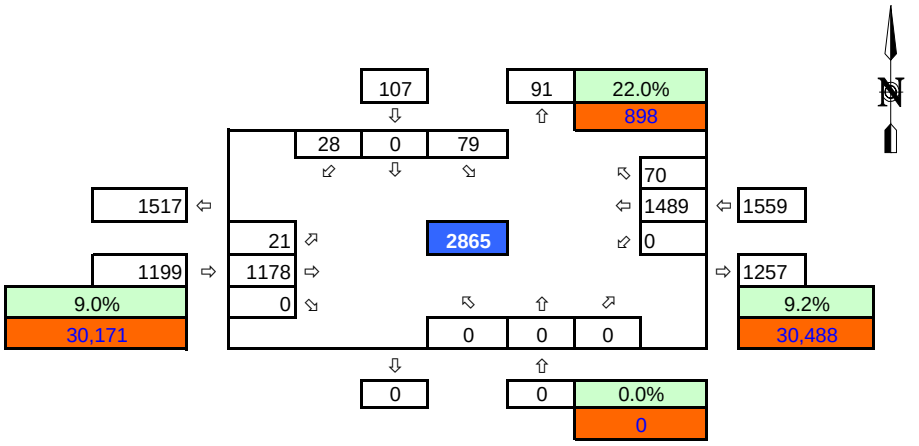
Existing K-Factor	xx%
ADT Volume	xx

Int 12 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**
Intersection #:	12
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**

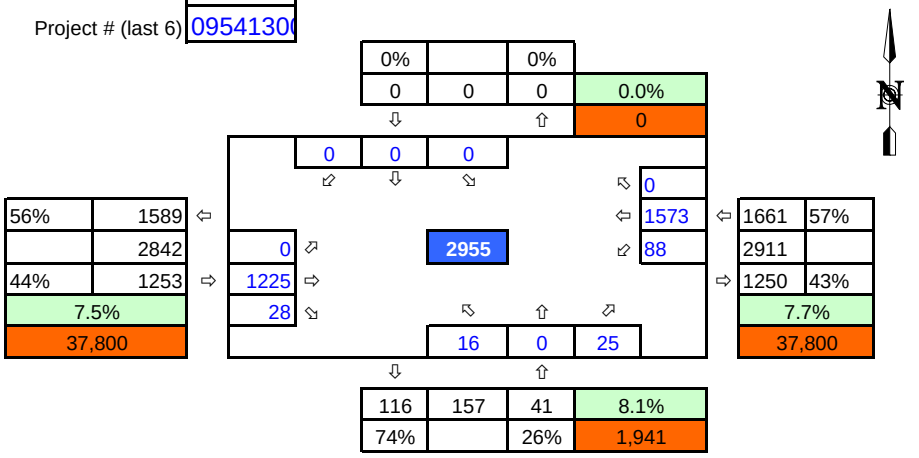


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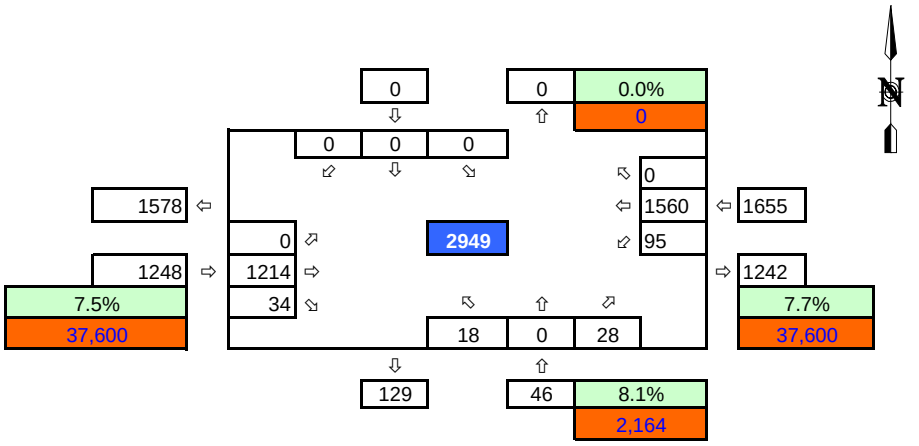
Existing K-Factor	xx%
ADT Volume	xx

Int 13 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**
Intersection #:	13
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**

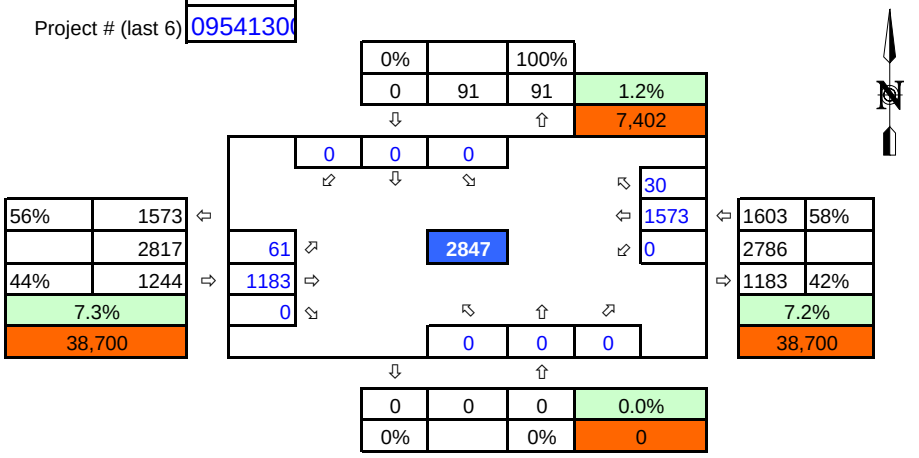


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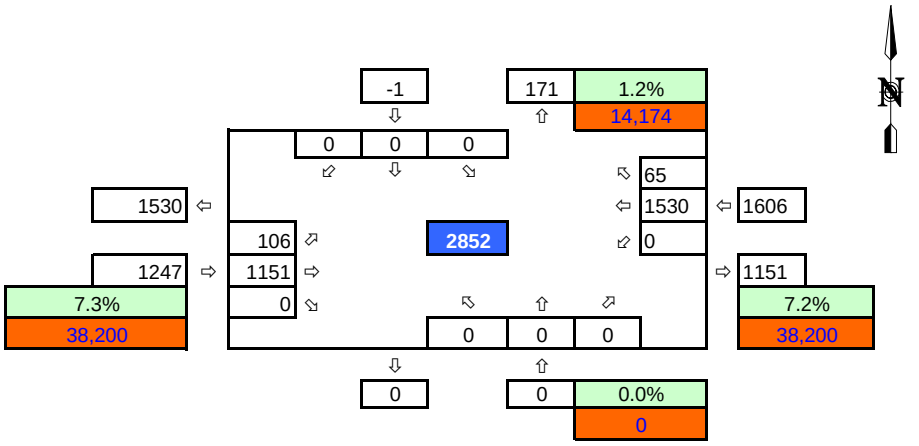
Existing K-Factor	xx%
ADT Volume	xx

Int 14 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**
Intersection #:	14
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**

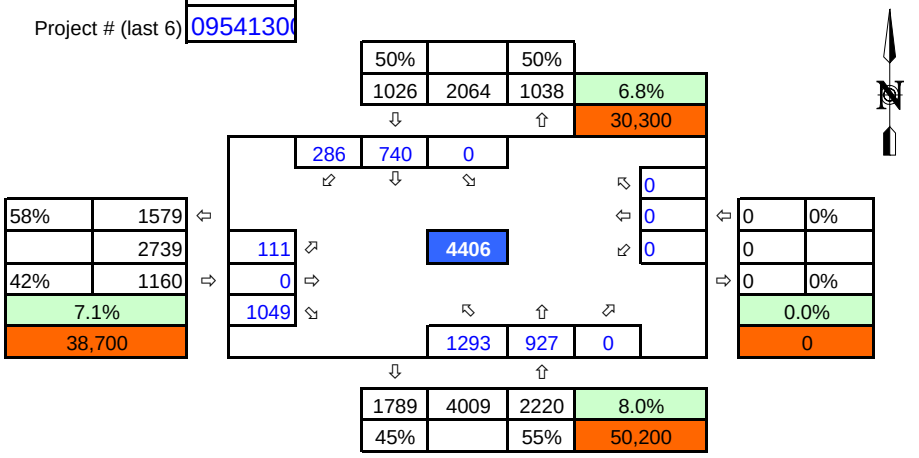


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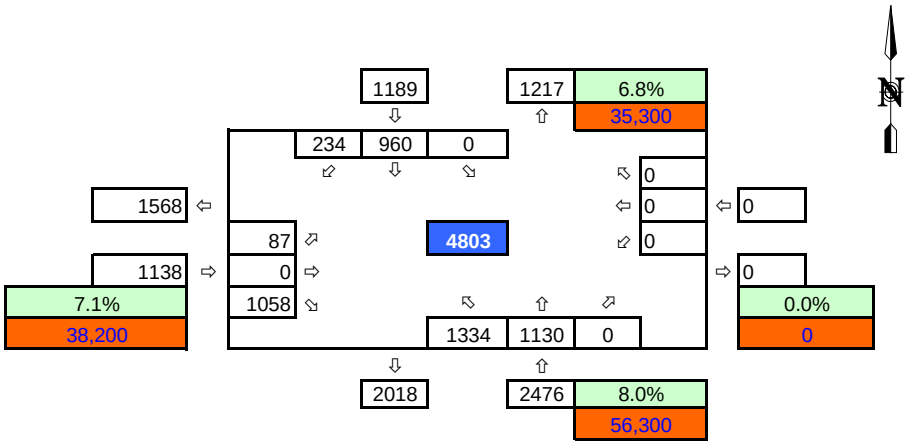
Existing K-Factor	xx%
ADT Volume	xx

Int 15 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**
Intersection #:	15
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**

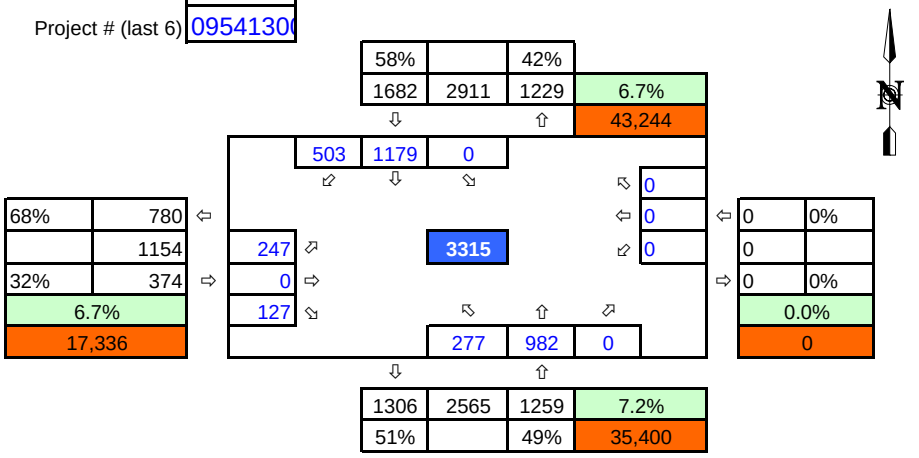


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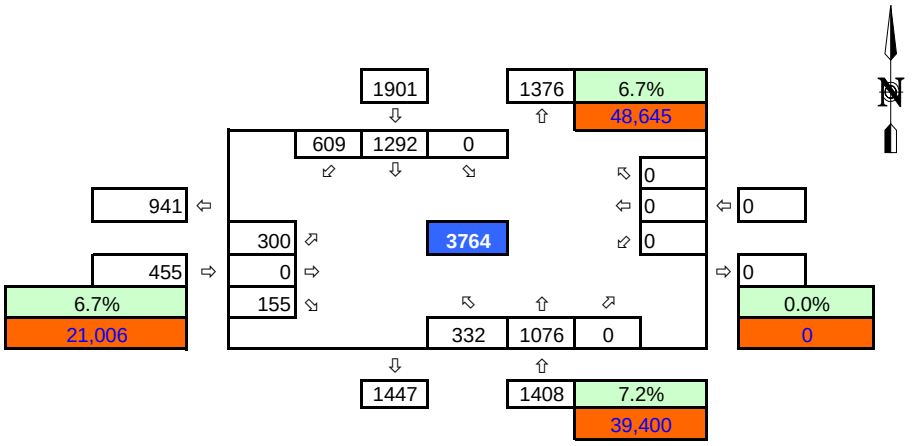
Existing K-Factor	xx%
ADT Volume	xx

Int 16 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**
Intersection #:	16
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**

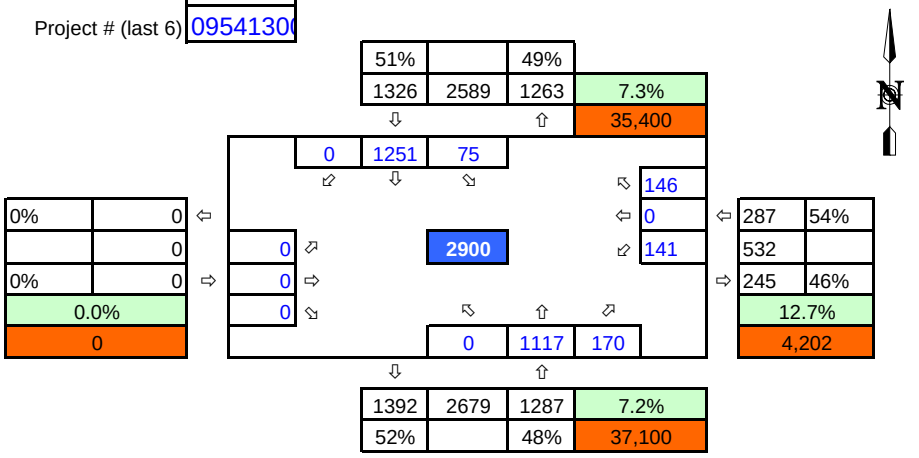


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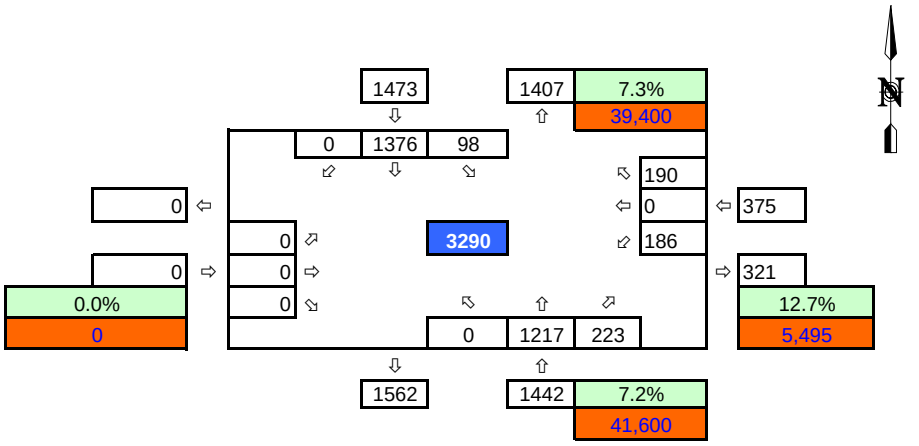
Existing K-Factor	xx%
ADT Volume	xx

Int 17 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**
Intersection #:	17
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**

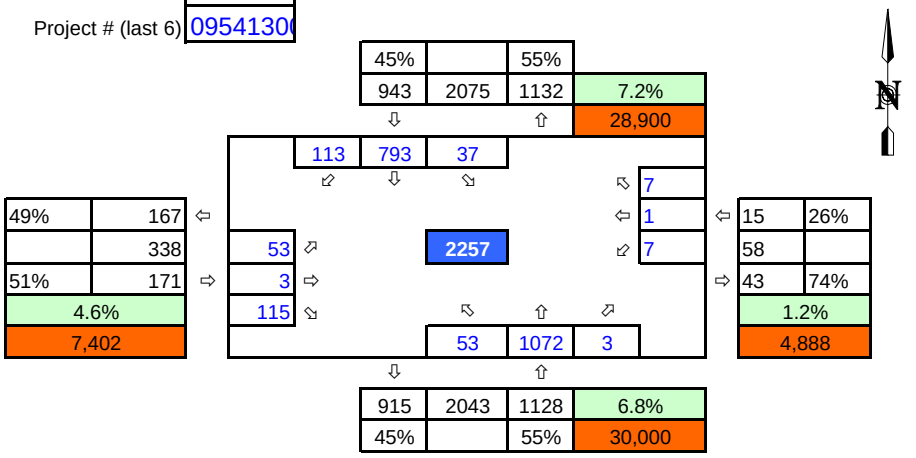


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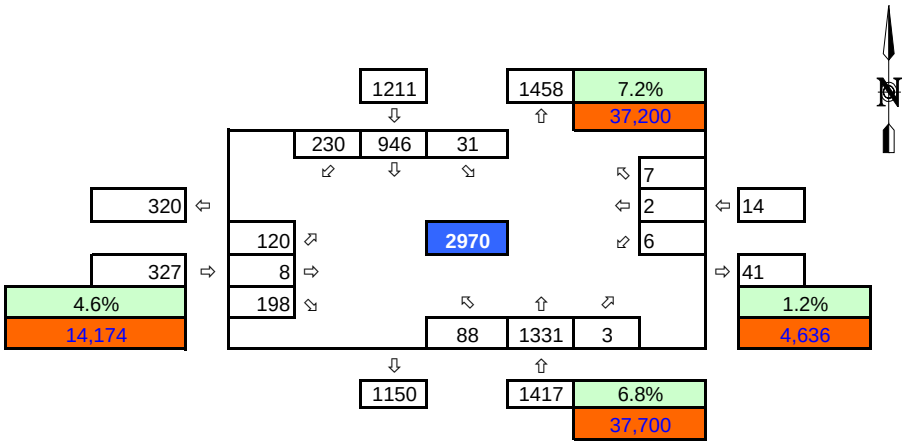
Existing K-Factor	xx%
ADT Volume	xx

Int 18 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**
Intersection #:	18
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**

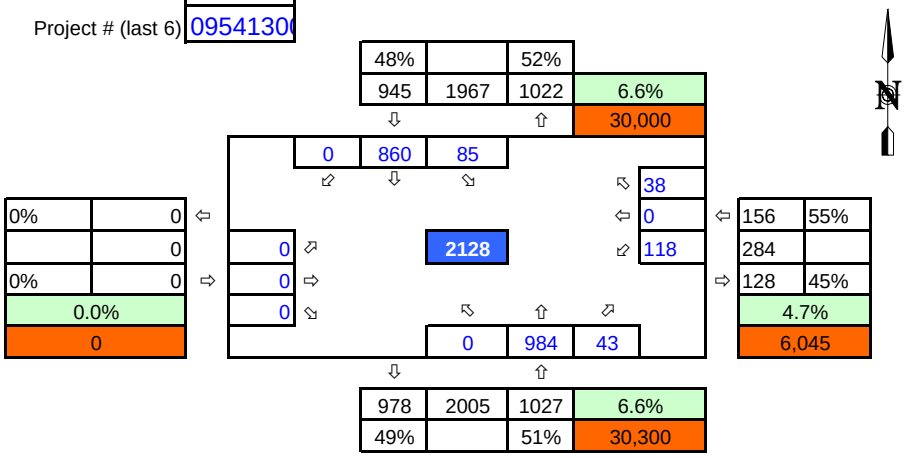


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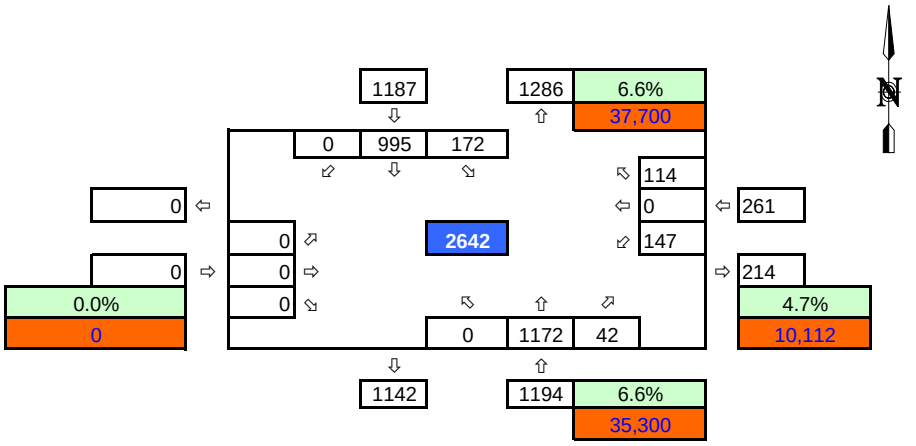
Existing K-Factor	xx%
ADT Volume	xx

Int 19 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Mission Bay Dr
E/W Street:	Driveway / Bunker Hill St
Intersection #:	19
Project # (last 6)	0954130



Scenario:	Horizon Year Conditions
N/S Street:	Mission Bay Dr
E/W Street:	Driveway / Bunker Hill St

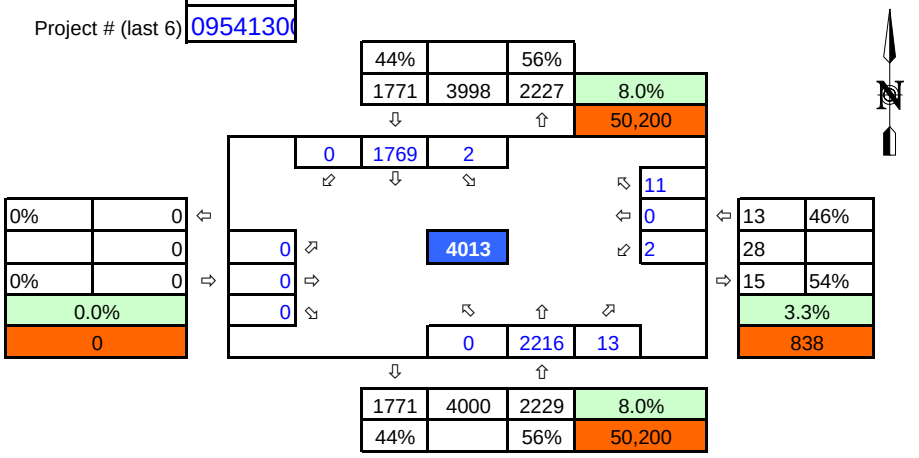


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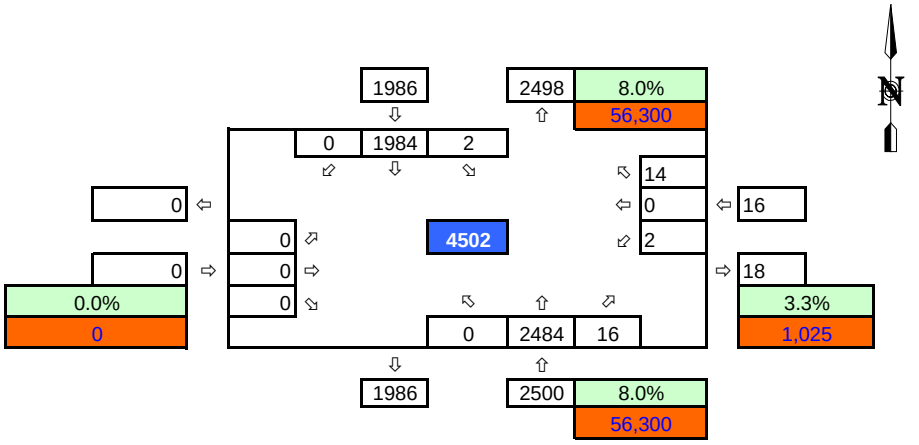
Existing K-Factor	xx%
ADT Volume	xx

Int 20 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Rosewood St**
Intersection #:	20
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Rosewood St**

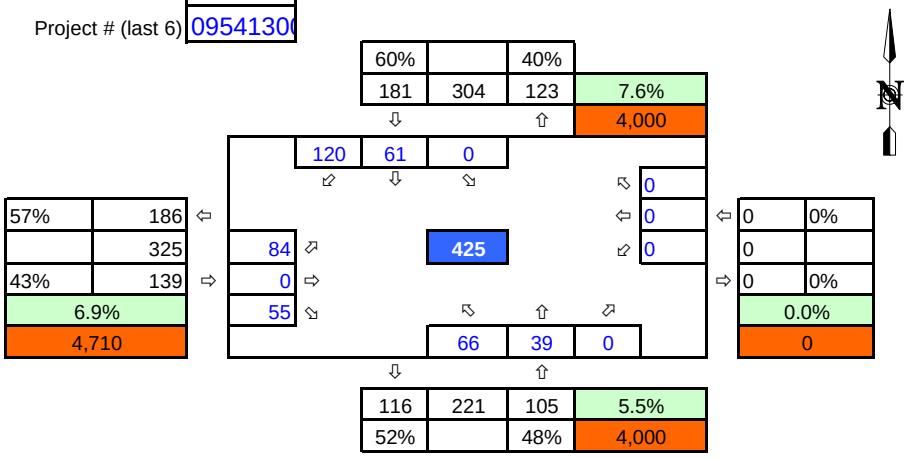


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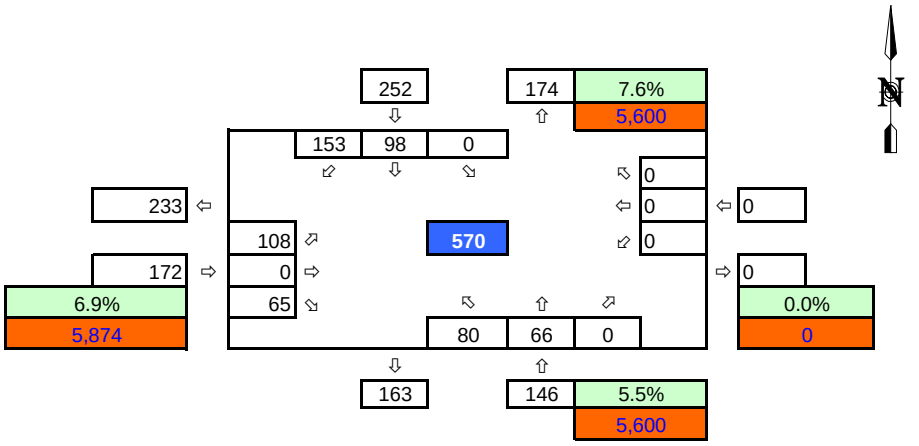
Existing K-Factor	xx%
ADT Volume	xx

Int 21 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**
Intersection #:	21
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**

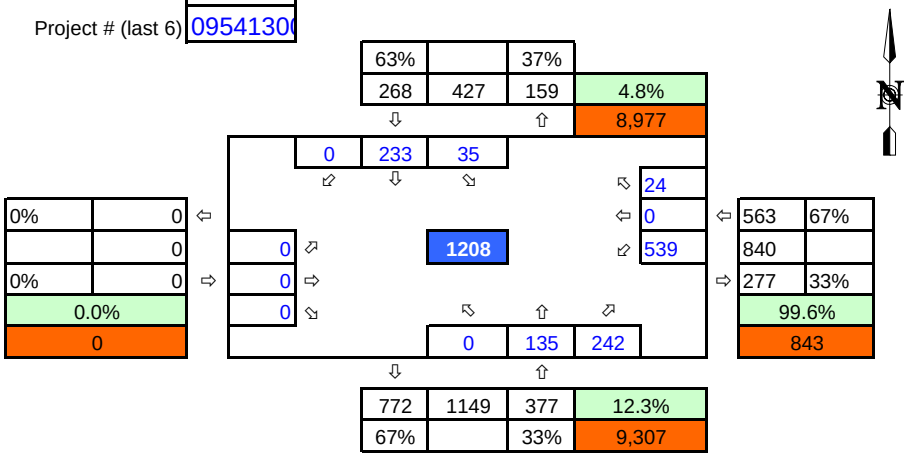


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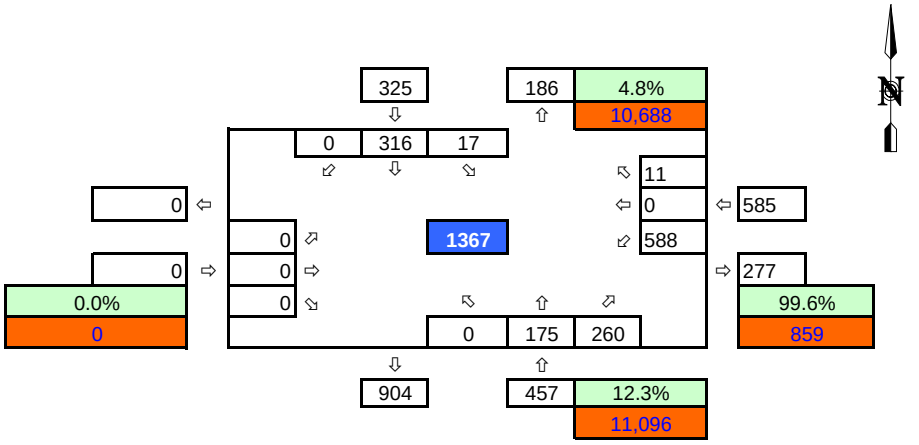
Existing K-Factor	xx%
ADT Volume	xx

Int 22 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**
Intersection #:	22
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**

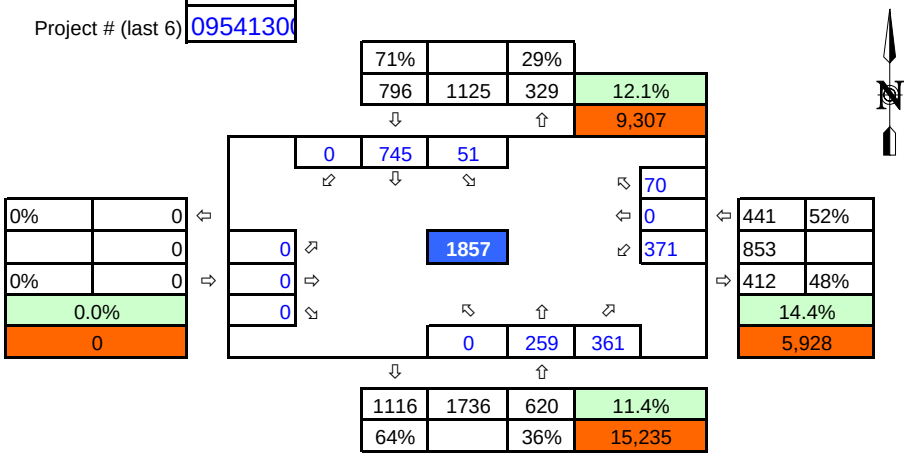


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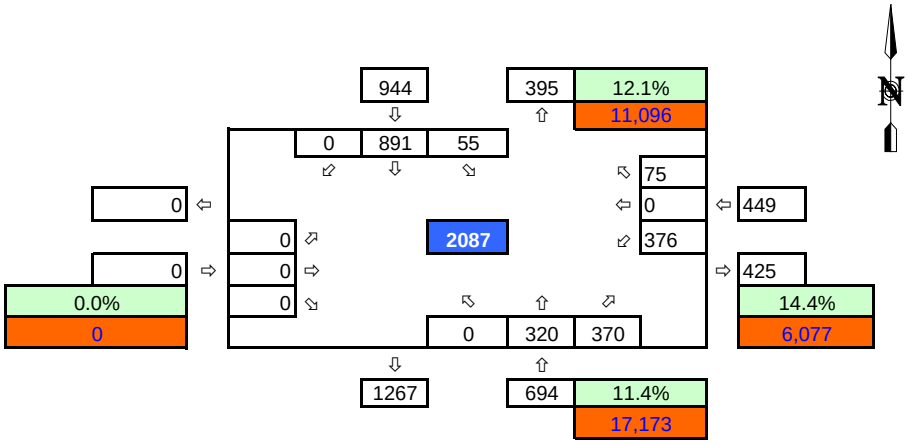
Existing K-Factor	xx%
ADT Volume	xx

Int 23 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Costco Dwy**
Intersection #:	23
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Costco Dwy**

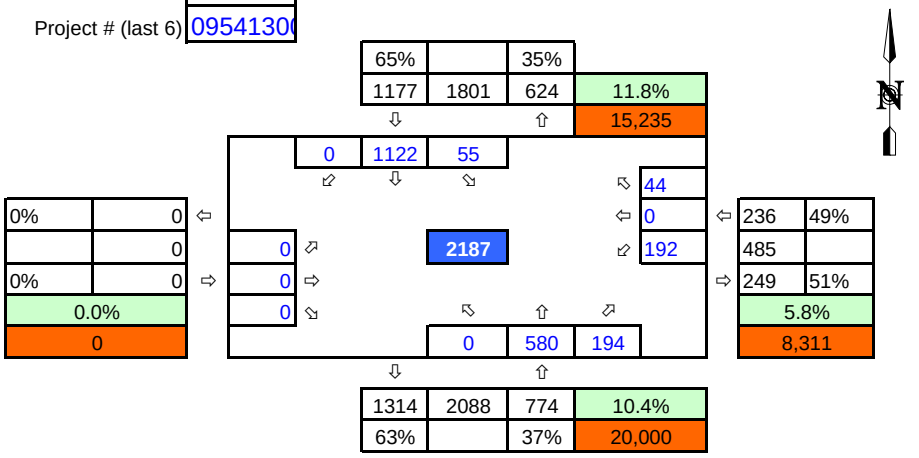


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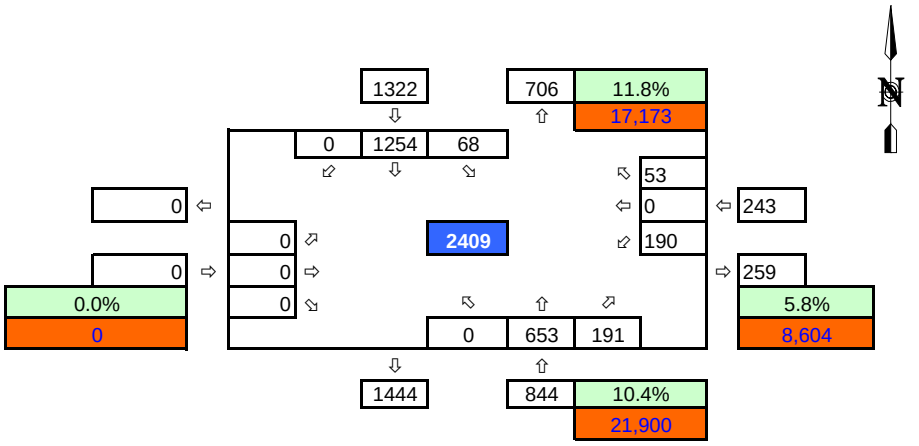
Existing K-Factor	xx%
ADT Volume	xx

Int 24 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Avati Dr**
Intersection #:	24
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Avati Dr**

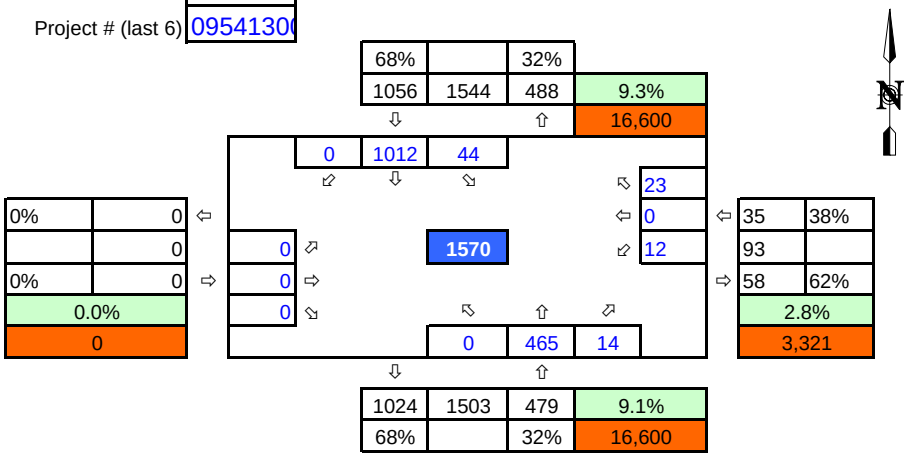


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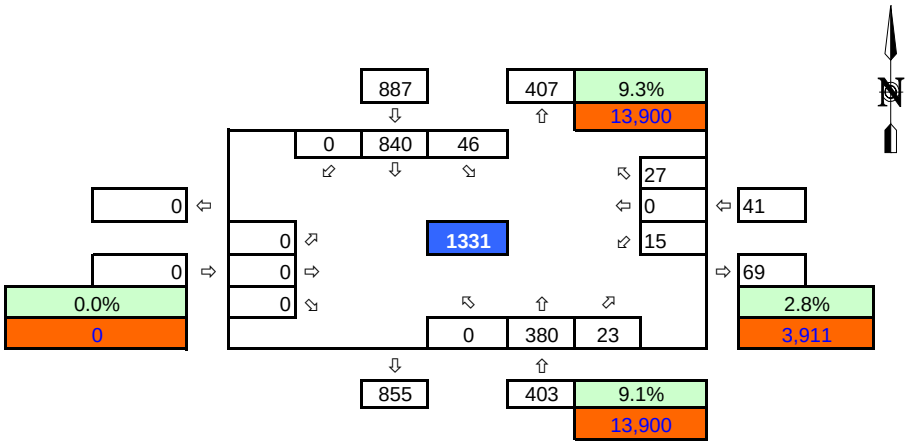
Existing K-Factor	xx%
ADT Volume	xx

Int 27 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**
Intersection #:	27
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**

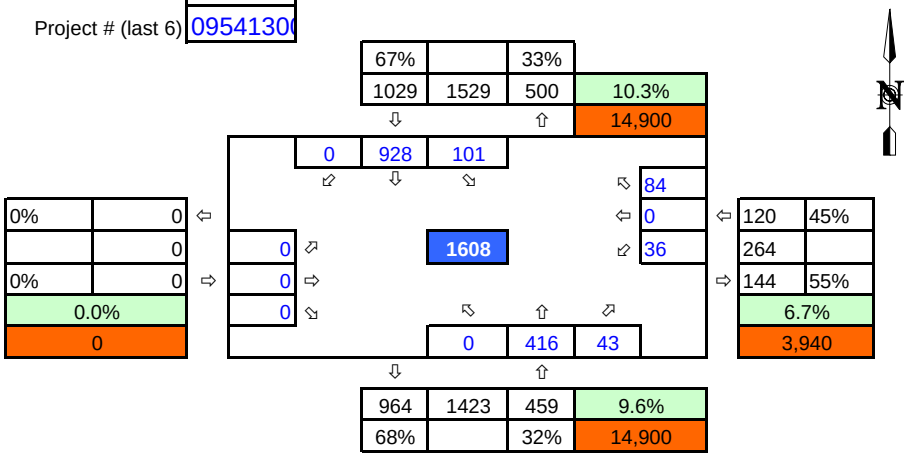


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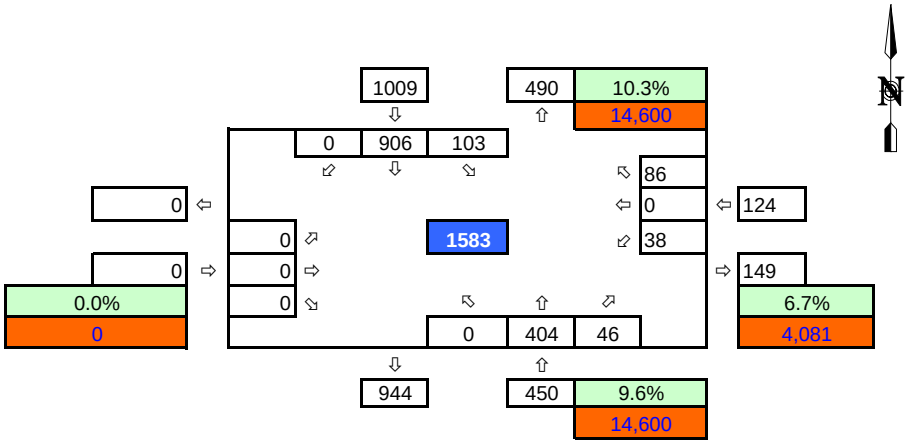
Existing K-Factor	xx%
ADT Volume	xx

Int 28 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**
Intersection #:	28
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**

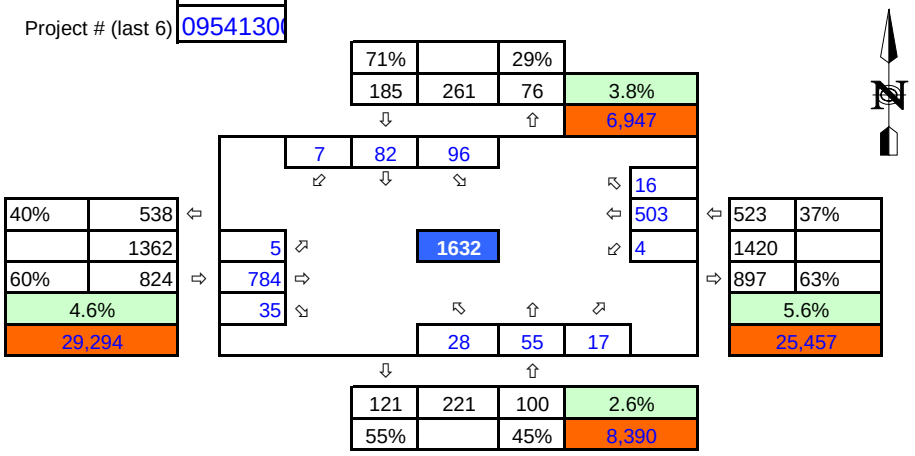


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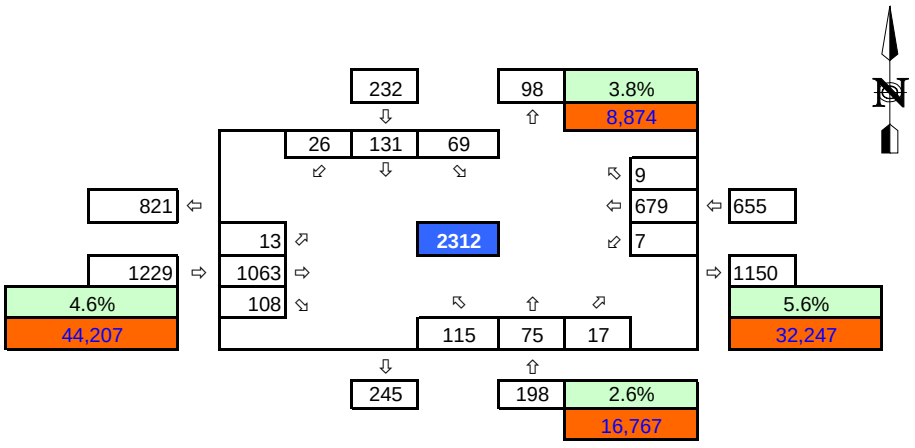
Existing K-Factor	xx%
ADT Volume	xx

Int 1 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Garnet Ave**
Intersection #:	1
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Garnet Ave**

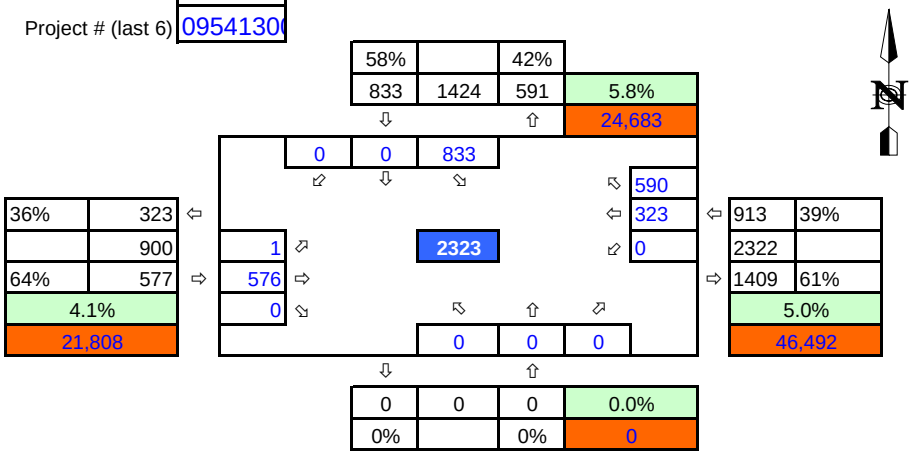


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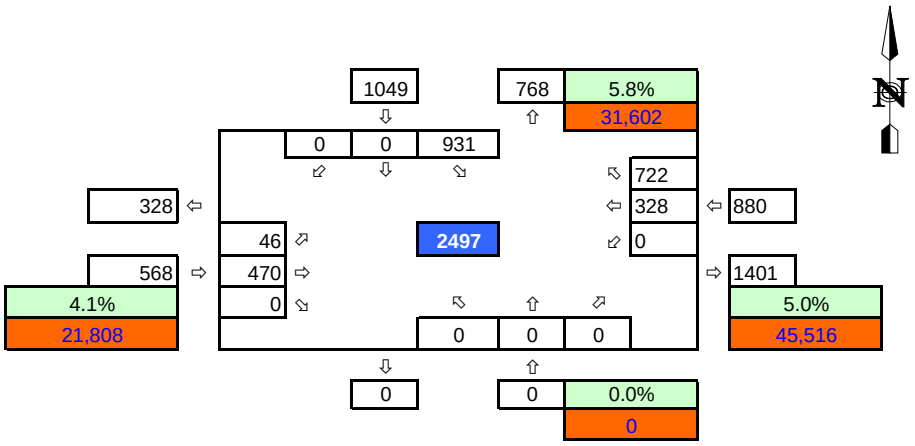
Existing K-Factor	xx%
ADT Volume	xx

Int 2 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Garnet Ave**
E/W Street:	**Balboa Ave / Garnet Ave**
Intersection #:	2
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Garnet Ave**
E/W Street:	**Balboa Ave / Garnet Ave**

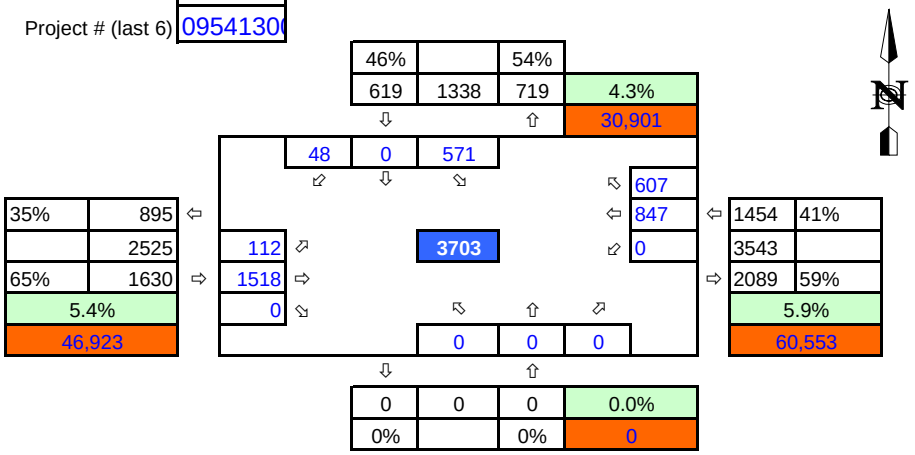


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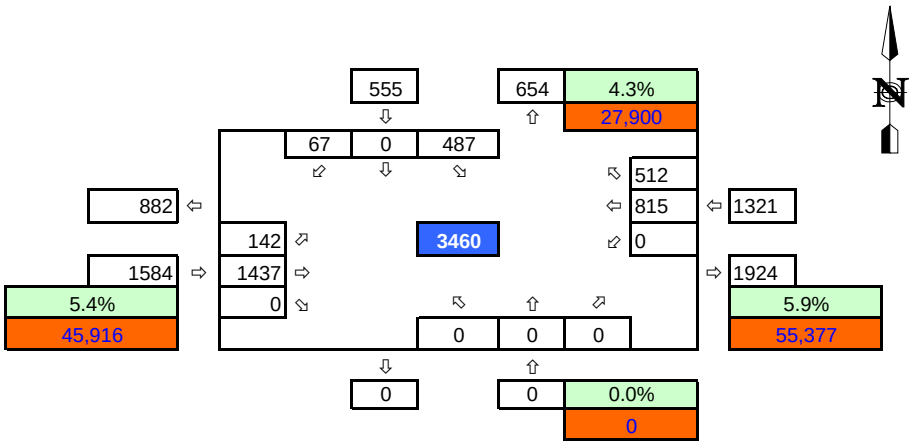
Existing K-Factor	xx%
ADT Volume	xx

Int 3 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**
Intersection #:	3
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**

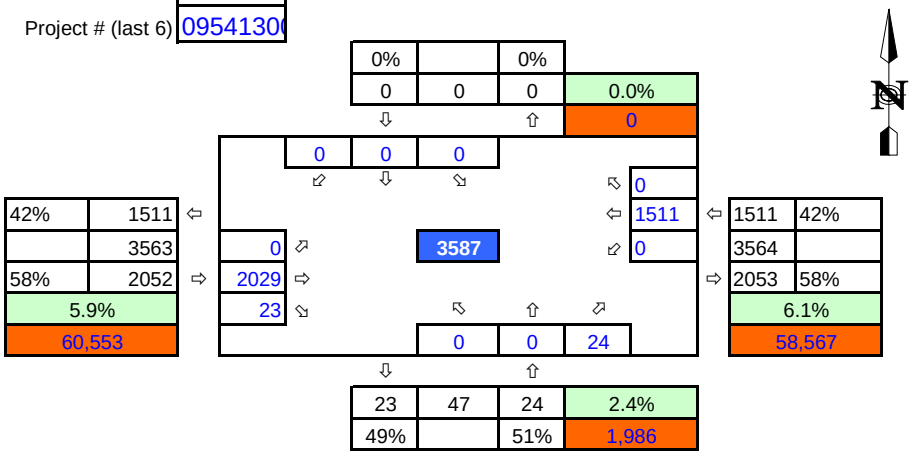


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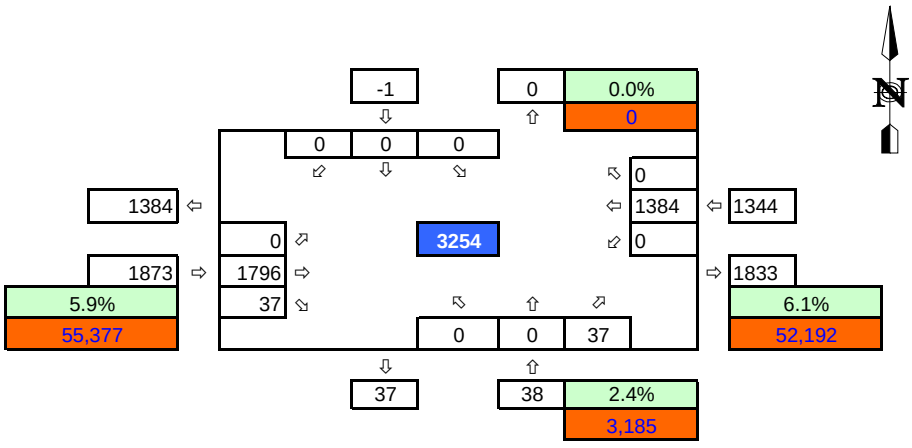
Existing K-Factor	xx%
ADT Volume	xx

Int 4 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Bond St**
E/W Street:	**Garnet Ave**
Intersection #:	4
Project # (last 6)	095413006



Scenario:	**Horizon Year Conditions**
N/S Street:	**Bond St**
E/W Street:	**Garnet Ave**

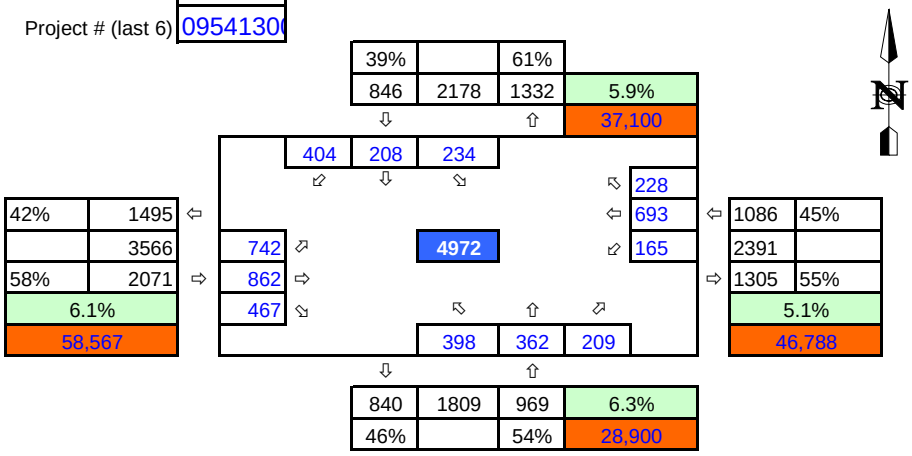


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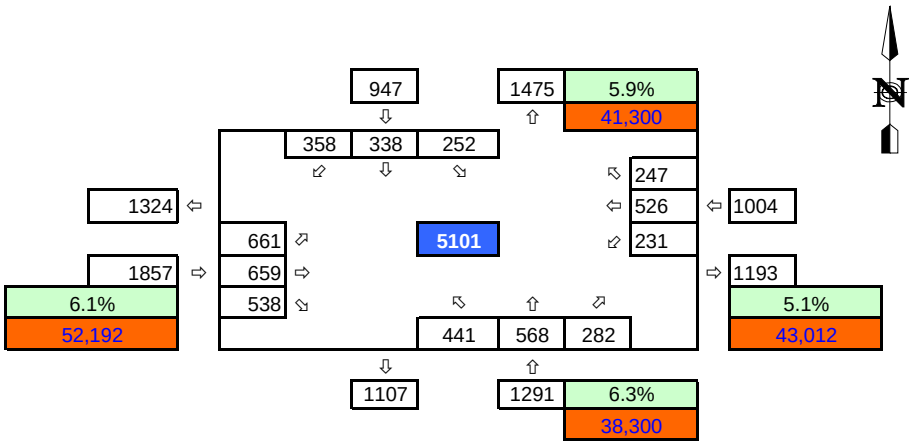
Existing K-Factor	xx%
ADT Volume	xx

Int 5 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**
Intersection #:	5
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**

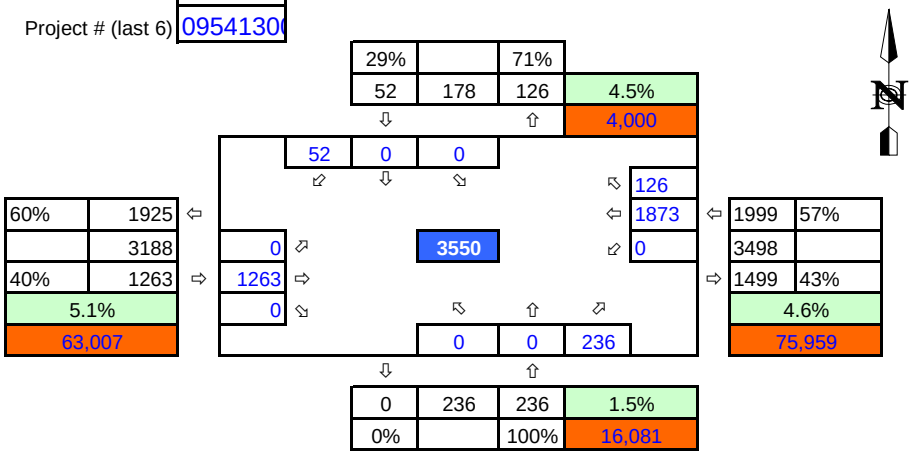


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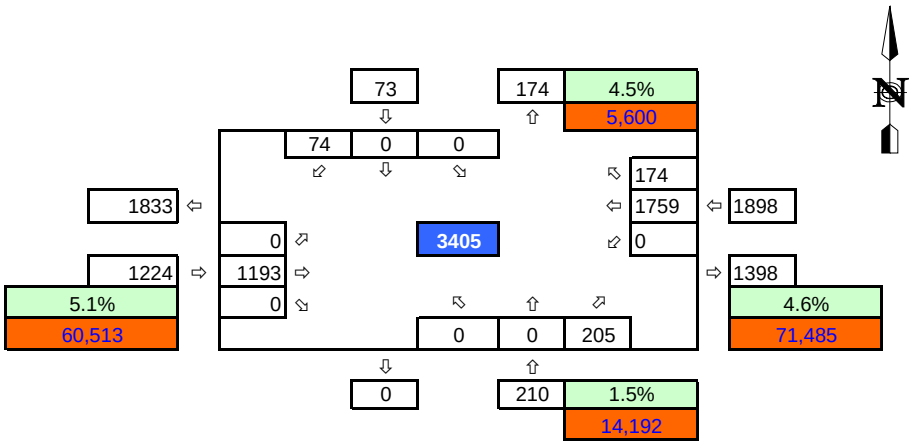
Existing K-Factor	xx%
ADT Volume	xx

Int 6 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**
Intersection #:	6
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**

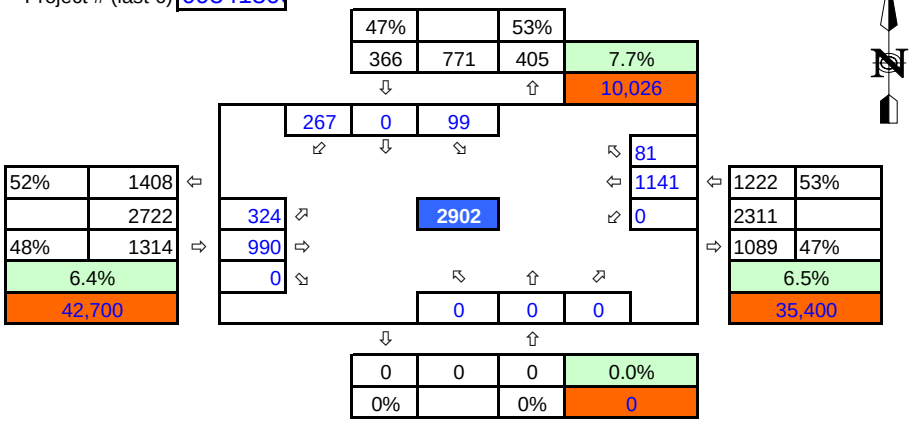


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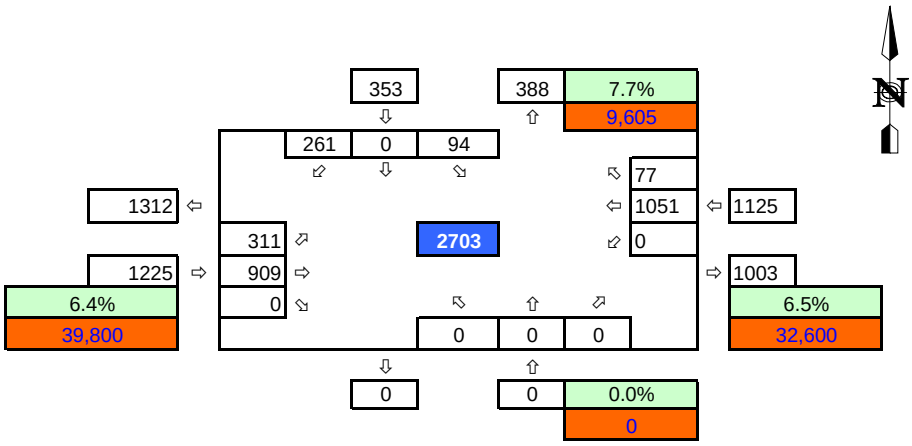
Existing K-Factor	xx%
ADT Volume	xx

Int 8 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**
Intersection #:	8
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**

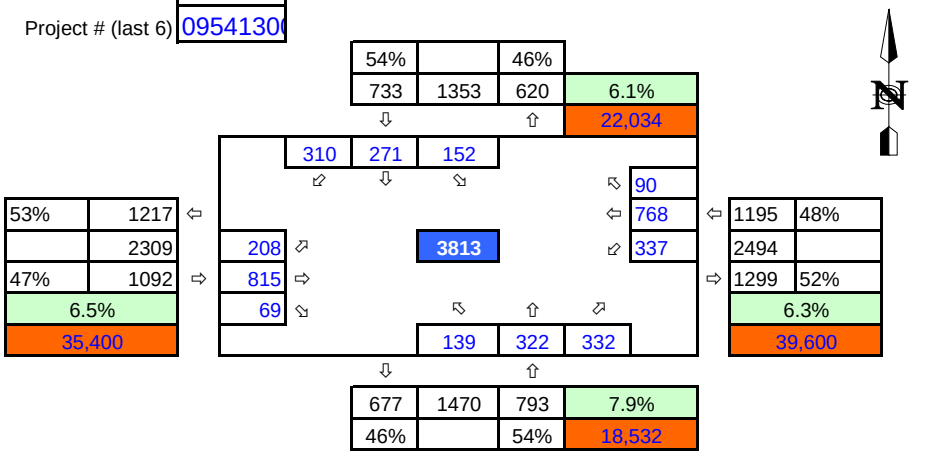


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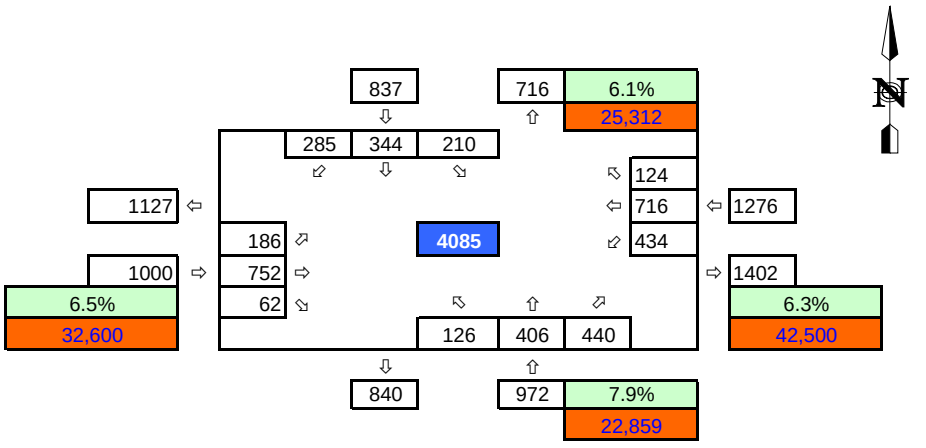
Existing K-Factor	xx%
ADT Volume	xx

Int 9 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**
Intersection #:	9
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**

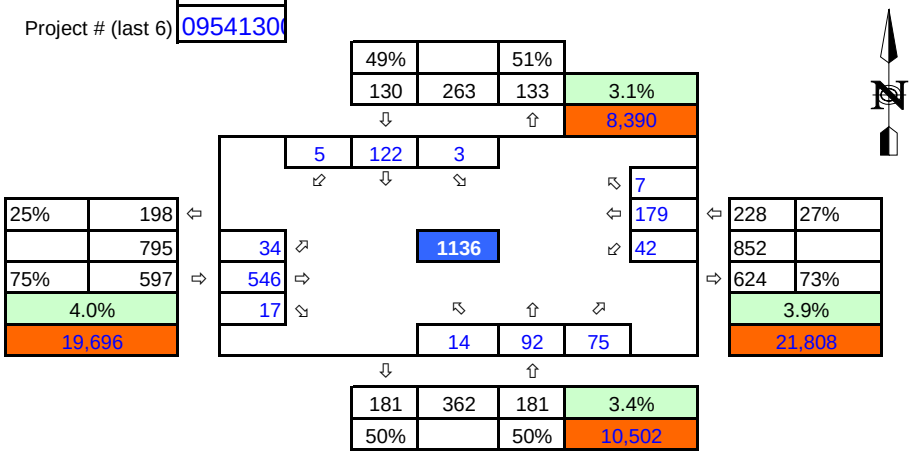


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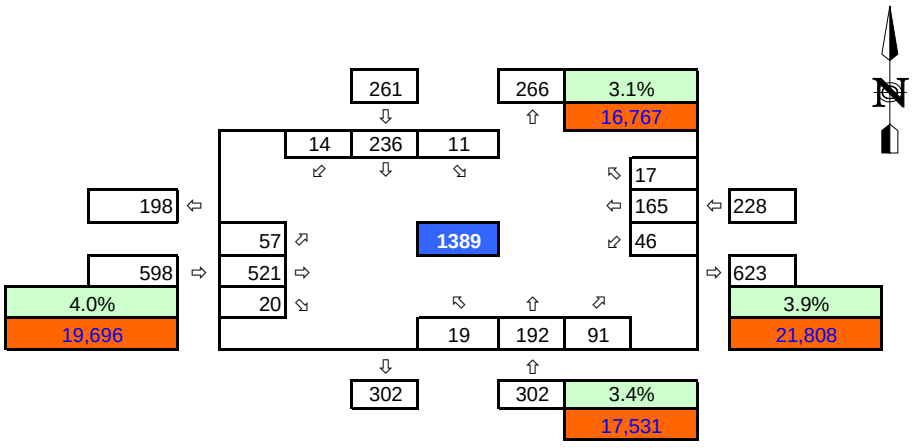
Existing K-Factor	xx%
ADT Volume	xx

Int 10 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**
Intersection #:	10
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**

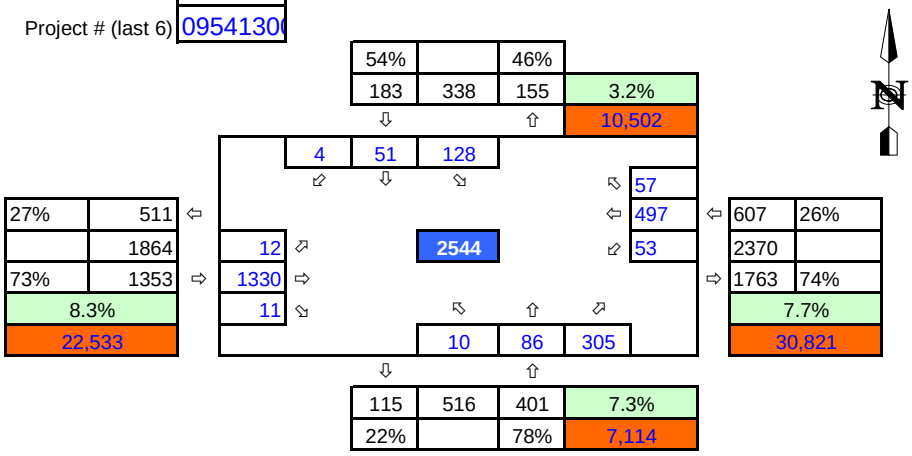


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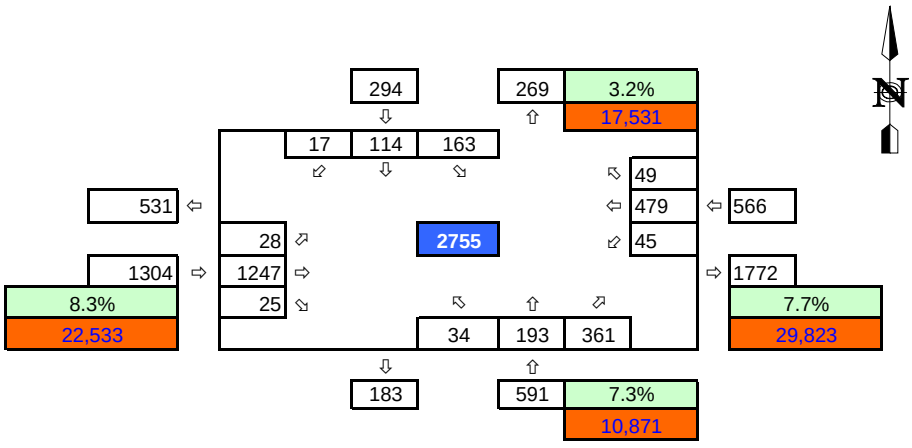
Existing K-Factor	xx%
ADT Volume	xx

Int 11 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Grand Ave**
Intersection #:	11
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Grand Ave**

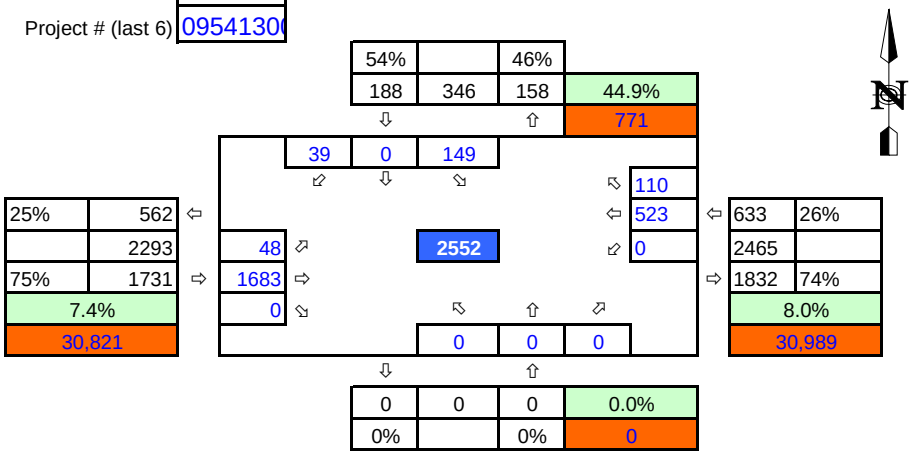


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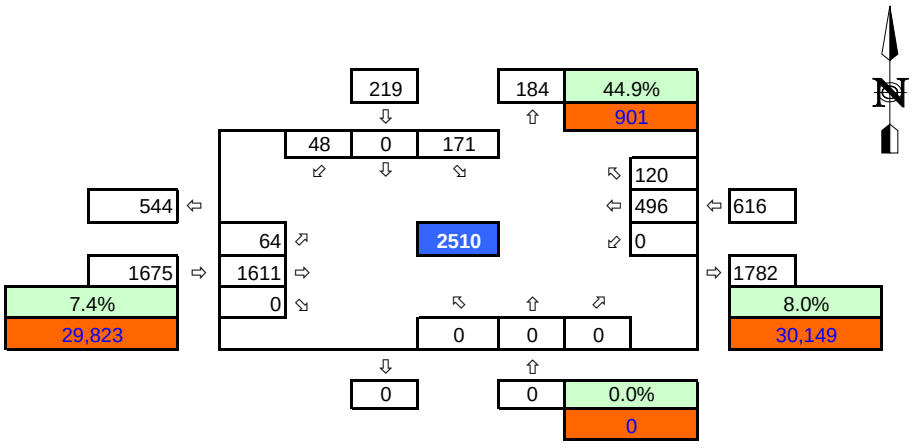
Existing K-Factor	xx%
ADT Volume	xx

Int 12 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**
Intersection #:	12
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**

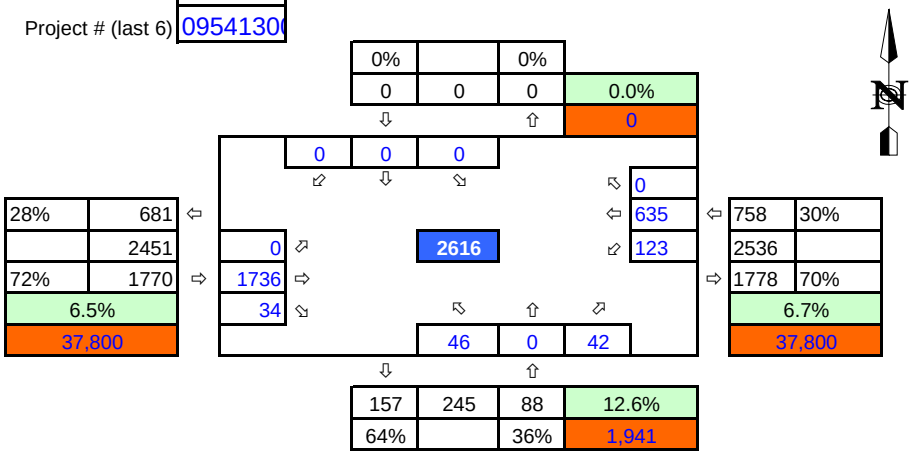


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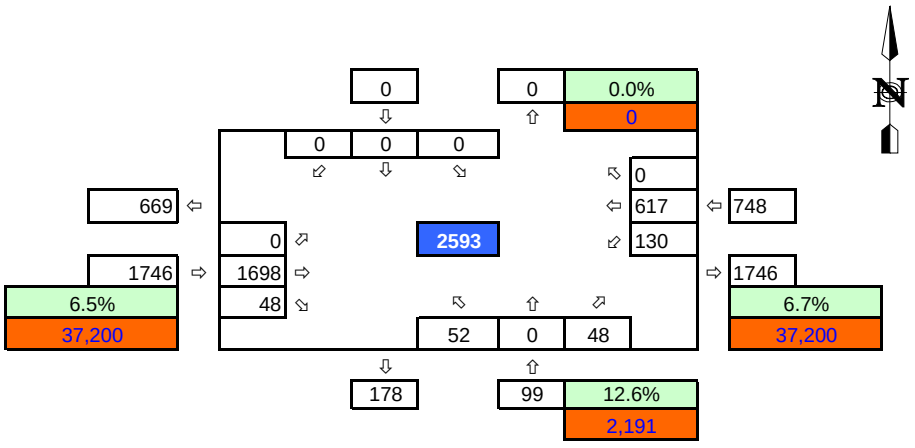
Existing K-Factor	xx%
ADT Volume	xx

Int 13 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**
Intersection #:	13
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**

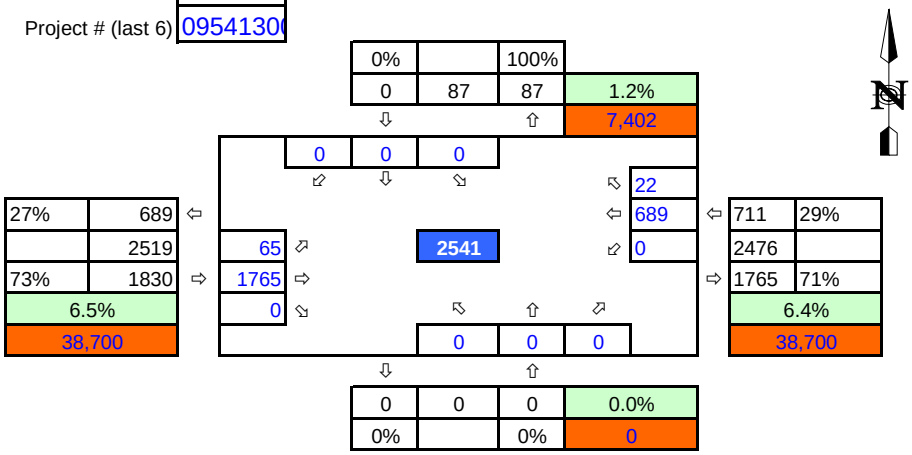


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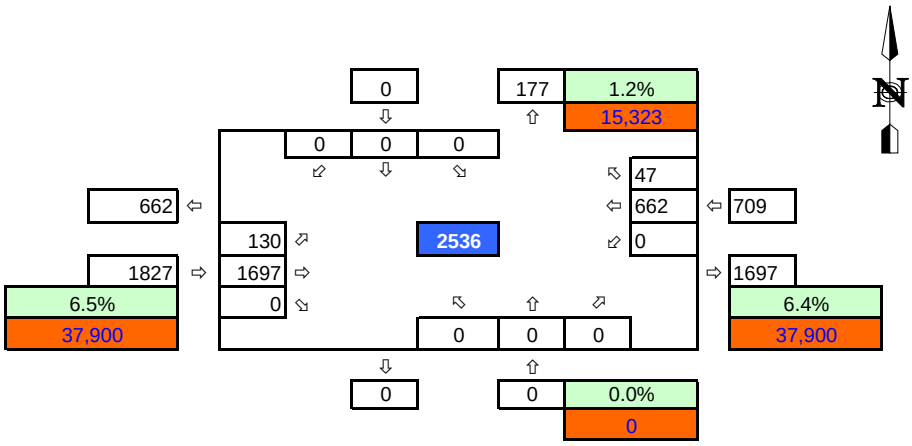
Existing K-Factor	xx%
ADT Volume	xx

Int 14 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**
Intersection #:	14
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**

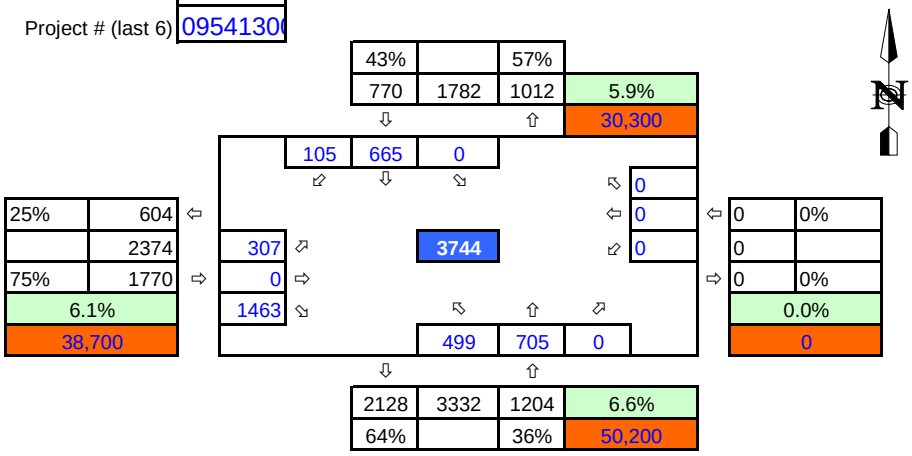


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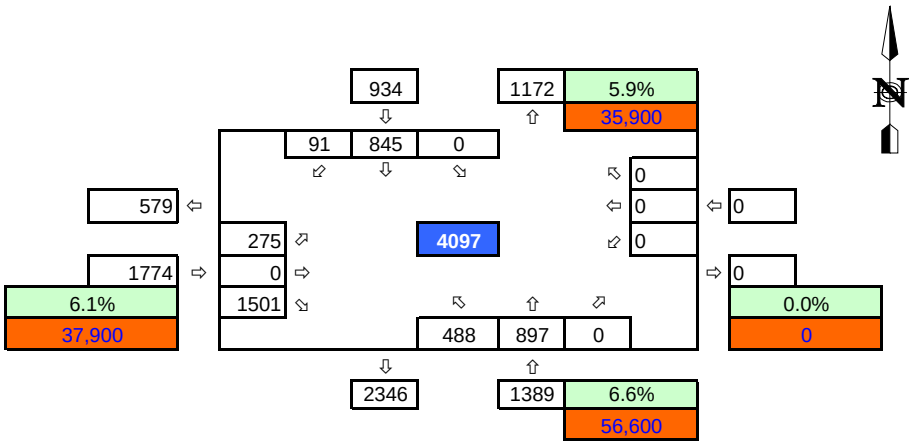
Existing K-Factor	xx%
ADT Volume	xx

Int 15 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**
Intersection #:	15
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**

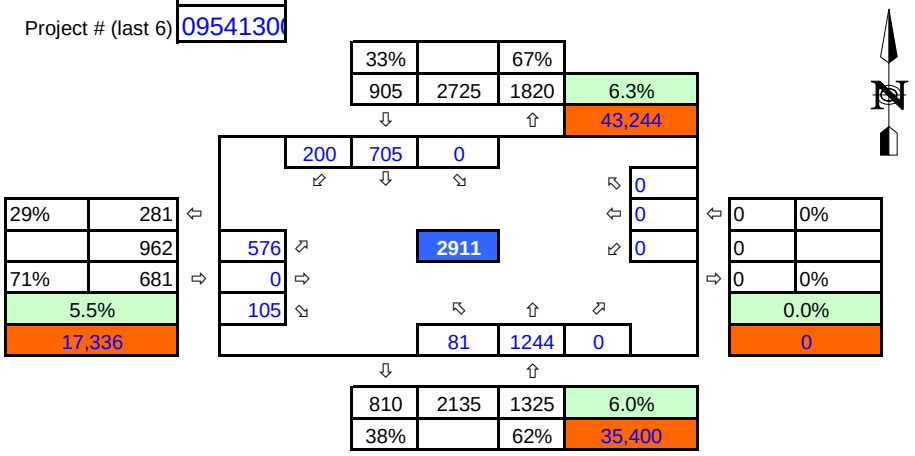


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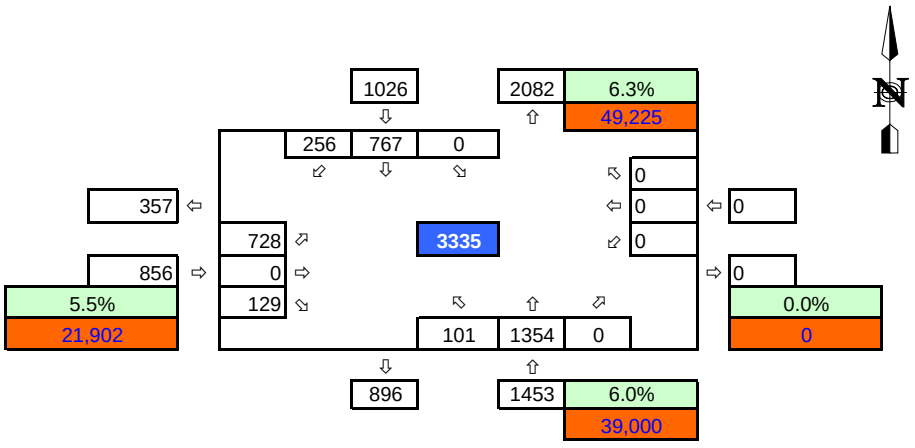
Existing K-Factor	xx%
ADT Volume	xx

Int 16 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**
Intersection #:	16
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**

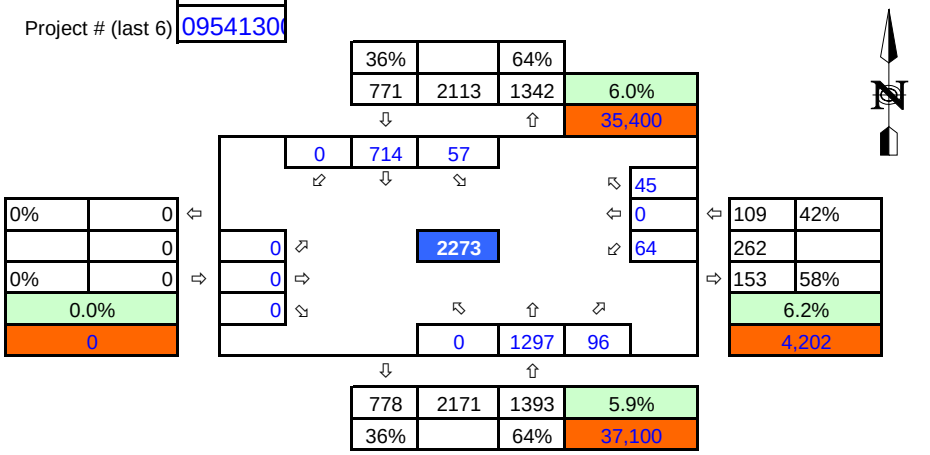


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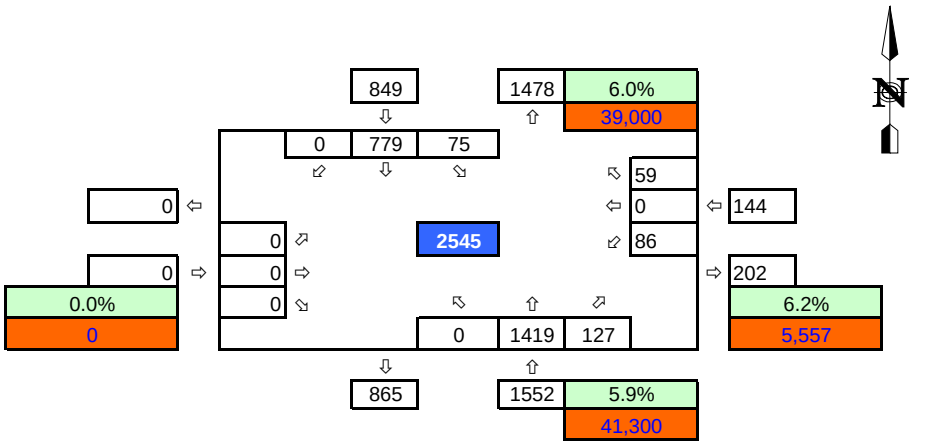
Existing K-Factor	xx%
ADT Volume	xx

Int 17 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**
Intersection #:	17
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**

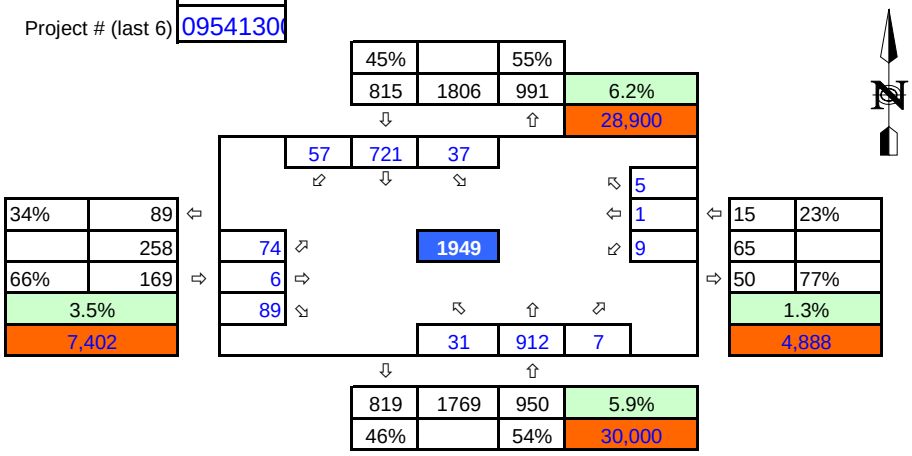


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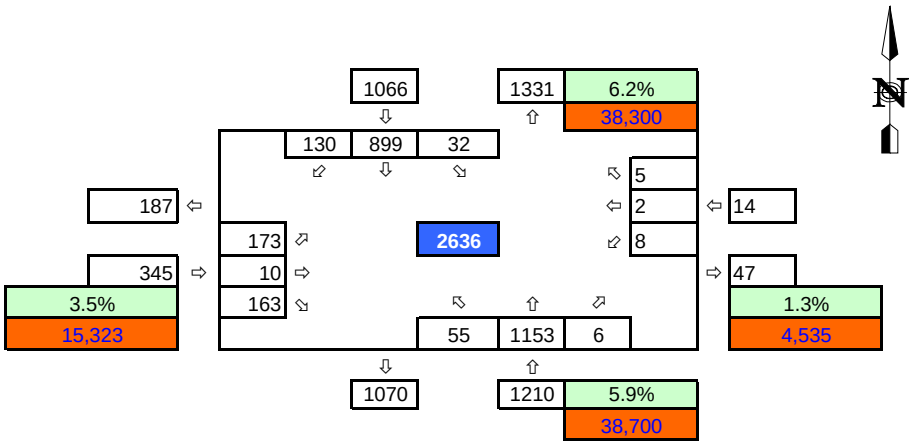
Existing K-Factor	xx%
ADT Volume	xx

Int 18 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**
Intersection #:	18
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**

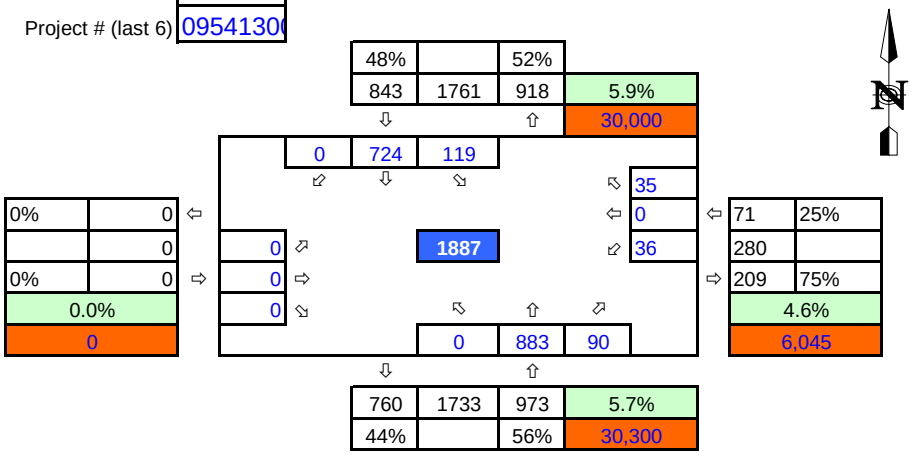


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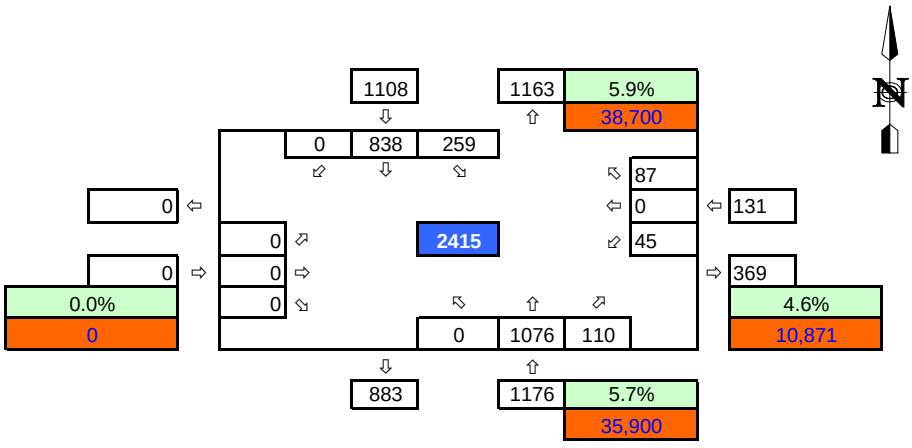
Existing K-Factor	xx%
ADT Volume	xx

Int 19 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Driveway / Bunker Hill St**
Intersection #:	19
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Driveway / Bunker Hill St**

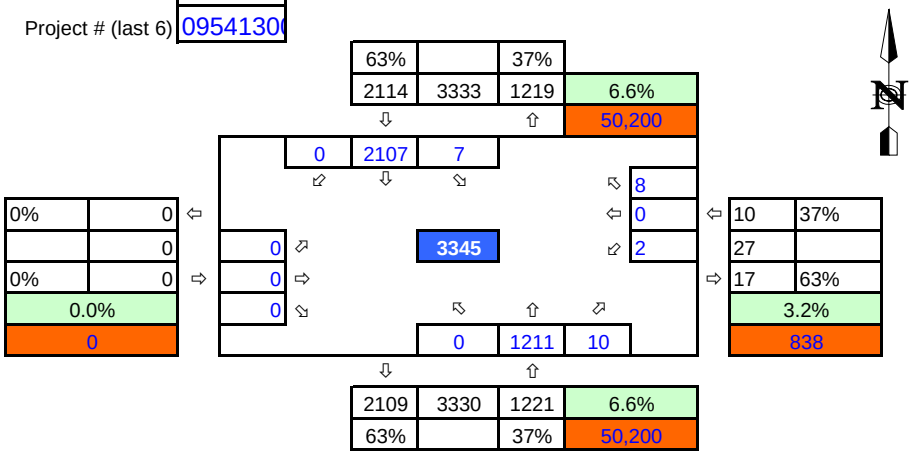


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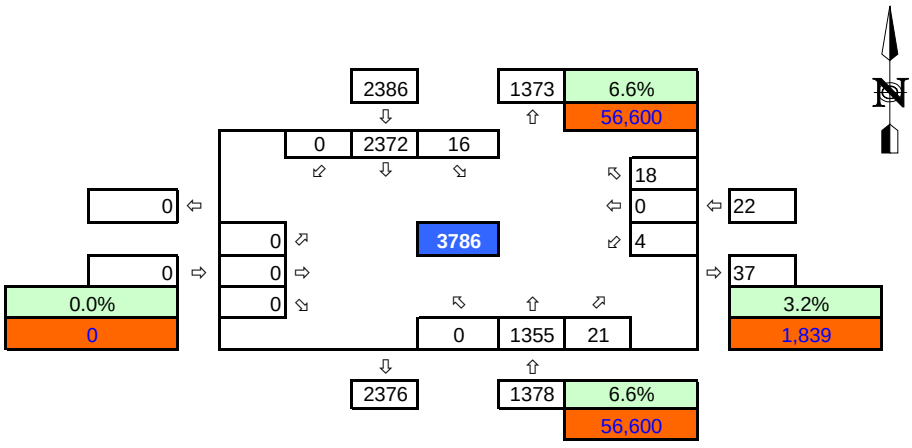
Existing K-Factor	xx%
ADT Volume	xx

Int 20 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Rosewood St**
Intersection #:	20
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Rosewood St**

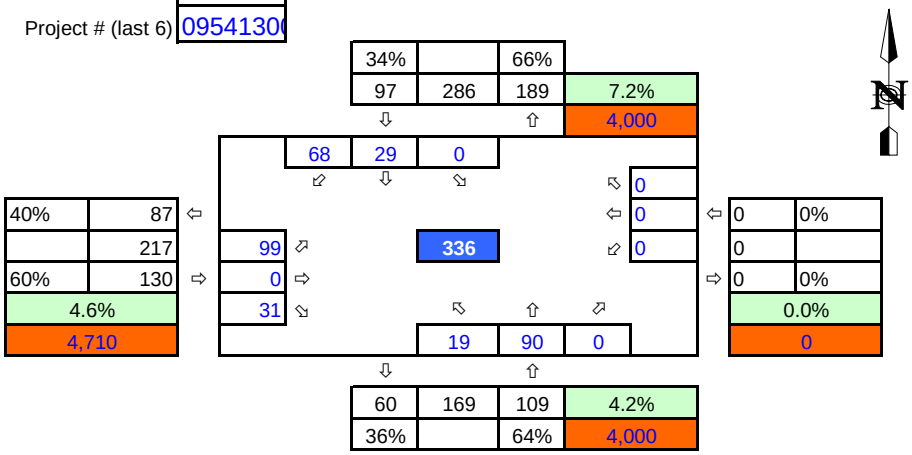


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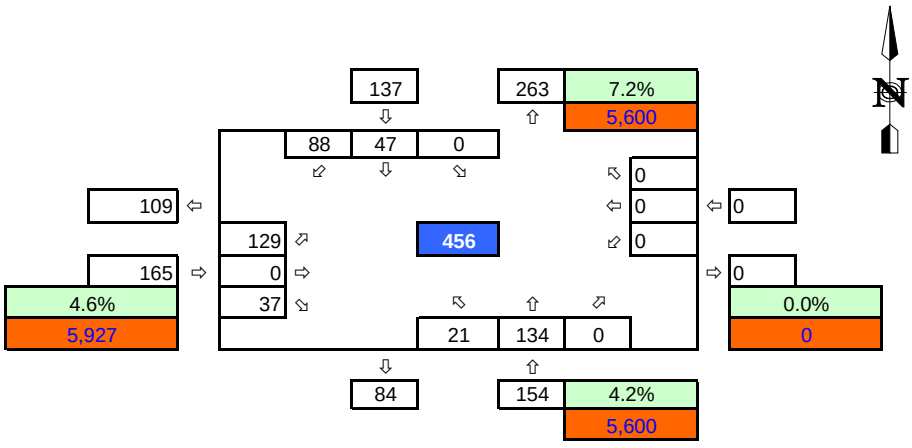
Existing K-Factor	xx%
ADT Volume	xx

Int 21 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**
Intersection #:	21
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**

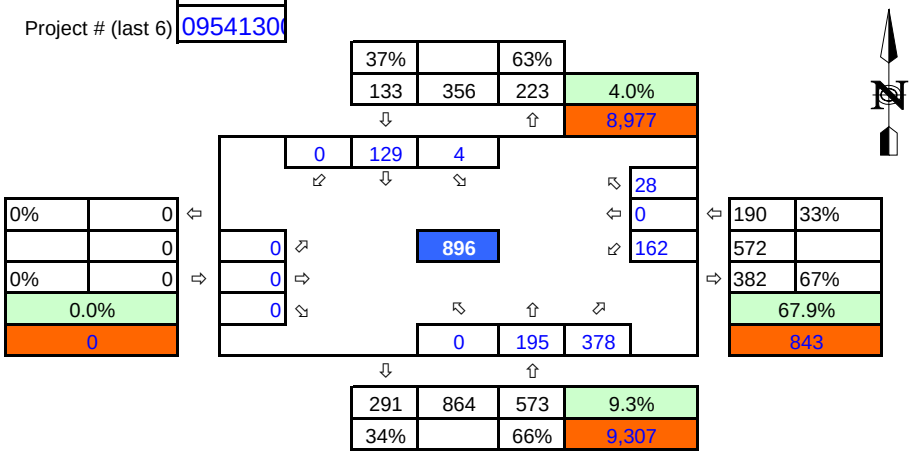


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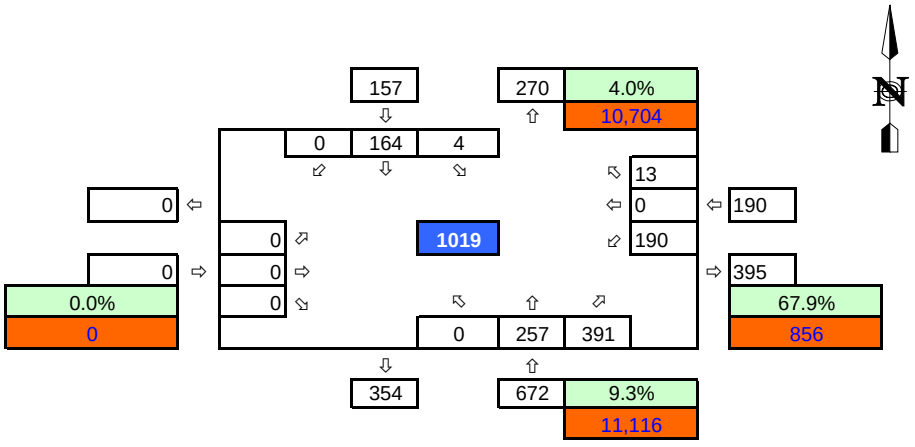
Existing K-Factor	xx%
ADT Volume	xx

Int 22 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**
Intersection #:	22
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**

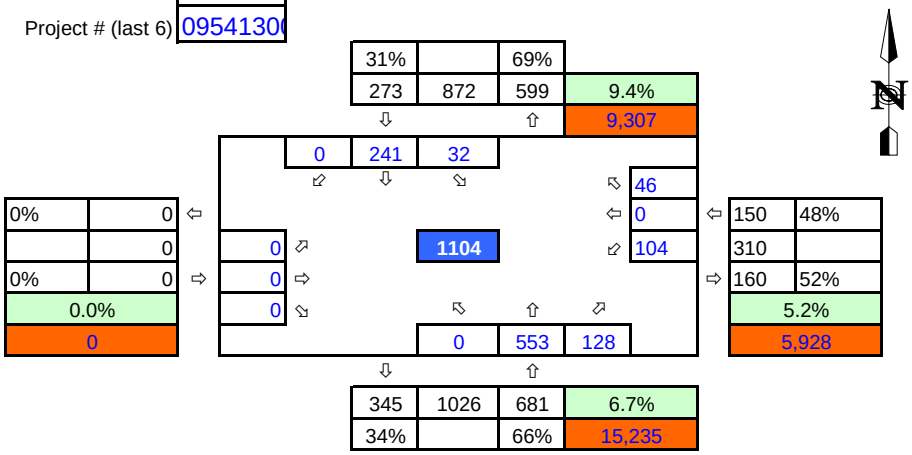


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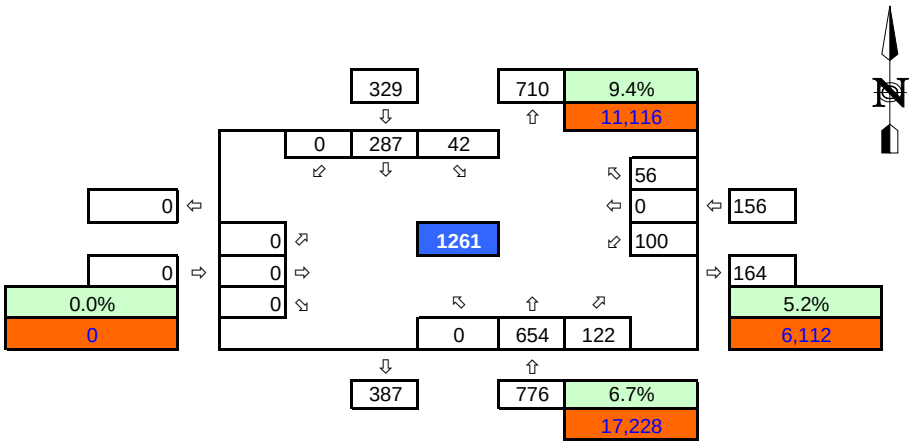
Existing K-Factor	xx%
ADT Volume	xx

Int 23 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Costco Dwy**
Intersection #:	23
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Costco Dwy**

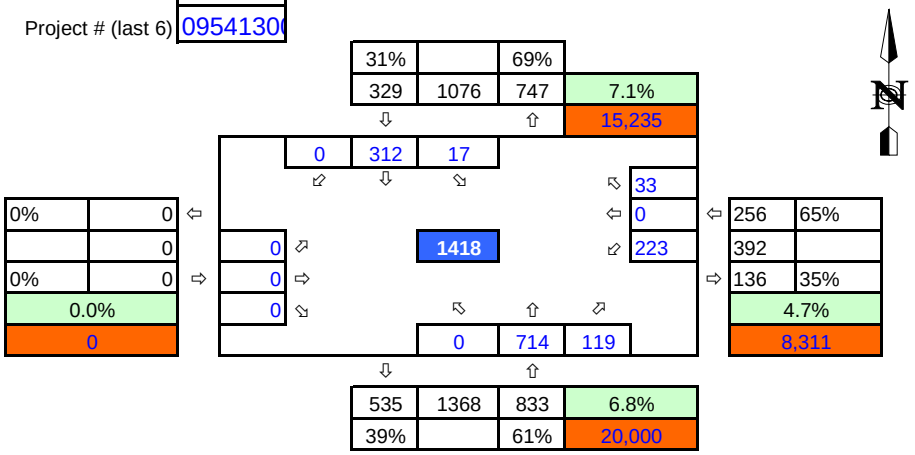


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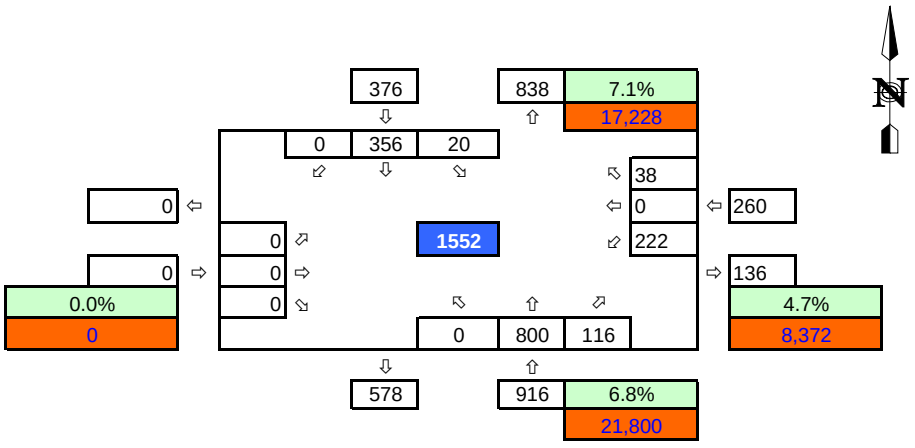
Existing K-Factor	xx%
ADT Volume	xx

Int 24 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Avati Dr**
Intersection #:	24
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Avati Dr**

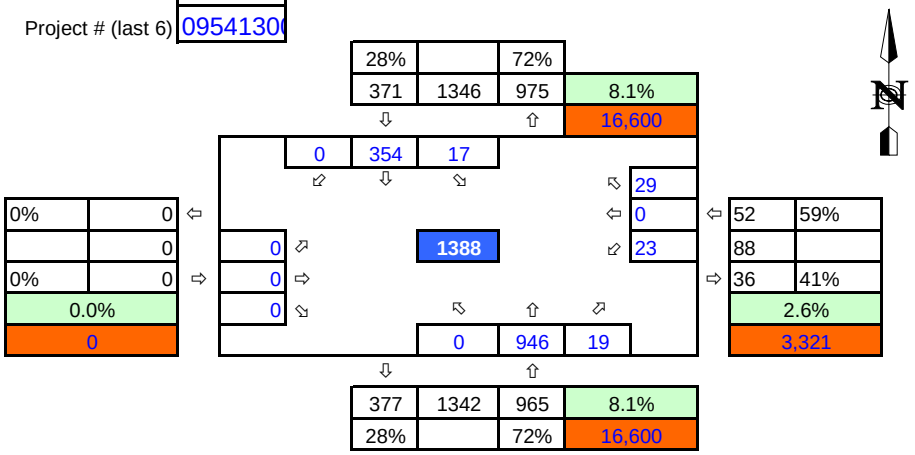


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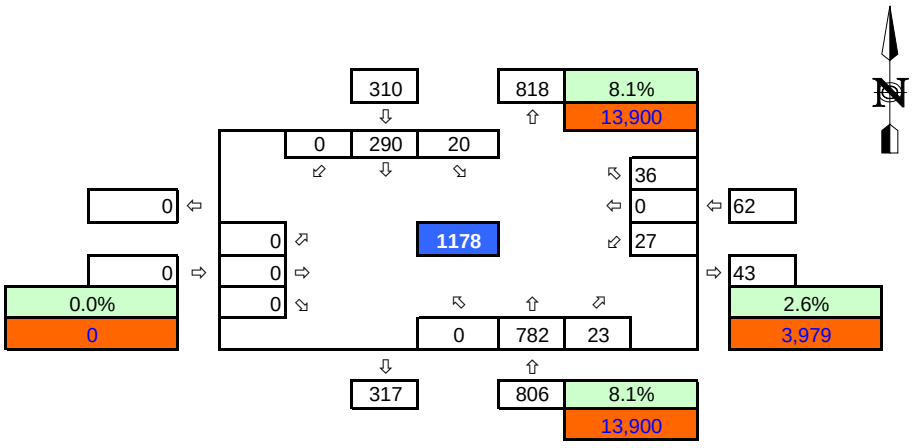
Existing K-Factor	xx%
ADT Volume	xx

Int 27 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**
Intersection #:	27
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**

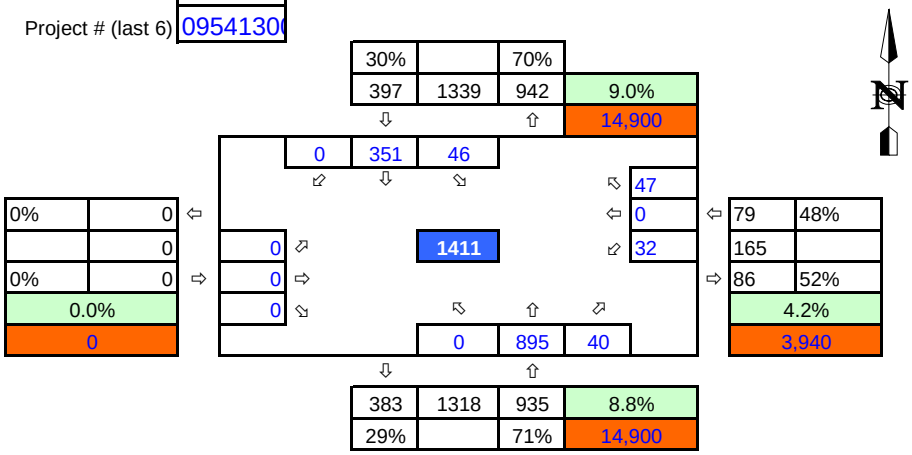


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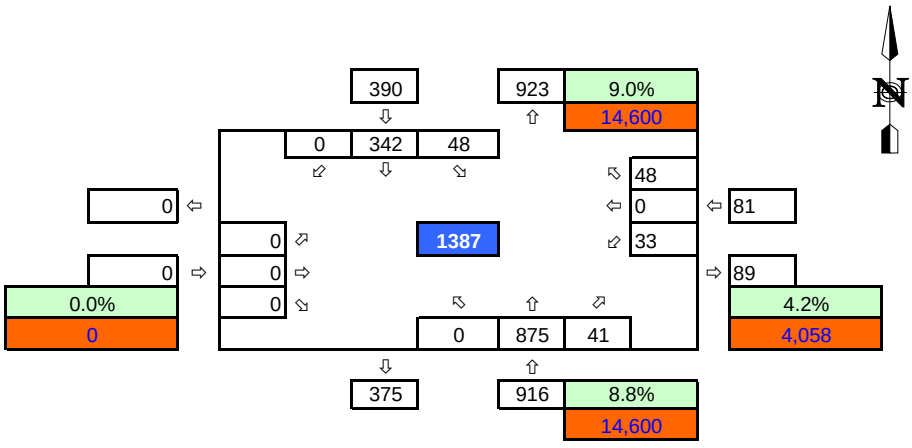
Existing K-Factor	xx%
ADT Volume	xx

Int 28 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**
Intersection #:	28
Project # (last 6)	095413



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**

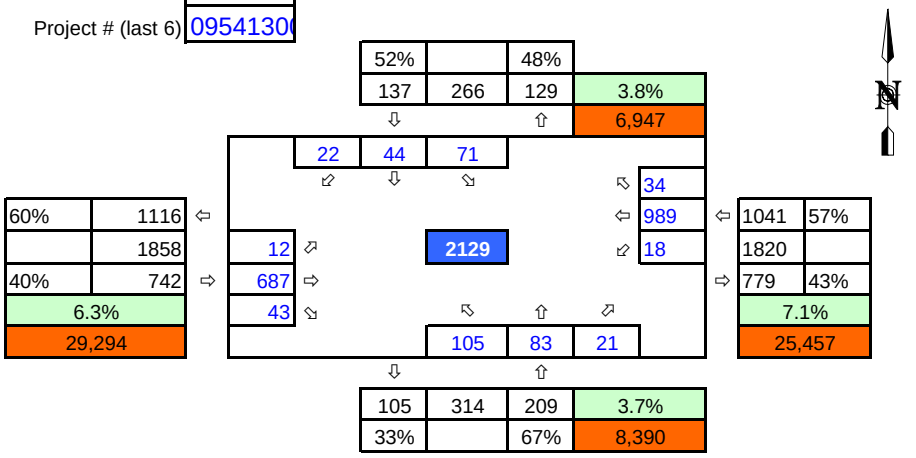


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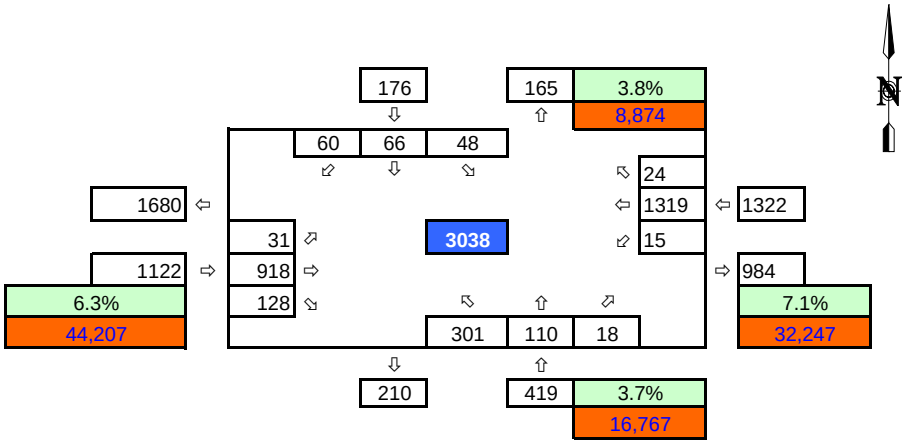
Existing K-Factor	xx%
ADT Volume	xx

Int 1 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Garnet Ave**
Intersection #:	1
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Garnet Ave**

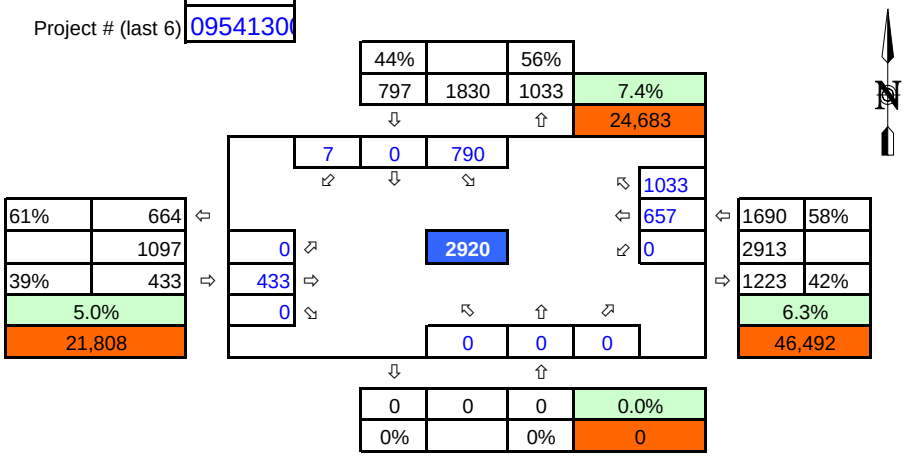


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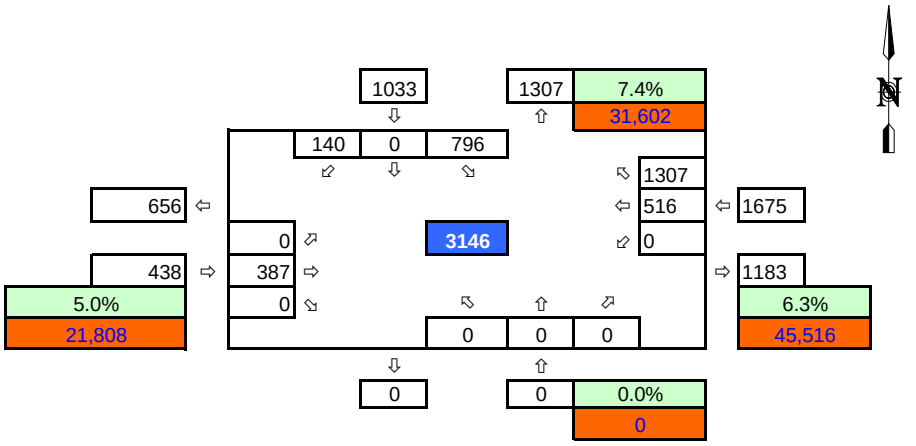
Existing K-Factor	xx%
ADT Volume	xx

Int 2 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Garnet Ave**
E/W Street:	**Balboa Ave / Garnet Ave**
Intersection #:	2
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Garnet Ave**
E/W Street:	**Balboa Ave / Garnet Ave**

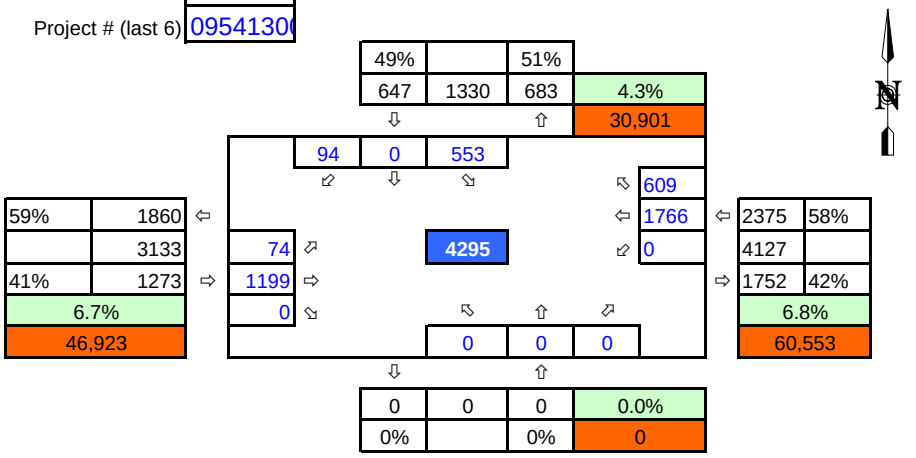


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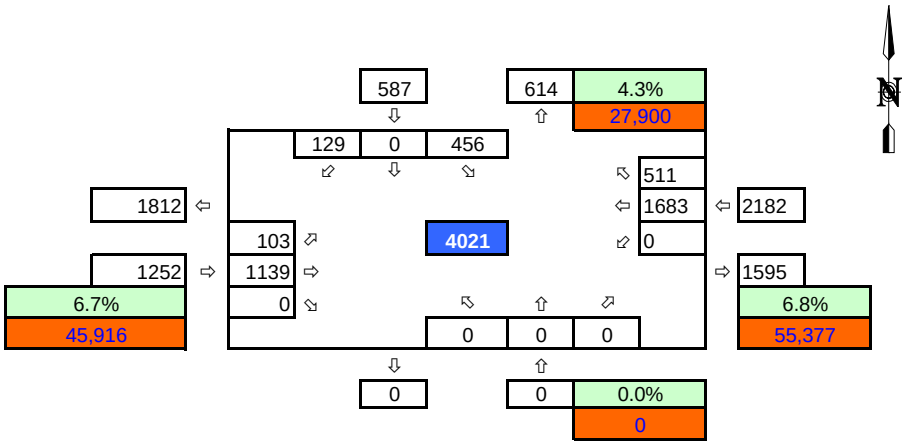
Existing K-Factor	xx%
ADT Volume	xx

Int 3 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**
Intersection #:	3
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Soledad Mtn Rd**
E/W Street:	**Garnet Ave**

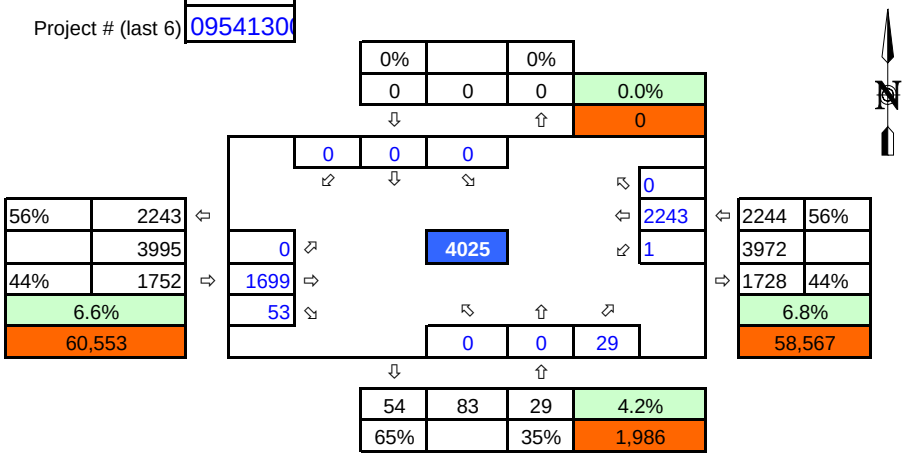


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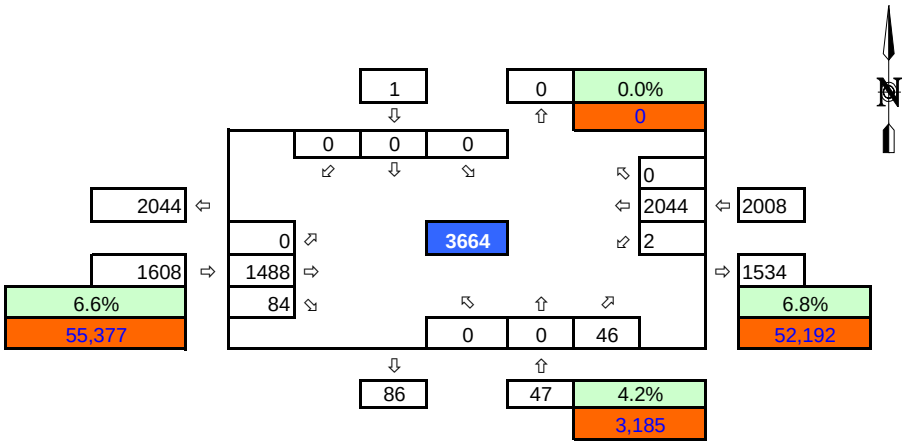
Existing K-Factor	xx%
ADT Volume	xx

Int 4 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Bond St
E/W Street:	Garnet Ave
Intersection #:	4
Project # (last 6)	0954130



Scenario:	Horizon Year Conditions
N/S Street:	Bond St
E/W Street:	Garnet Ave

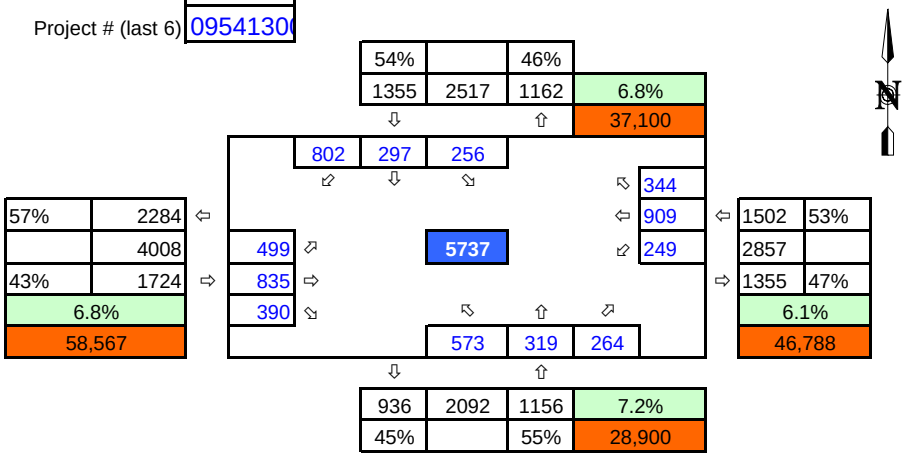


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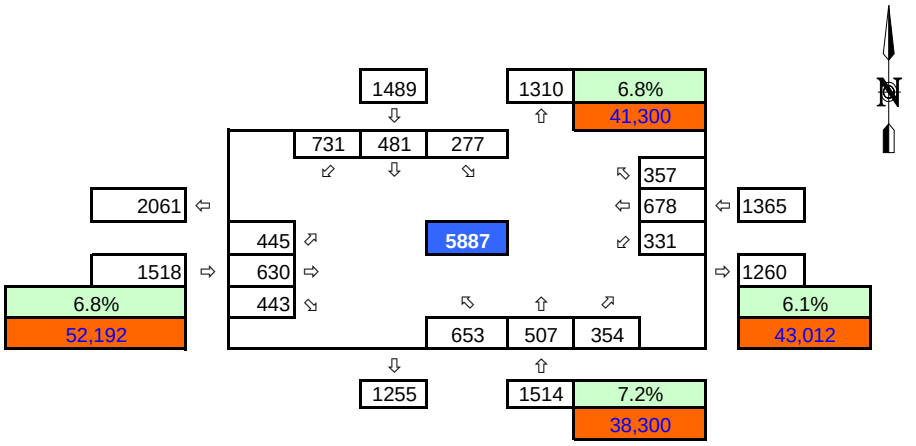
Existing K-Factor	xx%
ADT Volume	xx

Int 5 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**
Intersection #:	5
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Garnet Ave**

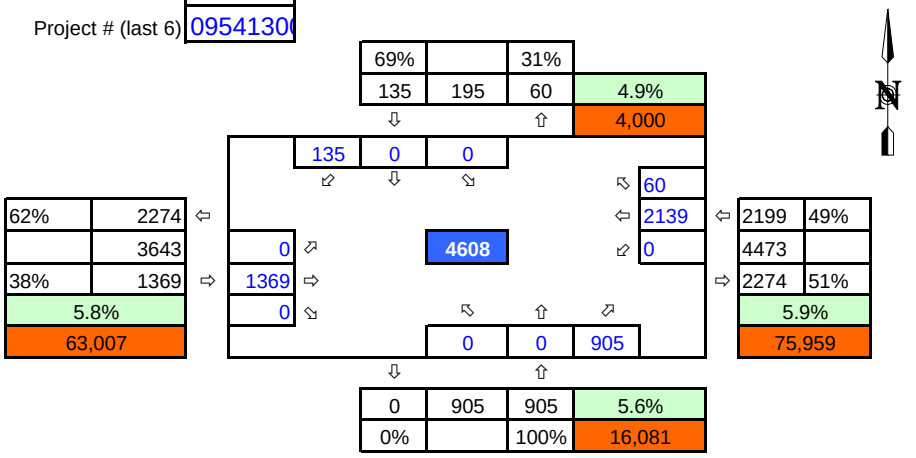


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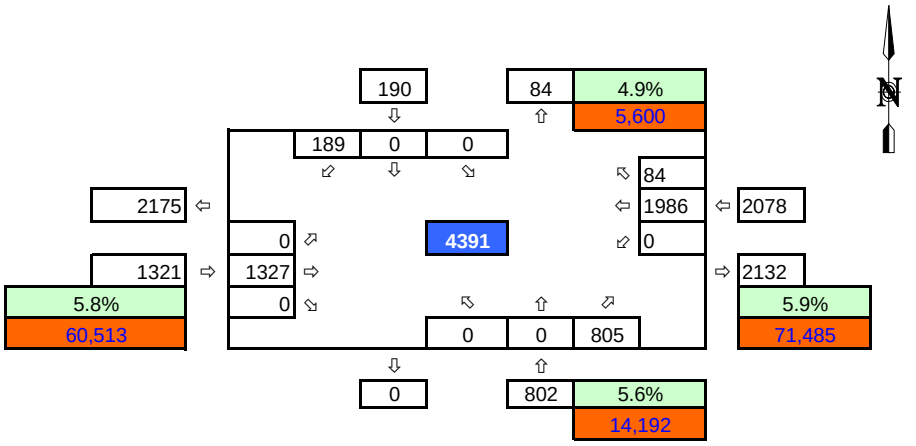
Existing K-Factor	xx%
ADT Volume	xx

Int 6 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**
Intersection #:	6
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St / I-5 NB Off Ramp**
E/W Street:	**Garnet Ave**

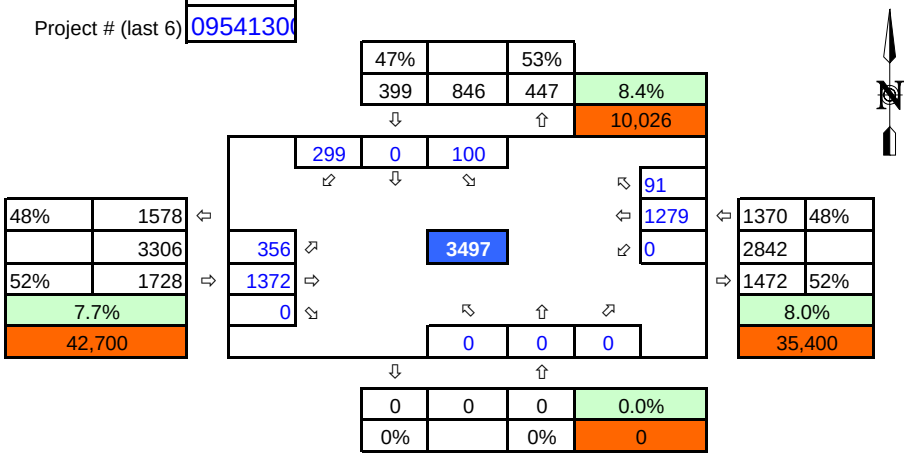


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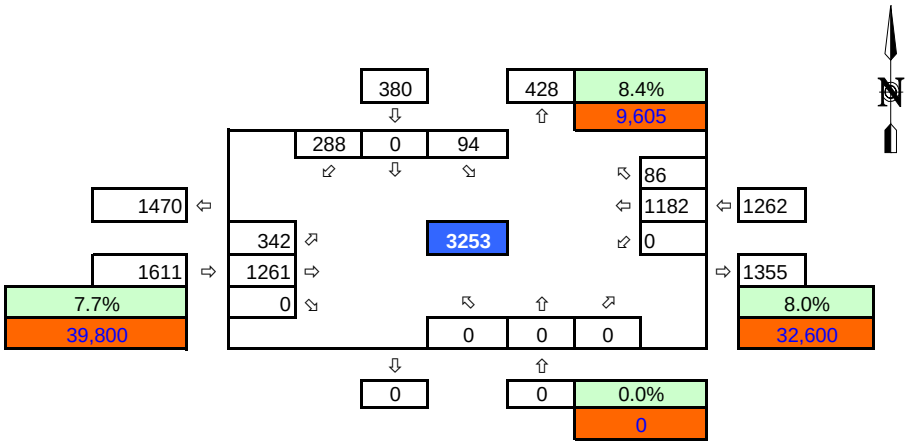
Existing K-Factor	xx%
ADT Volume	xx

Int 8 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**
Intersection #:	8
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Moraga Ave**
E/W Street:	**Balboa Ave**

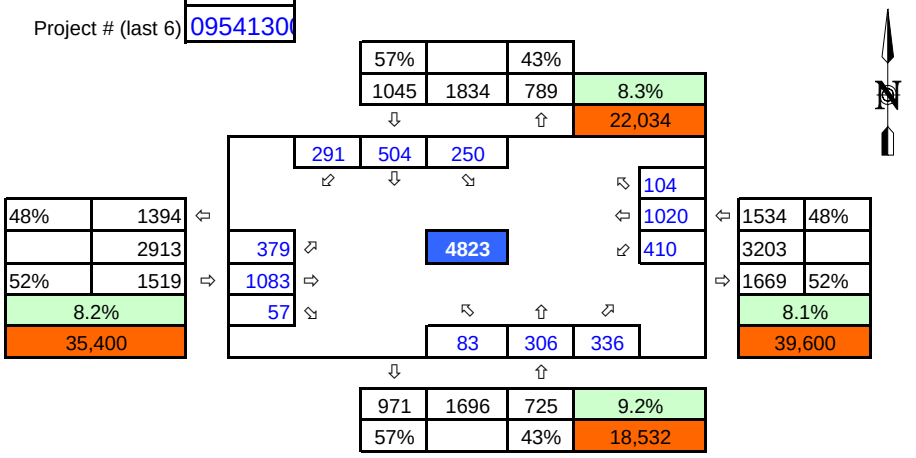


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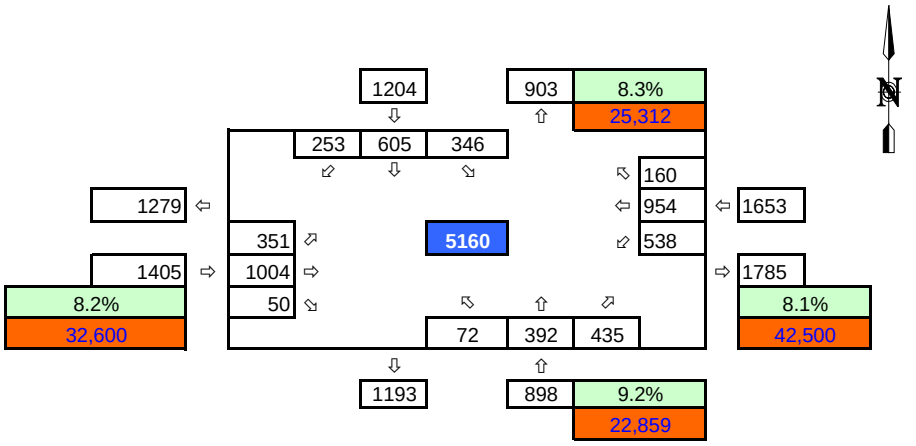
Existing K-Factor	xx%
ADT Volume	xx

Int 9 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**
Intersection #:	9
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Clairemont Dr**
E/W Street:	**Balboa Ave**

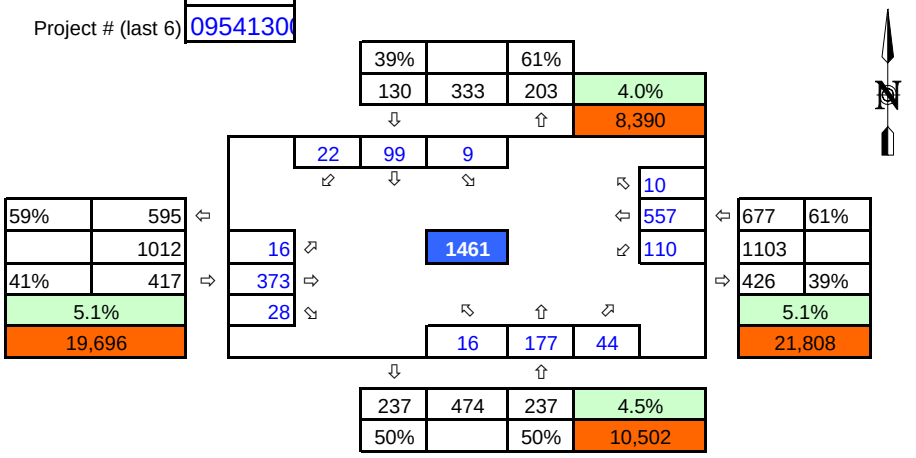


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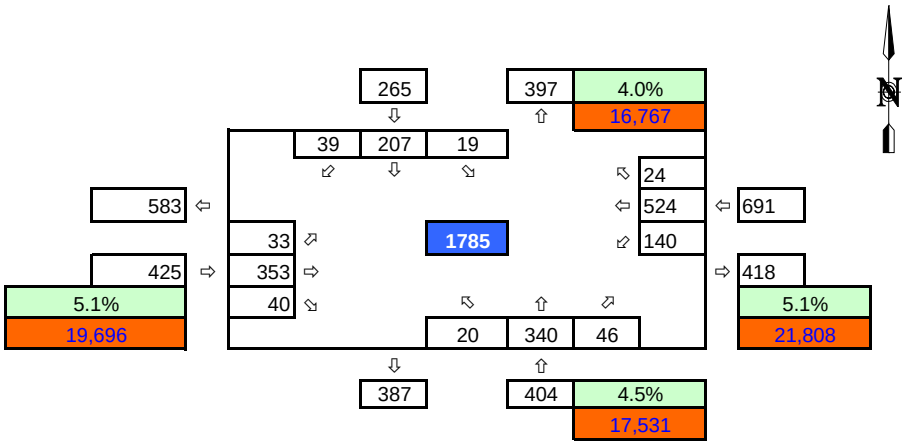
Existing K-Factor	xx%
ADT Volume	xx

Int 10 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**
Intersection #:	10
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Olney Street**
E/W Street:	**Balboa Ave**

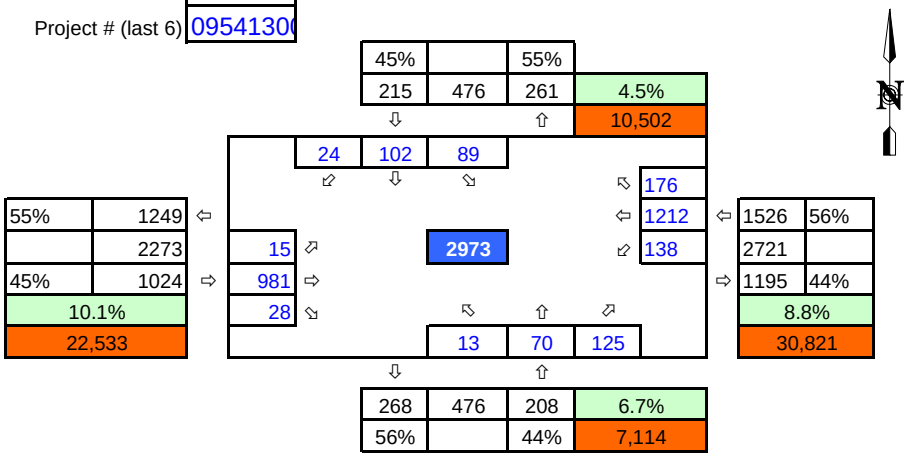


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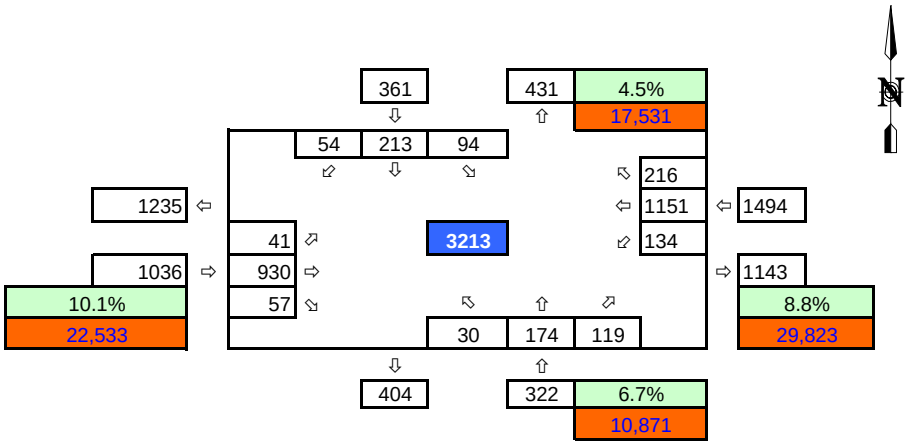
Existing K-Factor	xx%
ADT Volume	xx

Int 11 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Olney Street
E/W Street:	Grand Ave
Intersection #:	11
Project # (last 6)	095413(



Scenario:	Horizon Year Conditions
N/S Street:	Olney Street
E/W Street:	Grand Ave

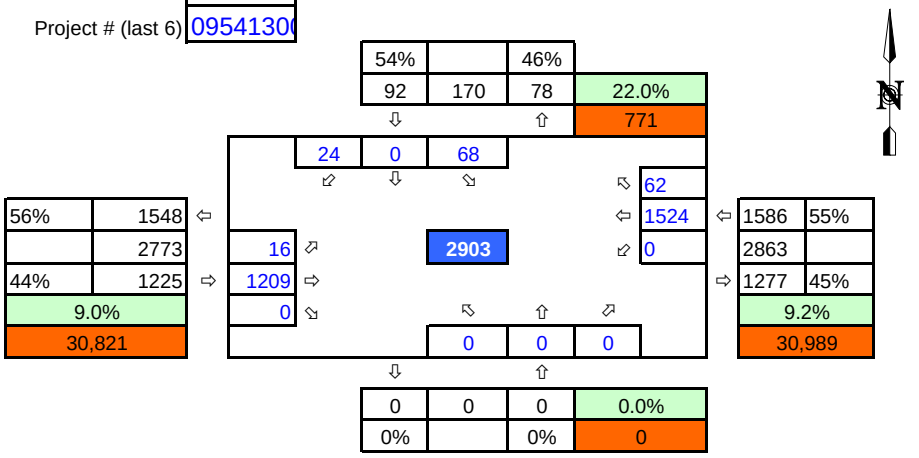


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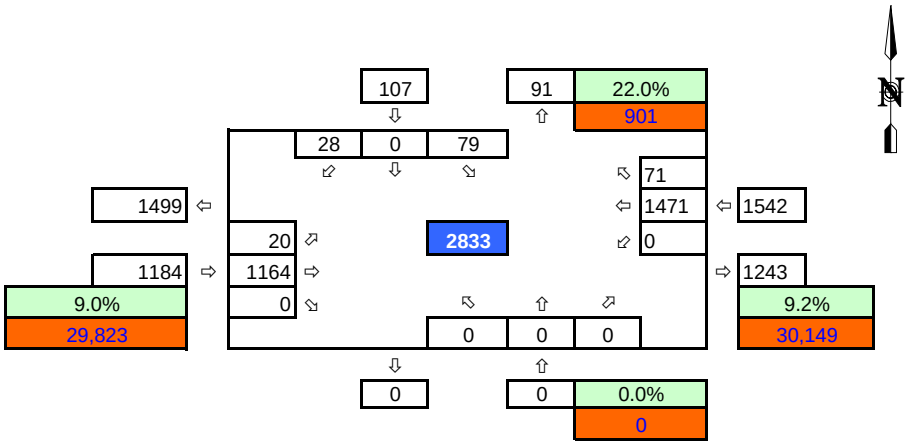
Existing K-Factor	xx%
ADT Volume	xx

Int 12 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**
Intersection #:	12
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Culver St**
E/W Street:	**Grand Ave**

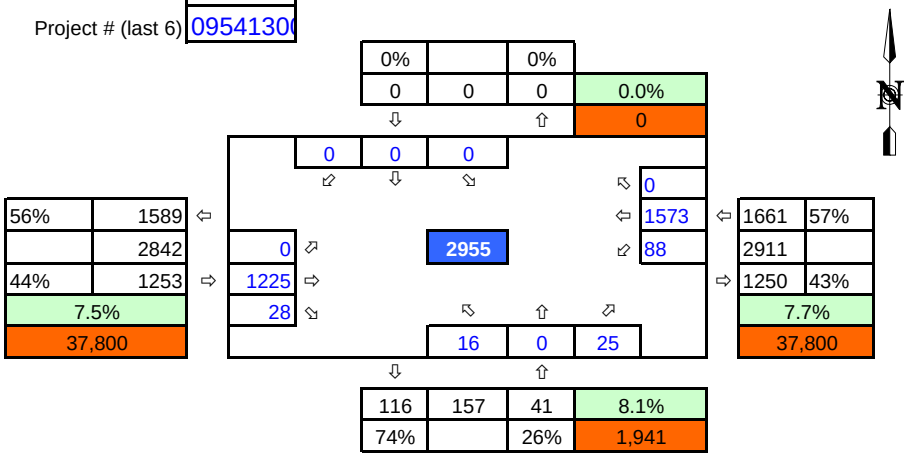


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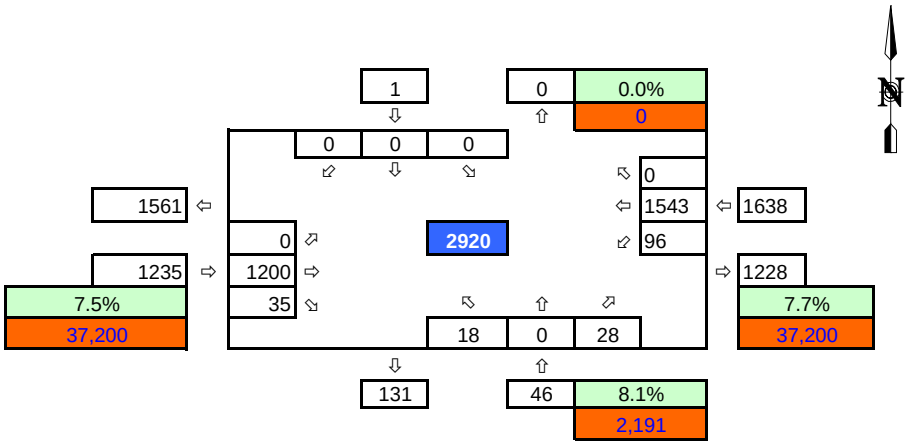
Existing K-Factor	xx%
ADT Volume	xx

Int 13 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**
Intersection #:	13
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Lee St**
E/W Street:	**Grand Ave**

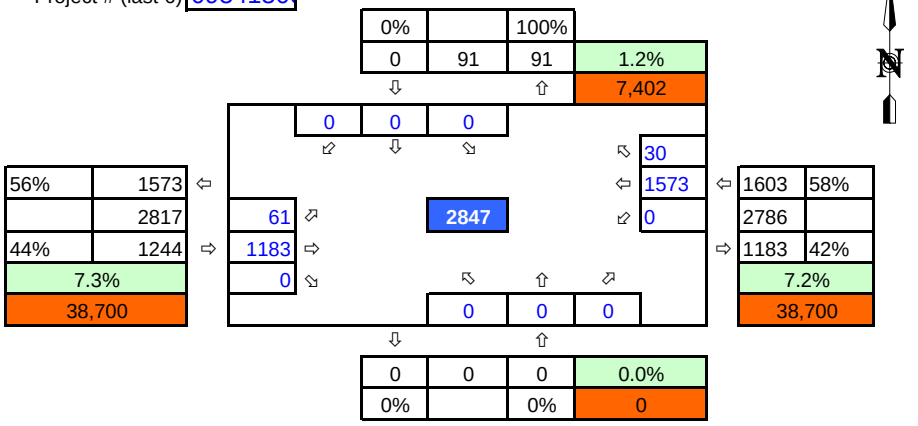


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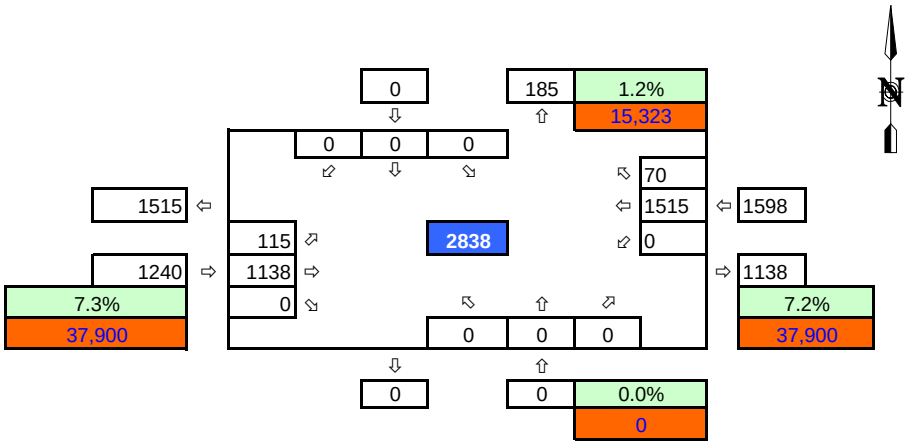
Existing K-Factor	xx%
ADT Volume	xx

Int 14 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**
Intersection #:	14
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Figueroa Blvd**
E/W Street:	**Grand Ave**

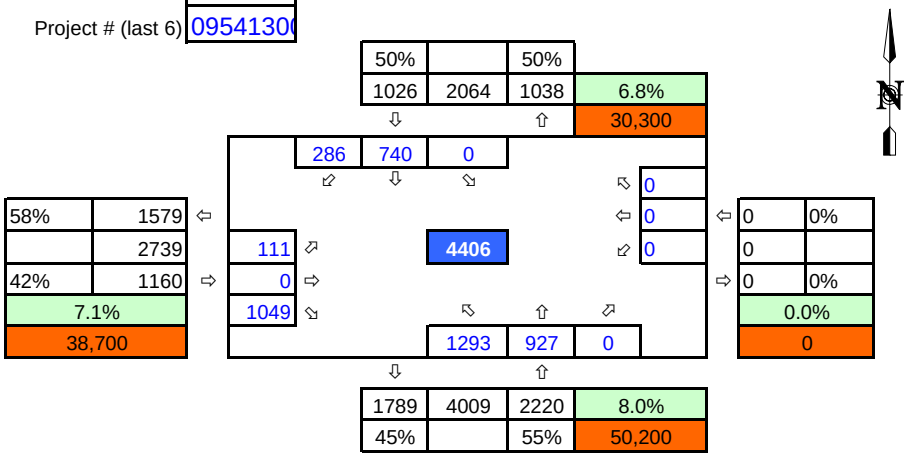


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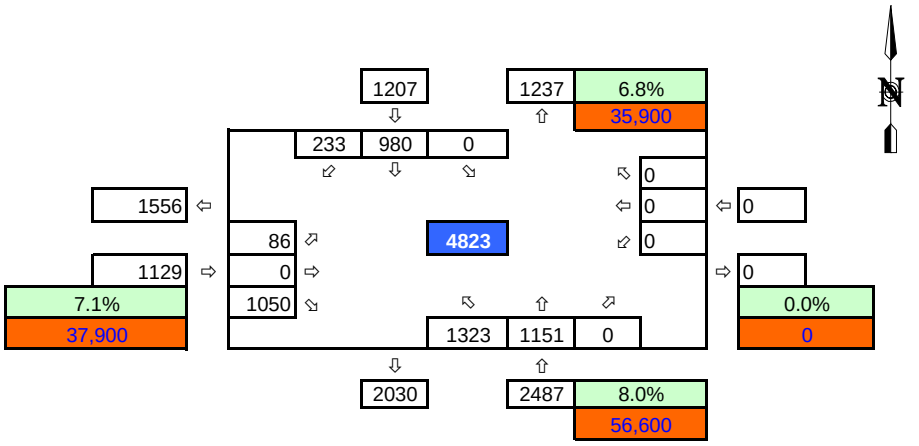
Existing K-Factor	xx%
ADT Volume	xx

Int 15 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**
Intersection #:	15
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Grand Ave**

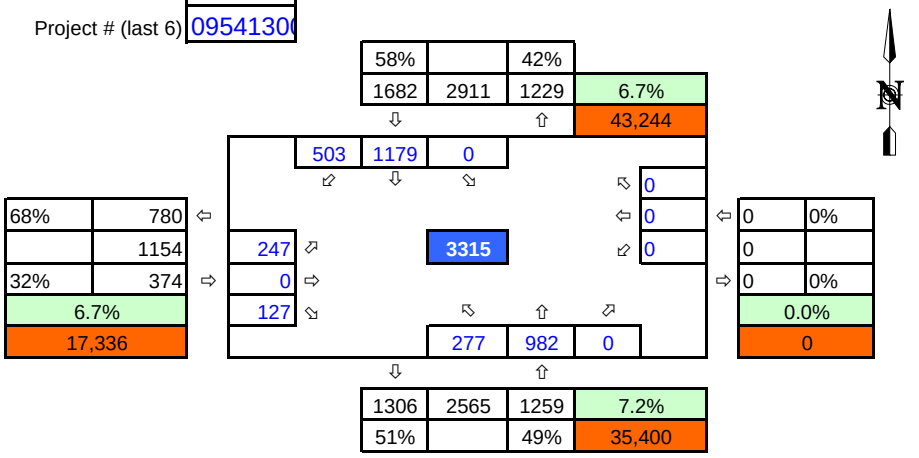


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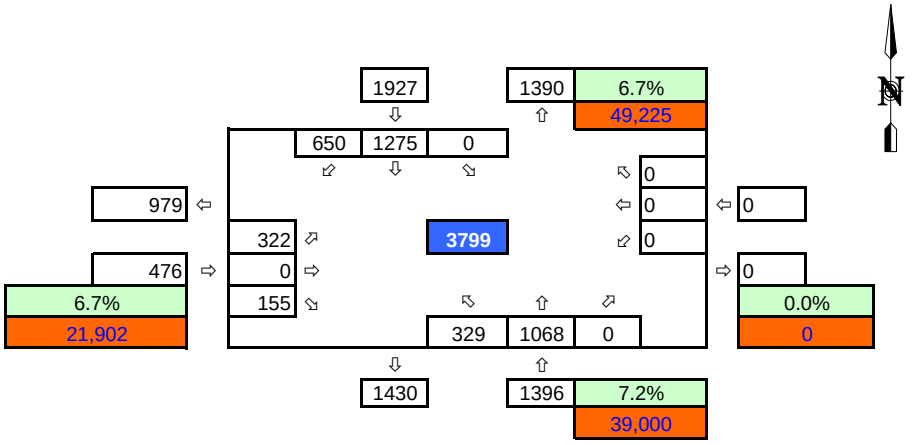
Existing K-Factor	xx%
ADT Volume	xx

Int 16 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**
Intersection #:	16
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Bluffside Ave**

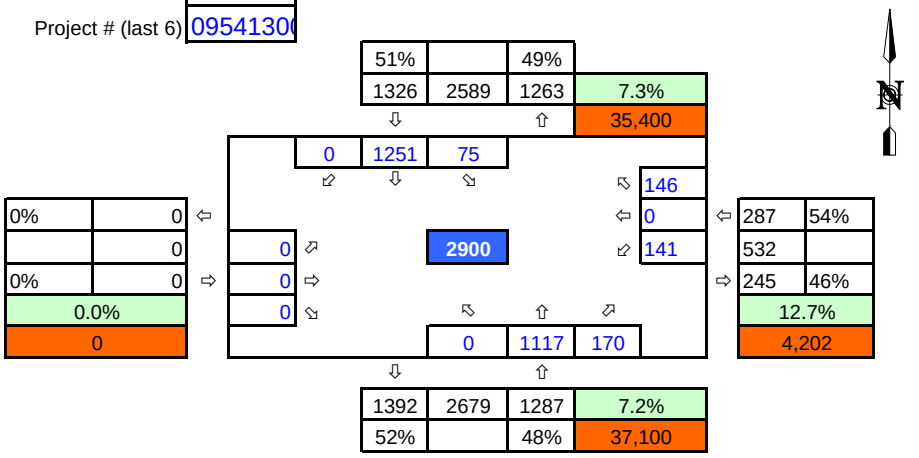


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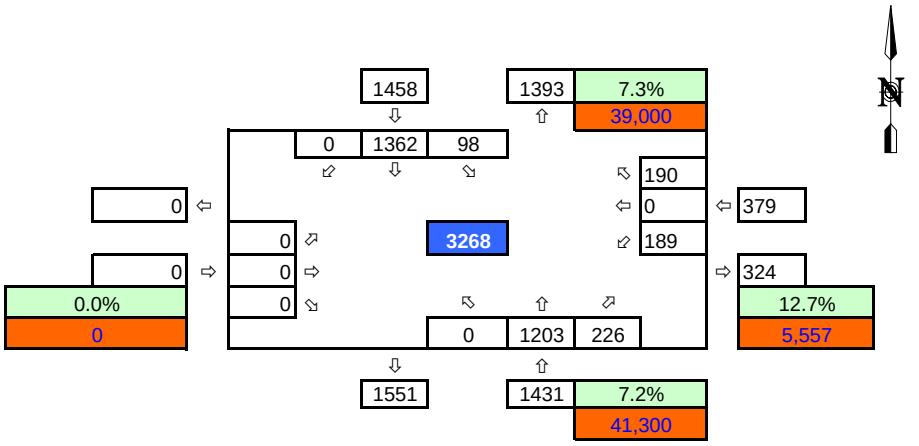
Existing K-Factor	xx%
ADT Volume	xx

Int 17 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**
Intersection #:	17
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Damon Ave**

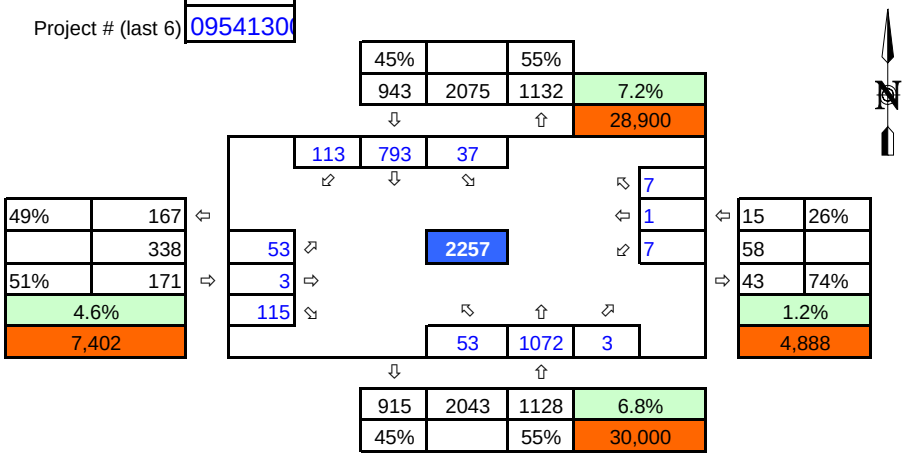


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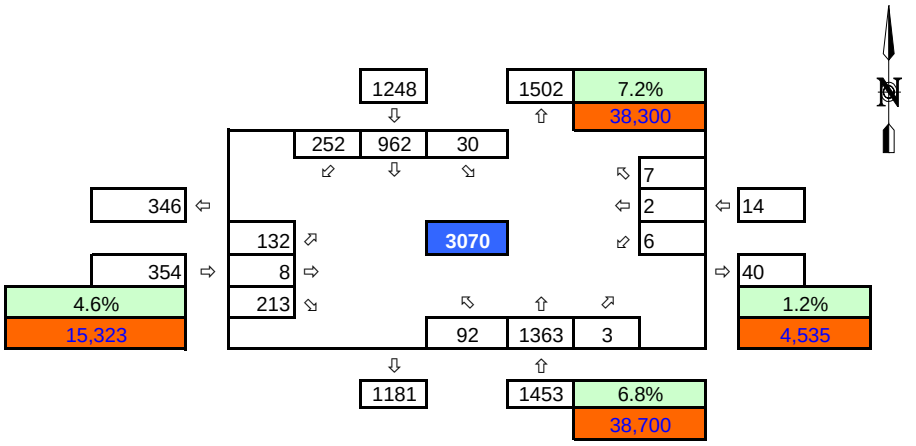
Existing K-Factor	xx%
ADT Volume	xx

Int 18 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**
Intersection #:	18
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Magnolia Ave / Driveway**

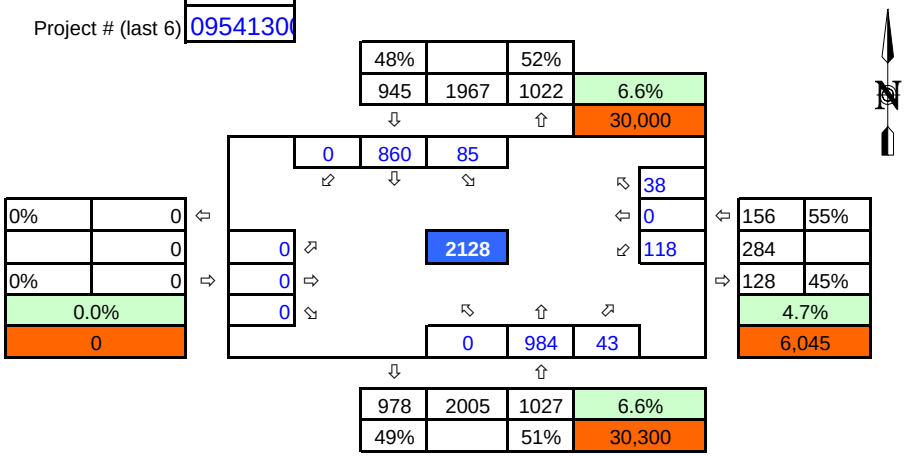


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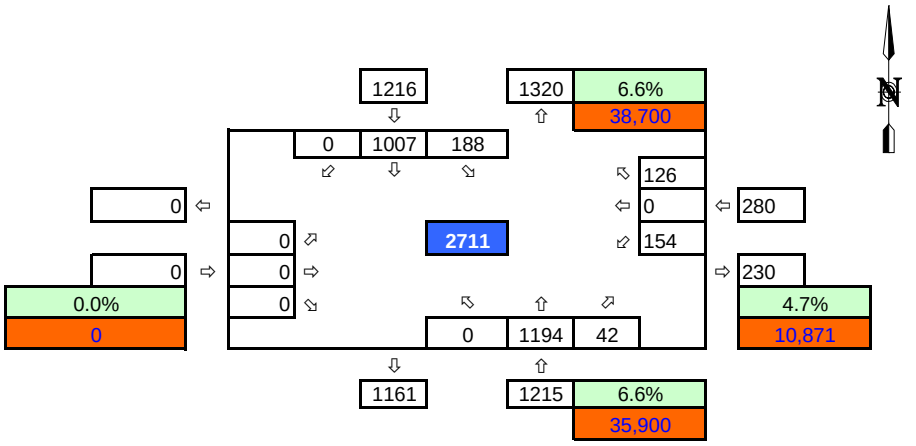
Existing K-Factor	xx%
ADT Volume	xx

Int 19 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Mission Bay Dr
E/W Street:	Driveway / Bunker Hill St
Intersection #:	19
Project # (last 6)	095413(



Scenario:	Horizon Year Conditions
N/S Street:	Mission Bay Dr
E/W Street:	Driveway / Bunker Hill St

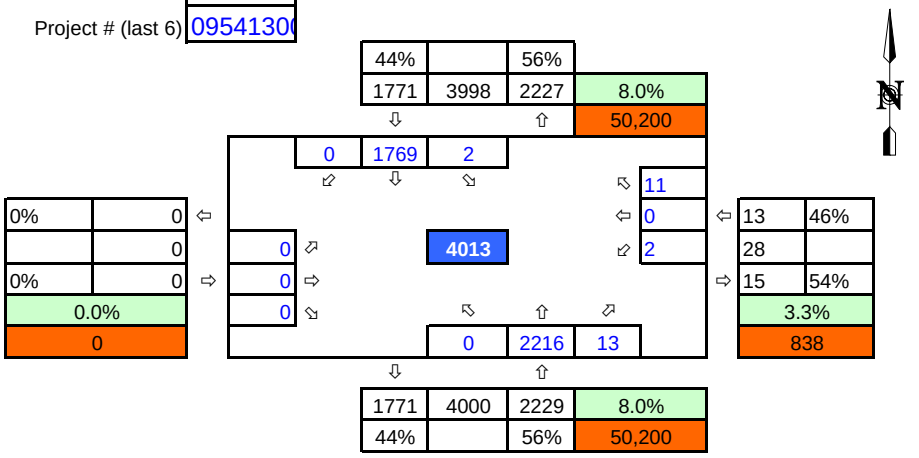


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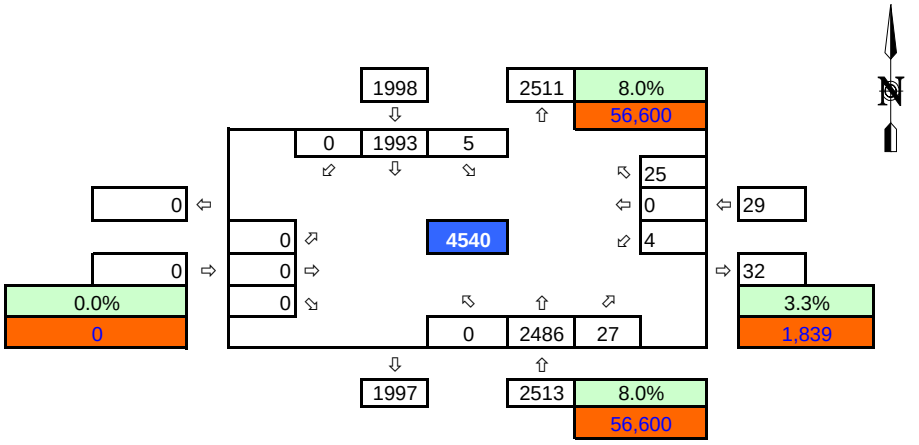
Existing K-Factor	xx%
ADT Volume	xx

Int 20 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Rosewood St**
Intersection #:	20
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Mission Bay Dr**
E/W Street:	**Rosewood St**

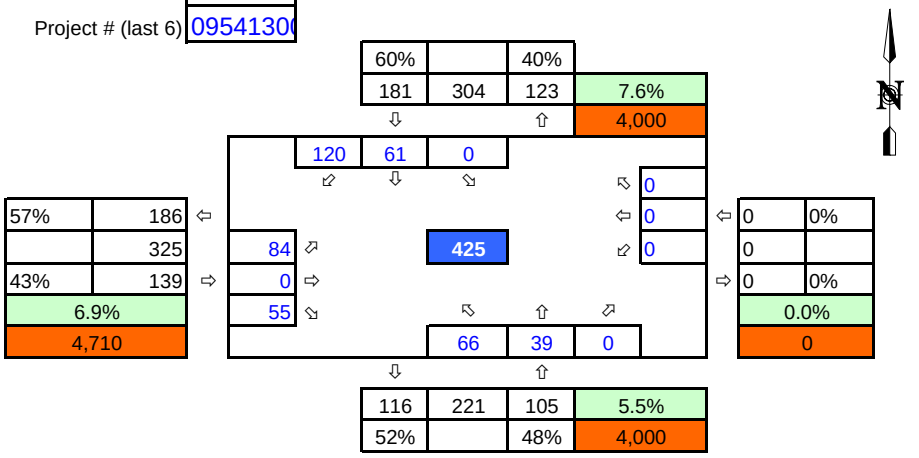


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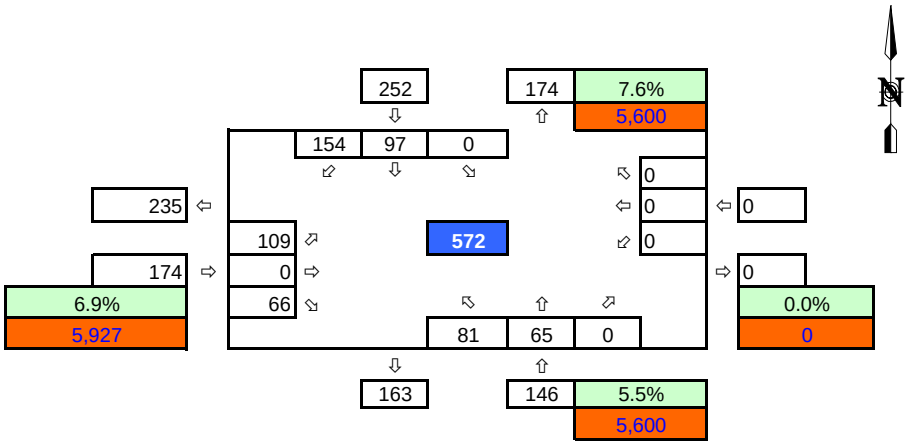
Existing K-Factor	xx%
ADT Volume	xx

Int 21 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**
Intersection #:	21
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Santa Fe St**
E/W Street:	**Damon Ave**

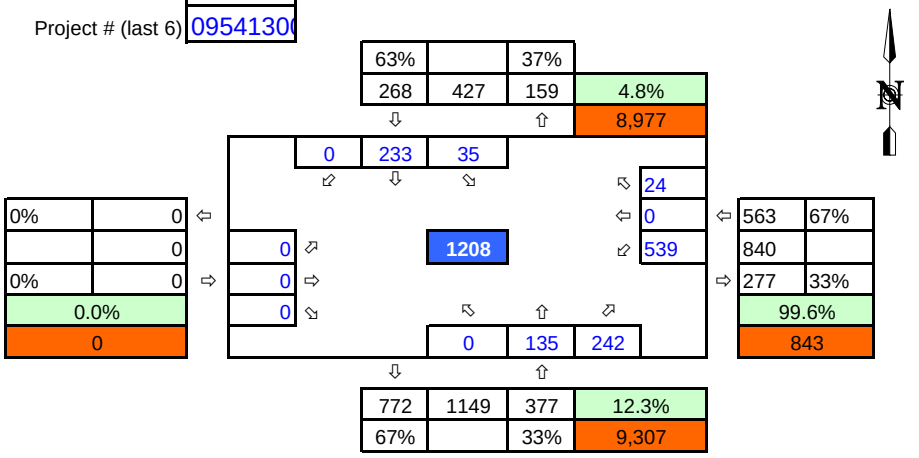


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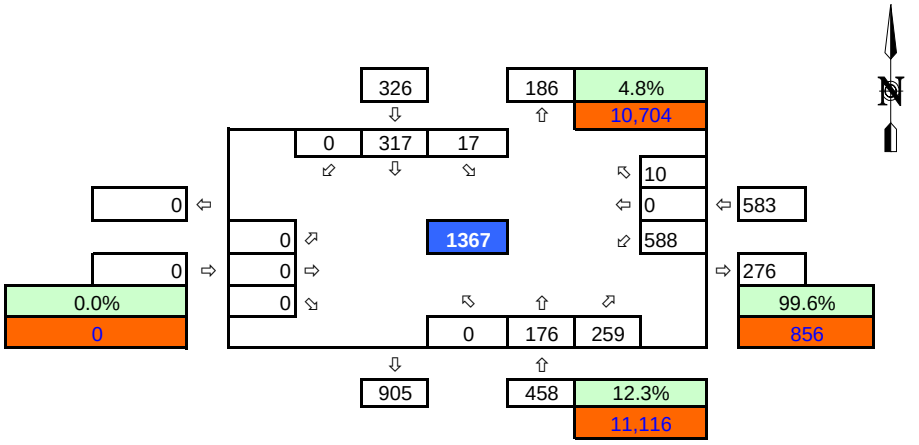
Existing K-Factor	xx%
ADT Volume	xx

Int 22 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**
Intersection #:	22
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Jutland Dr**

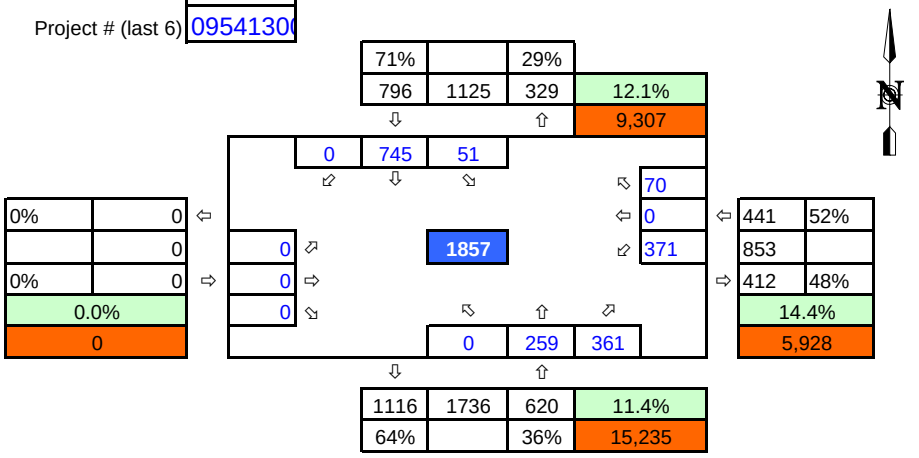


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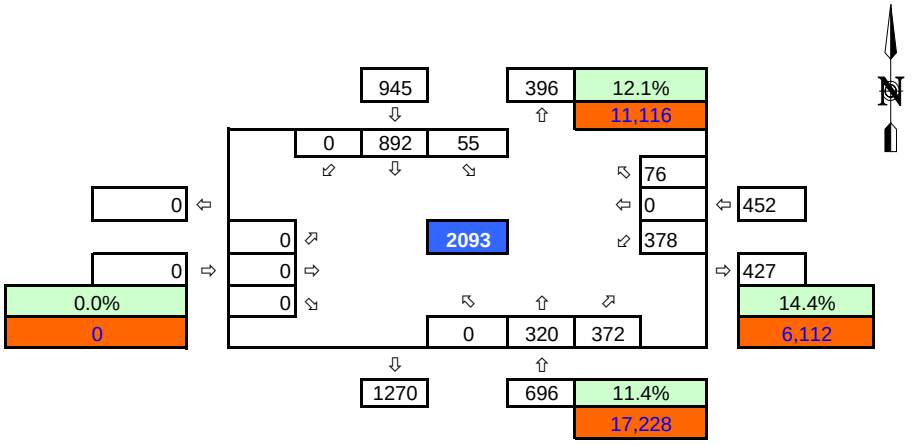
Existing K-Factor	xx%
ADT Volume	xx

Int 23 PM Peak Volumes

Scenario:	Existing Conditions
N/S Street:	Morena Blvd
E/W Street:	Costco Dwy
Intersection #:	23
Project # (last 6)	095413(



Scenario:	Horizon Year Conditions
N/S Street:	Morena Blvd
E/W Street:	Costco Dwy

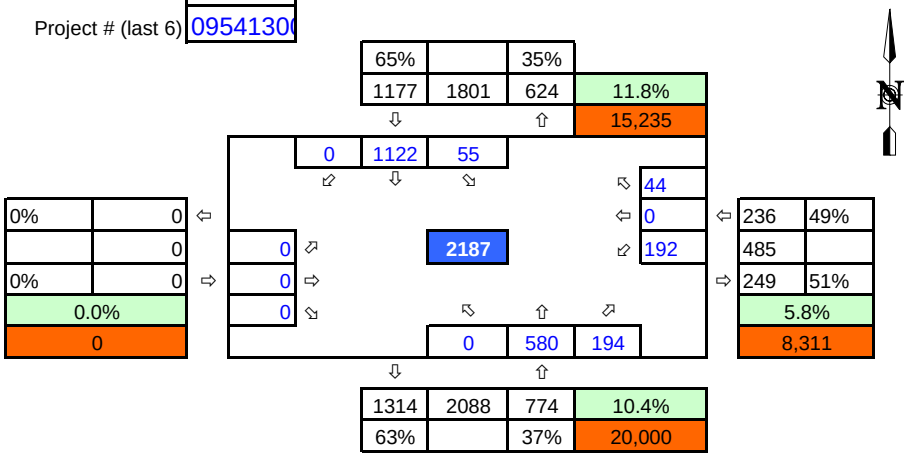


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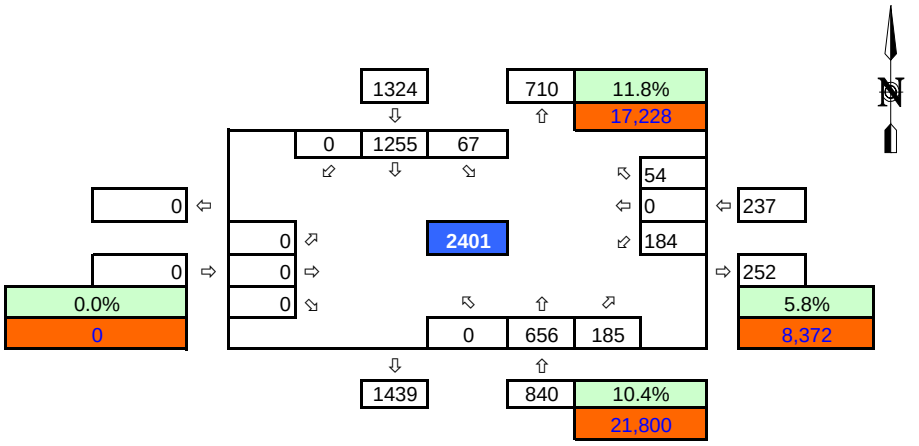
Existing K-Factor	xx%
ADT Volume	xx

Int 24 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Avati Dr**
Intersection #:	24
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Avati Dr**

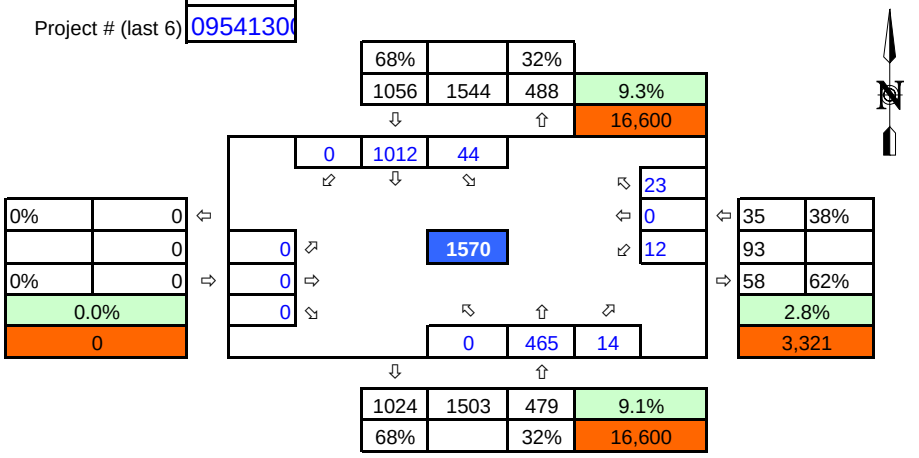


LEGEND

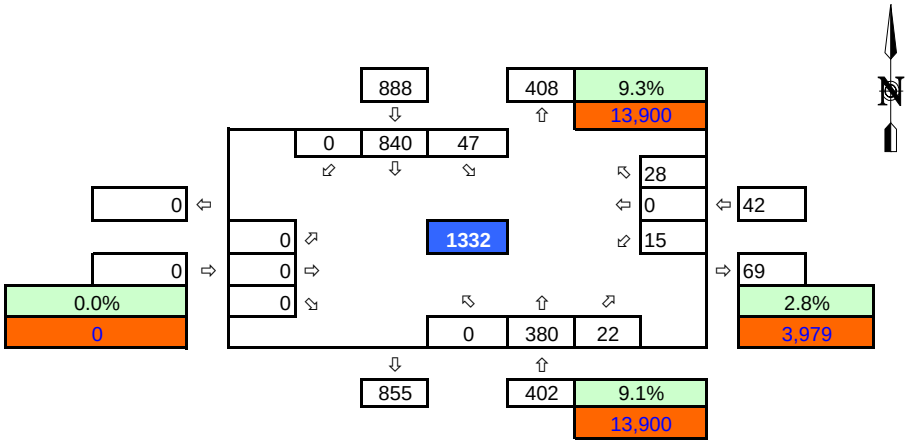
Existing K-Factor	xx%
ADT Volume	xx

Int 27 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**
Intersection #:	27
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Baker St**

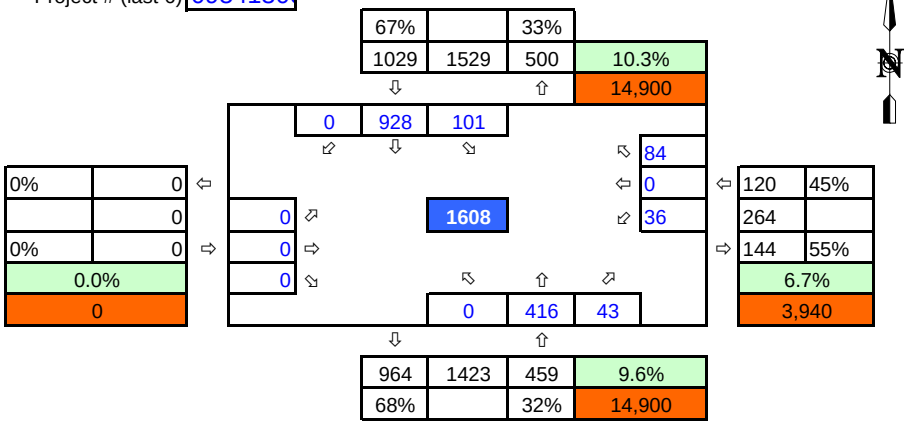


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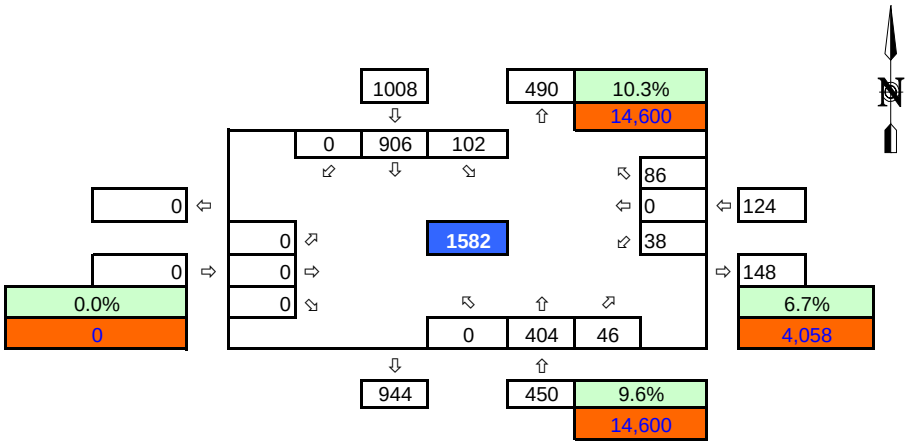
Existing K-Factor	xx%
ADT Volume	xx

Int 28 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**
Intersection #:	28
Project # (last 6)	0954130



Scenario:	**Horizon Year Conditions**
N/S Street:	**Morena Blvd**
E/W Street:	**Gesner St**



LEGEND

Existing K-Factor	xx%
ADT Volume	xx

APPENDIX E

ADOPTED FUTURE CONDITIONS ANALYSIS SUPPORTING INFORMATION

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.

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	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1770	1840		1770	3530			1790			1805	
Flt Permitted	0.34	1.00		0.05	1.00			0.60			0.78	
Satd. Flow (perm)	626	1840		100	3530			1106			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	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	74.3	74.3		74.3	74.3			21.9			21.9	
Effective Green, g (s)	74.3	74.3		74.3	74.3			21.9			21.9	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.21			0.21	
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)	438	1289		70	2474			228			296	
v/s Ratio Prot		c0.71			0.22							
v/s Ratio Perm	0.02			0.08				c0.19			0.18	
v/c Ratio	0.03	1.01		0.11	0.31			0.90			0.85	
Uniform Delay, d1	4.9	15.9		5.2	6.1			41.0			40.5	
Progression Factor	1.00	1.00		1.32	1.27			1.00			1.00	
Incremental Delay, d2	0.1	26.8		3.2	0.3			34.0			20.0	
Delay (s)	5.0	42.7		10.0	8.0			75.0			60.5	
Level of Service	A	D		A	A			E			E	
Approach Delay (s)		42.3			8.0			75.0			60.5	
Approach LOS		D			A			E			E	

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				

c Critical Lane Group

Lane Group	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	798	668	327	1210
v/c Ratio	0.66	0.50	0.23	0.77
Control Delay	17.3	7.7	0.4	14.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.3	7.7	0.4	14.2
Queue Length 50th (ft)	103	39	0	265
Queue Length 95th (ft)	153	75	0	m274
Internal Link Dist (ft)	936	284		899
Turn Bay Length (ft)				
Base Capacity (vph)	1273	1389	1441	1568
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	0.63	0.48	0.23	0.77

Intersection Summary

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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	733	314	602	1113	0
Future Volume (vph)	1	733	314	602	1113	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	0.93	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	
Protected Phases		2	2		4	
Permitted Phases	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		5.2	
Lane Grp Cap (vph)		1204	1120	1441	1567	
v/s Ratio Prot			0.15		c0.35	
v/s Ratio Perm		c0.24		0.23		
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

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

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/s 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

Lane Group	EBT	WBT	NBR
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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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				Perm			Perm
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							
v/s Ratio Perm									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			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	0.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
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)	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.

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	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)	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		1	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	4.9	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)	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	61.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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.

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			0.86
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				Prot			Perm
Protected Phases		8			2 4				2			
Permitted Phases												6
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			
v/s Ratio Perm												0.02
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	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

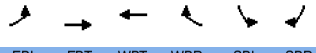
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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)												
pX, platoon unblocked												
vC, conflicting volume	1632			938			1754	2570	469	2101	2570	816
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1632			938			1754	2570	469	2101	2570	816
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	58	100	100	5
cM capacity (veh/h)	394			726			3	26	541	17	26	320

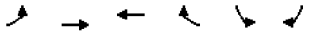
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	469	469	714	816	816	228	304
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	714	0	0	228	304
cSH	1700	1700	1700	1700	1700	541	320
Volume to Capacity	0.28	0.28	0.42	0.48	0.48	0.42	0.95
Queue Length 95th (ft)	0	0	0	0	0	52	243
Control Delay (s)	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%	ICU Level of Service		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



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	6.5	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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



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

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		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	1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3498		3433	3474		1770	3539	1583	1770	3258	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3498		3433	3474		1770	3539	1583	1770	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	pm+ov	Prot	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	0.55	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	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

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

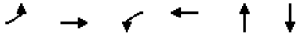
Intersection Summary



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	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	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	3493			1778			1843	
Flt Permitted	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (perm)	1770	3519		1770	3493			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		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			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	
Vehicle Extension (s)	2.0	2.8		2.0	2.5			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							
v/s Ratio Perm								c0.16			0.15	
v/c Ratio	0.46	0.48		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



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.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

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	4.9			4.9			4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.92			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.98	
Satd. Flow (prot)	1770	3528		1770	3501			1708			1801	
Flt Permitted	0.95	1.00		0.95	1.00			0.95			0.40	
Satd. Flow (perm)	1770	3528		1770	3501			1629			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		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
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							
v/s Ratio Perm								0.36			c0.41	
v/c Ratio	0.48	0.91		0.71	0.37			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

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.

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	
Lane Util. Factor	1.00	0.95		0.95		1.00	
Frt	1.00	1.00		0.97		0.97	
Flt Protected	0.95	1.00		1.00		0.96	
Satd. Flow (prot)	1770	3539		3434		1739	
Flt Permitted	0.95	1.00		1.00		0.96	
Satd. Flow (perm)	1770	3539		3434		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	
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	c0.47		0.18		c0.13	
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

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

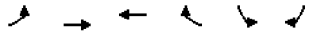
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1631	43	124	593	49	46
Future Volume (vph)	1631	43	124	593	49	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		4.4	5.4	4.9	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	1.00		1.00	1.00	0.93	
Flt 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	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	c0.52		c0.08	0.18	c0.04	
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

Lane Group	EBL	EBT	WBT
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.



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	0.95			
Frt	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	c0.97	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



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			526	478
Turn Bay Length (ft)	225		285		
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.

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	
Frt	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	0.92	0.92
Adj. Flow (vph)	325	1522	500	890	0	851	109
RTOR Reduction (vph)	0	0	0	0	0	11	0
Lane Group Flow (vph)	325	1522	500	890	0	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	
Vehicle Extension (s)	2.0		2.0	4.6		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

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.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3381		1770	3539	3539	1583
Flt Permitted	0.96		0.95	1.00	1.00	1.00
Satd. Flow (perm)	3381		1770	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	NA	NA	Perm
Protected Phases	4		5	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	c0.22		0.06	c0.43	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			

c Critical Lane Group



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.

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
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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	c0.04		c0.45		0.03	c0.25
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

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		4.4	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)		1699			1727		1770	3536		1770	3497	
Flt Permitted		0.84			0.81		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1466			1438		1770	3536		1770	3497	
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		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4				6				
Actuated Green, G (s)		24.8			24.8		6.8	104.6		6.3	104.1	
Effective Green, g (s)		24.8			24.8		6.8	104.6		6.3	104.1	
Actuated g/C Ratio		0.17			0.17		0.05	0.70		0.04	0.69	
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)		242			237		80	2465		74	2426	
v/s Ratio Prot							c0.02	c0.33		0.02	0.28	
v/s Ratio Perm		c0.14			0.01							
v/c Ratio		0.86			0.05		0.53	0.47		0.50	0.41	
Uniform Delay, d1		60.9			52.6		70.0	10.2		70.3	9.8	
Progression Factor		1.00			1.00		1.20	0.84		0.95	1.13	
Incremental Delay, d2		24.0			0.0		2.5	0.6		1.5	0.4	
Delay (s)		84.9			52.7		86.8	9.1		68.1	11.5	
Level of Service		F			D		F	A		E	B	
Approach Delay (s)		84.9			52.7			11.8			13.5	
Approach LOS		F			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
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		804
Turn Bay Length (ft)			90	
Base Capacity (vph)	508	2246	236	2993
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.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

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	
Frt					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		Prot	NA		Prot	NA	
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			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								c0.34		c0.09	0.25	
v/s Ratio Perm					c0.00							
v/c Ratio					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	A	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.3	
Intersection Capacity Utilization	55.7%	ICU Level of Service	B	
Analysis Period (min)	15			

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.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Lane Util. Factor	1.00		0.91		1.00	0.95
Frt	0.89		1.00		1.00	1.00
Flt Protected	0.99		1.00		0.95	1.00
Satd. Flow (prot)	1642		5070		1770	3539
Flt Permitted	0.99		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	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		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	2.9		57.1		3.0	64.1
Effective Green, g (s)	2.9		57.1		3.0	64.1
Actuated g/C Ratio	0.04		0.76		0.04	0.85
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)	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	0.79
Uniform Delay, d1	34.8		2.9		35.0	2.4
Progression Factor	1.00		1.00		0.82	2.20
Incremental Delay, d2	0.6		0.3		1.2	1.1
Delay (s)	35.4		3.2		29.9	6.4
Level of Service	D		A		C	A
Approach Delay (s)	35.4		3.2			6.6
Approach LOS	D		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		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	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
Hadj (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%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	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
Hadj (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		A	

Intersection Summary				
Delay	12.6			
Level of Service	B			
Intersection Capacity Utilization	37.0%	ICU Level of Service		A
Analysis Period (min)	15			



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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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		1.00	0.95
Frt	0.95		0.98		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		

c 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

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
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	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				

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

25: Morena Blvd & Balboa WB Ramps

Timing Plan: AM Peak Period



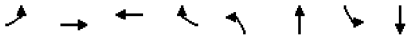
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	0	151	0	0	0	0	1146	280	0	204	410
Future Volume (vph)	90	0	151	0	0	0	0	1146	280	0	204	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					4.0	4.0		4.0	4.0
Lane Util. Factor	1.00		1.00					0.95	1.00		0.95	1.00
Frt	1.00		0.85					1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770		1583					3539	1583		3539	1583
Flt Permitted	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770		1583					3539	1583		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)	98	0	164	0	0	0	0	1246	304	0	222	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	0	1246	304	0	222	446
Turn Type	Perm		Perm					NA	Free		NA	Free
Protected Phases								2			6	
Permitted Phases	4		4						Free			Free
Actuated Green, G (s)	6.1		6.1					23.4	37.5		23.4	37.5
Effective Green, g (s)	6.1		6.1					23.4	37.5		23.4	37.5
Actuated g/C Ratio	0.16		0.16					0.62	1.00		0.62	1.00
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)	287		257					2208	1583		2208	1583
v/s Ratio Prot								c0.35			0.06	
v/s Ratio Perm	0.06		0.02						0.19			c0.28
v/c Ratio	0.34		0.10					0.56	0.19		0.10	0.28
Uniform Delay, d1	13.9		13.4					4.1	0.0		2.8	0.0
Progression Factor	1.00		1.00					1.00	1.00		1.00	1.00
Incremental Delay, d2	0.7		0.2					0.3	0.3		0.0	0.4
Delay (s)	14.6		13.6					4.4	0.3		2.8	0.4
Level of Service	B		B					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

26: Morena Blvd & Balboa Station Driveway/Balboa EB Ramps

Timing Plan: AM Peak Period

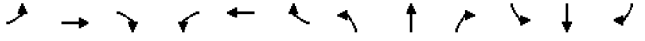


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	12	236	478	10	1203	54	331
v/c Ratio	0.16	0.06	0.58	0.72	0.08	0.73	0.43	0.18
Control Delay	30.8	28.4	30.0	12.7	33.9	19.9	45.1	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	28.4	30.0	12.7	33.9	19.9	45.1	9.8
Queue Length 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.

26: Morena Blvd & Balboa Station Driveway/Balboa EB Ramps

Timing Plan: AM Peak Period



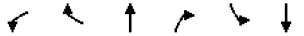
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	10	1	140	77	440	9	957	150	50	258	47
Future Volume (vph)	29	10	1	140	77	440	9	957	150	50	258	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.99			1.00	0.85	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	
Satd. Flow (prot)	1770	1839			1805	1583	1770	3467		1770	3457	
Flt Permitted	0.95	1.00			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1839			1805	1583	1770	3467		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	
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	29.6		2.0	30.9	
Effective Green, g (s)	3.8	3.8			13.5	13.5	0.7	29.6		2.0	30.9	
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	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	103	107			375	329	19	1581		54	1645	
v/s Ratio Prot	c0.02	0.01			c0.13		0.01	c0.34		c0.03	0.09	
v/s Ratio Perm						0.10						
v/c Ratio	0.31	0.10			0.63	0.49	0.53	0.75		1.00	0.19	
Uniform Delay, d1	29.3	28.9			23.4	22.7	31.9	14.6		31.5	9.8	
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	29.4			26.7	23.8	55.8	16.7		153.9	9.9	
Level of Service	C	C			C	C	E	B		F	A	
Approach Delay (s)		30.6			24.8			17.0			30.1	
Approach LOS		C			C			B			C	

Intersection Summary				
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C	
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

27: Morena Blvd & Baker St

Timing Plan: AM Peak Period



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
Grade	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			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1279	1049			1067	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1279	1049			1067	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	87			98	
cM 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			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			

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			3361
Turn Bay Length (ft)			95	95	
Base Capacity (vph)	1389	3472	1553	1218	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	0.31	0.03	0.05	0.12

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Lane Util. Factor	1.00		0.95	1.00	1.00	0.95
Frt	0.92		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	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		

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	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							
pX, platoon unblocked	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
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	58	100	100	58
cM 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	B

Intersection Summary					
Average Delay	2.1				
Intersection Capacity Utilization	65.5%	ICU Level of Service		C	
Analysis Period (min)	15				

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
Moraga Ave	II	45	28.0	5.3	33.3	0.27	29.1	B
Clairemont 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
Clairemont Dr	II	45	14.7	44.5	59.2	0.13	8.2	F
Moraga Ave	II	45	49.7	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
Bluffside 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

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
Bluffside 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		116.8	118.6	235.4	0.89	13.6	E

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.

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	
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			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1770	1833		1770	3529			1789			1755	
Flt Permitted	0.11	1.00		0.11	1.00			0.69			0.83	
Satd. Flow (perm)	206	1833		206	3529			1268			1477	
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	3	0	0	17	0
Lane Group Flow (vph)	34	1158	0	20	1520	0	0	436	0	0	177	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)	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	987		110	1901			399			465	
v/s Ratio Prot		c0.63			0.43							
v/s Ratio Perm	0.16			0.10				c0.34			0.12	
v/c Ratio	0.31	1.17		0.18	0.80			1.09			0.38	
Uniform Delay, d1	8.5	15.4		7.9	12.5			22.9			17.9	
Progression Factor	1.00	1.00		0.84	0.94			1.00			1.00	
Incremental Delay, d2	7.2	88.6		3.3	3.3			72.0			0.2	
Delay (s)	15.7	104.1		9.9	15.1			95.0			18.1	
Level of Service	B	F		A	B			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	1.14				
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

Lane Group	EBT	WBT	WBR	SBL
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.

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	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/s Ratio Perm				0.43		
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		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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
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.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	37	1324	1892	599	570	47
Future Volume (vph)	37	1324	1892	599	570	47
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)	40	1439	2057	651	620	51
RTOR Reduction (vph)	0	0	0	0	0	40
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

Lane Group	EBT	WBT	NBR
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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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			
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)		3520			3539				1611			
Flt Permitted		1.00			1.00				1.00			
Satd. Flow (perm)		3520			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	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				Perm			Perm
Protected Phases		2			6							
Permitted Phases									2			6
Actuated Green, G (s)		170.0			170.0				170.0			
Effective Green, g (s)		170.0			170.0				170.0			
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)		3520			3539				1611			
v/s Ratio Prot		0.58			c0.74							
v/s Ratio Perm									0.03			
v/c Ratio		0.58			0.74				0.03			
Uniform Delay, d1		0.0			0.0				0.0			
Progression Factor		1.00			1.00				1.00			
Incremental Delay, d2		0.6			0.6				0.0			
Delay (s)		0.6			0.6				0.0			
Level of Service		A			A				A			
Approach Delay (s)		0.6			0.6			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	0.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
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)	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.

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	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)	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	19.1	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	19.1	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	70.5	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	19.0	
Intersection Capacity Utilization	95.3%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBT	WBT	NBR	SBR
Lane Group Flow (vph)	1539	2503	976	185
v/c Ratio	0.91	0.49	0.96	0.31
Control Delay	22.2	0.3	38.3	10.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.2	0.3	38.3	10.5
Queue Length 50th (ft)	199	0	149	28
Queue Length 95th (ft)	#346	0	#277	66
Internal Link Dist (ft)	1151	265		
Turn Bay Length (ft)				
Base Capacity (vph)	1698	5060	1018	606
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	0.49	0.96	0.31

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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 (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			1.00				0.85			0.86
Flt Protected		1.00			1.00				1.00			1.00
Satd. Flow (prot)		3539			5061				2787			1611
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3539			5061				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	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				Prot			Perm
Protected Phases		8			2 4				2			
Permitted Phases												6
Actuated Green, G (s)		24.0			50.0				18.0			18.0
Effective Green, g (s)		24.0			50.0				18.0			18.0
Actuated g/C Ratio		0.48			1.00				0.36			0.36
Clearance Time (s)		4.0							4.0			4.0
Vehicle Extension (s)		3.0							3.0			3.0
Lane Grp Cap (vph)		1698			5061				1003			579
v/s Ratio Prot		c0.43			0.49				c0.34			
v/s Ratio Perm												0.10
v/c Ratio		0.91			0.49				0.96			0.27
Uniform Delay, d1		12.0			0.0				15.6			11.4
Progression Factor		1.00			1.00				1.00			1.00
Incremental Delay, d2		7.3			0.1				18.8			0.3
Delay (s)		19.3			0.1				34.4			11.6
Level of Service		B			A				C			B
Approach Delay (s)		19.3			0.1			34.4			11.6	
Approach LOS		B			A			C			B	

Intersection Summary

HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

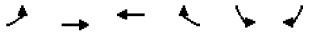
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1449	860	0	1682	0	0	0	337	0	0	90
Future Volume (Veh/h)	0	1449	860	0	1682	0	0	0	337	0	0	90
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	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)												
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
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (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				

Lane Group	EBL	EBT	WBT	WBR	SBL	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		501	
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



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	6.5	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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



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.

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		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	1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3513		3433	3481		1770	3539	1583	1770	3344	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3513		3433	3481		1770	3539	1583	1770	3344	
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	pm+ov	Prot	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	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	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	158.8	Sum of lost time (s)	20.5	
Intersection Capacity Utilization	95.2%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
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	53
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.

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	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		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	3488		1770	3516			1829			1818	
Flt Permitted	0.95	1.00		0.95	1.00			0.97			0.96	
Satd. Flow (perm)	1770	3488		1770	3516			1787			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		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	1.8	16.2		4.8	19.3			15.6			15.6	
Effective Green, g (s)	1.8	16.2		4.8	19.3			15.6			15.6	
Actuated g/C Ratio	0.04	0.32		0.09	0.38			0.31			0.31	
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)	62	1107		166	1330			546			536	
v/s Ratio Prot	0.02	0.12		c0.08	c0.17							
v/s Ratio Perm								c0.23			0.15	
v/c Ratio	0.56	0.38		0.90	0.45			0.75			0.48	
Uniform Delay, d1	24.2	13.5		22.9	11.9			16.0			14.4	
Progression Factor	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			0.3	
Delay (s)	31.1	13.7		63.4	12.0			21.1			14.7	
Level of Service	C	B		E	B			C			B	
Approach Delay (s)		15.0			22.3			21.1			14.7	
Approach LOS		B			C			C			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

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.

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	4.9			4.9			4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3501		1770	3466			1771			1800	
Flt Permitted	0.95	1.00		0.95	1.00			0.88			0.70	
Satd. Flow (perm)	1770	3501		1770	3466			1563			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		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			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							
v/s Ratio Perm								0.22			c0.29	
v/c Ratio	0.57	0.62		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

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.

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	22	1108	0	1403	67	77	27
Future Volume (vph)	22	1108	0	1403	67	77	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.9		4.9	
Lane Util. Factor	1.00	0.95		0.95		1.00	
Frt	1.00	1.00		0.99		0.97	
Flt Protected	0.95	1.00		1.00		0.96	
Satd. Flow (prot)	1770	3539		3515		1734	
Flt Permitted	0.95	1.00		1.00		0.96	
Satd. Flow (perm)	1770	3539		3515		1734	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	1204	0	1525	73	84	29
RTOR Reduction (vph)	0	0	0	2	0	10	0
Lane Group Flow (vph)	24	1204	0	1596	0	103	0
Turn Type	Prot	NA	Prot	NA		Prot	
Protected Phases	5	2	1	6		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	c0.34		c0.45		c0.06	
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

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

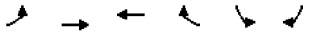
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1151	34	89	1482	17	27
Future Volume (vph)	1151	34	89	1482	17	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		4.4	5.4	4.9	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	1.00		1.00	1.00	0.92	
Flt 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	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		c0.05	c0.46	c0.01	
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

Lane Group	EBL	EBT	WBT
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



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			
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	0.92	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	170.0	148.6			
Effective Green, g (s)	11.7	170.0	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	c0.65	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



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			526	478
Turn Bay Length (ft)	225		285		
Base Capacity (vph)	240	1583	1481	3016	1405
Starvation Cap Reductn	0	0	126	951	75
Spillback Cap Reductn	0	160	0	0	346
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.



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	
Lane Util. Factor	1.00	1.00	0.97	0.95		0.95	
Frt	1.00	0.85	1.00	1.00		0.97	
Flt Protected	0.95	1.00	0.95	1.00		1.00	
Satd. Flow (prot)	1770	1583	3433	3539		3417	
Flt Permitted	0.95	1.00	0.95	1.00		1.00	
Satd. Flow (perm)	1770	1583	3433	3539		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	NA	Prot	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		5.7	5.7		4.9	
Vehicle Extension (s)	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



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.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3309		1770	3539	3539	1583
Flt Permitted	0.97		0.95	1.00	1.00	1.00
Satd. Flow (perm)	3309		1770	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	NA	NA	Perm
Protected Phases	4		5	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



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.

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
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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

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.



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	0.95		1.00	0.95	
Frt		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	7	0	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		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4				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							c0.04	c0.38		0.02	0.33	
v/s Ratio Perm		c0.13			0.01							
v/c Ratio		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			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			

c 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		804
Turn Bay Length (ft)			90	
Base Capacity (vph)	410	2297	208	2786
Starvation Cap Reductn	0	114	0	0
Spillback Cap Reductn	197	0	0	1193
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.88	0.58	0.55	0.67

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

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			5.0		4.4	5.0	
Lane Util. Factor					1.00			0.95		1.00	0.95	
Frt					0.96			1.00		1.00	1.00	
Flt Protected					0.97			1.00		0.95	1.00	
Satd. Flow (prot)					1723			3523		1770	3539	
Flt Permitted					0.80			1.00		0.95	1.00	
Satd. Flow (perm)					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	0	132	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	55	0	0	1265	0	114	1070	0
Turn Type				Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)					8.2			54.5		8.0	66.9	
Effective Green, g (s)					8.2			54.5		8.0	66.9	
Actuated g/C Ratio					0.10			0.64		0.09	0.79	
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)					136			2258		166	2785	
v/s Ratio Prot								c0.36		c0.06	0.30	
v/s Ratio Perm					c0.04							
v/c Ratio					0.41			0.56		0.69	0.38	
Uniform Delay, d1					36.1			8.5		37.3	2.8	
Progression Factor					1.00			1.15		1.07	1.67	
Incremental Delay, d2					0.7			0.9		8.1	0.4	
Delay (s)					36.8			10.8		47.8	5.0	
Level of Service					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.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Lane Util. Factor	1.00		0.91		1.00	0.95
Frt	0.88		1.00		1.00	1.00
Flt Protected	0.99		1.00		0.95	1.00
Satd. Flow (prot)	1634		5075		1770	3539
Flt Permitted	0.99		1.00		0.95	1.00
Satd. Flow (perm)	1634		5075		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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
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
Hadj (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	8.4
Approach LOS	A		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			

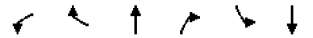
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	613	17	171	275	24	303
Future Volume (vph)	613	17	171	275	24	303
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	666	18	186	299	26	329

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
Hadj (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%	ICU Level of Service	B
Analysis Period (min)		15		

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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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		5.5		4.4	5.5
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.98		0.92		1.00	1.00
Flt Protected	0.96		1.00		0.95	1.00
Satd. Flow (prot)	3384		3259		1770	3539
Flt Permitted	0.96		1.00		0.95	1.00
Satd. Flow (perm)	3384		3259		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		Prot	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	c0.13		0.15		0.03	c0.28
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



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



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		6.0	4.9	4.4	5.7
Lane Util. Factor	0.97	1.00		0.95	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	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	c0.06	0.01		0.20	0.02	0.04	c0.39
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



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

25: Morena Blvd & Balboa WB Ramps

Timing Plan: PM Peak Period



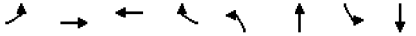
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	0	259	0	0	0	0	1093	90	0	722	970
Future Volume (vph)	150	0	259	0	0	0	0	1093	90	0	722	970
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					4.0	4.0		4.0	4.0
Lane Util. Factor	1.00		1.00					0.95	1.00		0.95	1.00
Frt	1.00		0.85					1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770		1583					3539	1583		3539	1583
Flt Permitted	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770		1583					3539	1583		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)	163	0	282	0	0	0	0	1188	98	0	785	1054
RTOR Reduction (vph)	0	0	135	0	0	0	0	0	40	0	0	0
Lane Group Flow (vph)	163	0	147	0	0	0	0	1188	58	0	785	1054
Turn Type	Perm		Perm					NA	Perm		NA	Free
Protected Phases								2			6	
Permitted Phases	4		4						2			Free
Actuated Green, G (s)	9.8		9.8					25.4	25.4		25.4	43.2
Effective Green, g (s)	9.8		9.8					25.4	25.4		25.4	43.2
Actuated g/C Ratio	0.23		0.23					0.59	0.59		0.59	1.00
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)	401		359					2080	930		2080	1583
v/s Ratio Prot								0.34			0.22	
v/s Ratio Perm	0.09		0.09						0.04			c0.67
v/c Ratio	0.41		0.41					0.57	0.06		0.38	0.67
Uniform Delay, d1	14.2		14.2					5.5	3.8		4.7	0.0
Progression Factor	1.00		1.00					1.00	1.00		1.00	1.00
Incremental Delay, d2	0.7		0.8					0.4	0.0		0.1	2.2
Delay (s)	14.9		15.0					5.9	3.8		4.8	2.2
Level of Service	B		B					A	A		A	A
Approach Delay (s)		15.0			0.0			5.7			3.3	
Approach LOS		B			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	43.2	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	45.2%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

26: Morena Blvd & Balboa Station Driveway/Balboa EB Ramps

Timing Plan: PM Peak Period



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
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		882
Turn Bay Length (ft)					100		135	
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.

26: Morena Blvd & Balboa Station Driveway/Balboa EB Ramps

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	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.98			1.00	0.85	1.00	0.96		1.00	1.00	
Flt Protected	0.95	1.00			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1822			1782	1583	1770	3412		1770	3532	
Flt Permitted	0.95	1.00			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1822			1782	1583	1770	3412		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	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	7.1	7.1			16.1	16.1	0.7	22.2		7.1	28.6	
Effective Green, g (s)	7.1	7.1			16.1	16.1	0.7	22.2		7.1	28.6	
Actuated g/C Ratio	0.10	0.10			0.24	0.24	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	
Vehicle Extension (s)	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	c0.05	0.02			c0.20		0.00	c0.23		c0.08	0.26	
v/s Ratio Perm						0.17						
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	C	
HCM 2000 Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	68.5	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	68.8%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

27: Morena Blvd & Baker St

Timing Plan: PM Peak Period



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
Grade	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			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1165	520			533	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1165	520			533	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	96			96	
cM 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			A		
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			

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			3362
Turn Bay Length (ft)			95	95	
Base Capacity (vph)	1206	1863	858	430	2686
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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
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)	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	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	c0.03		0.14		0.07	c0.31
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			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							
pX, 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
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (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
cM 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%	ICU Level of Service	C	
Analysis Period (min)	15			

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	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
Moraga Ave	II	45	28.0	5.9	33.9	0.27	28.6	B
Clairemont 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
Clairemont Dr	II	45	14.7	73.2	87.9	0.13	5.5	F
Moraga Ave	II	45	49.7	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
Olney 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
Bluffside 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

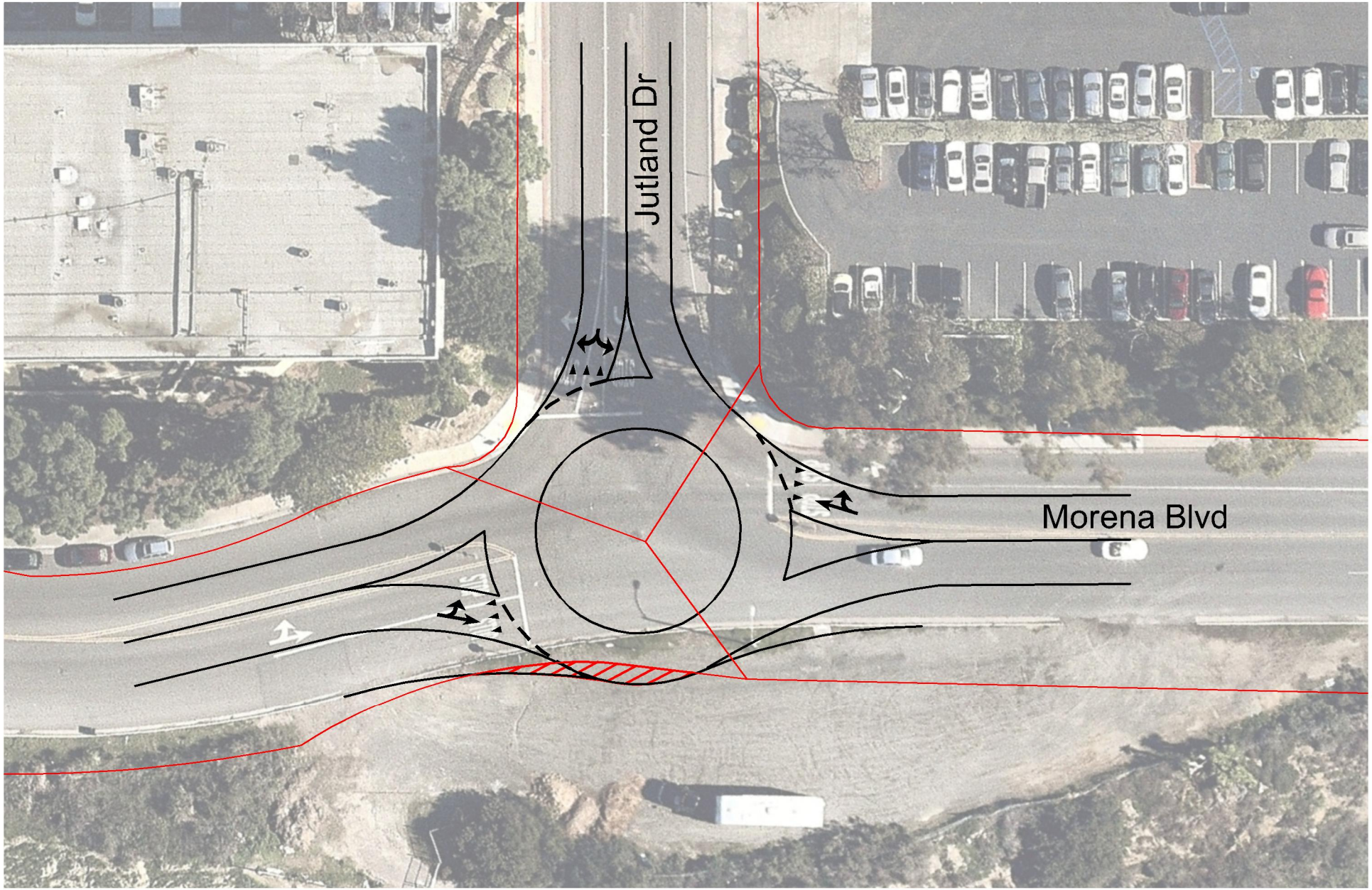
Balboa Transit Station
Horizon Year Adopted Conditions
Timing Plan: PM Peak Period

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
Bluffside 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		116.8	264.3	381.1	0.89	8.4	F

APPENDIX F

INTERSECTION MITIGATIONS



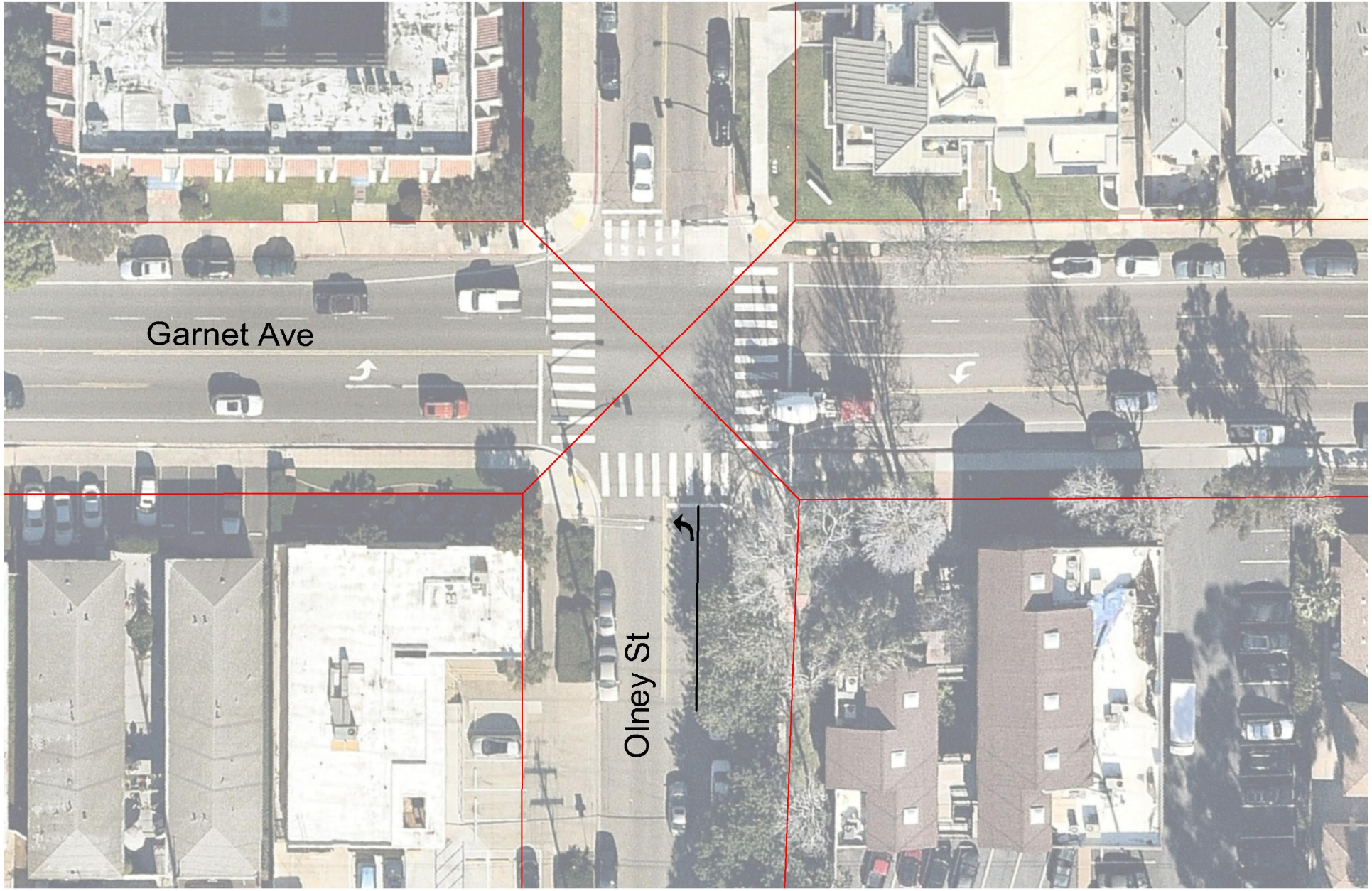
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RIGHT OF WAY IMPACT

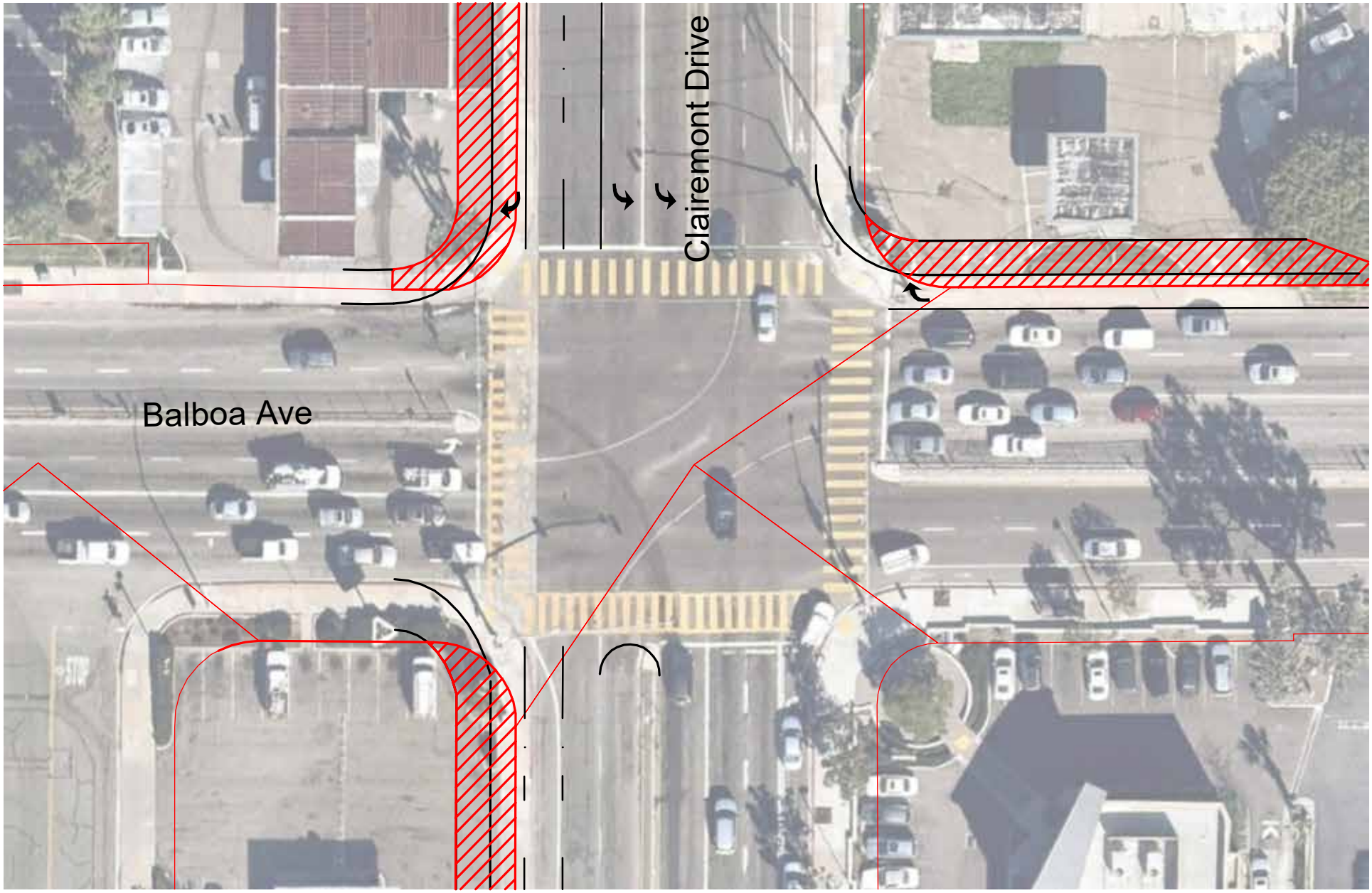
ADOPTED, PREFERRED, & REDUCED MITIGATION

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40



PREFERRED MITIGATION



KEY

RIGHT OF WAY IMPACT

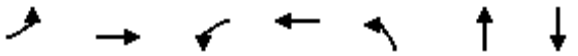
PREFERRED & REDUCED MITIGATION

NORTH

GRAPHIC SCALE IN FEET
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APPENDIX G

MITIGATED ADOPTED FUTURE CONDITIONS ANALYSIS SUPPORTING INFORMATION

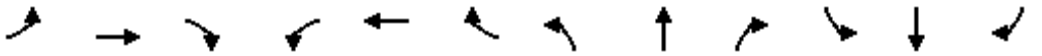


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	15	1301	8	777	109	101	257
v/c Ratio	0.03	0.99	0.11	0.31	0.69	0.29	0.86
Control Delay	5.2	39.5	9.3	6.0	59.5	31.4	64.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	39.5	9.3	6.0	59.5	31.4	64.8
Queue Length 50th (ft)	3	~885	2	90	63	47	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.

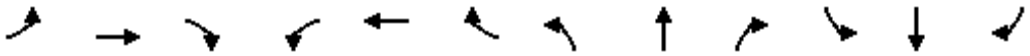
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



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

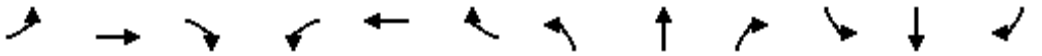


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	905	935	588	198	753	264	501	484	249	273	282	498
v/c Ratio	1.02	0.72	0.60	0.68	0.77	0.51	0.85	0.44	0.34	0.75	0.32	0.32
Control Delay	86.9	43.3	16.2	76.6	61.4	8.9	72.8	42.2	20.2	75.4	46.5	17.5
Queue Delay	0.0	0.6	1.6	0.0	0.0	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.



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	

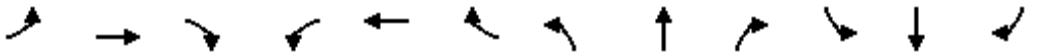
Intersection Summary			
HCM 2000 Control Delay	52.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



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



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		

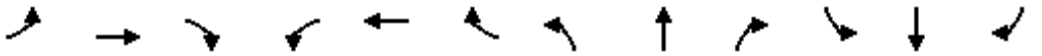
c Critical Lane Group



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.



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



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

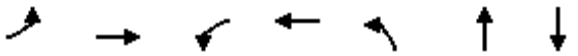
Site: 1 [AM - Future Adopted MITIGATED - Morena at Jutland]

Roundabout
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of 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.



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.

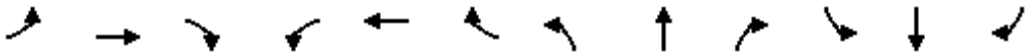
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

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

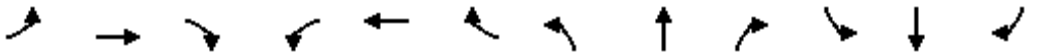


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	618	904	496	297	979	398	721	430	315	298	401	984
v/c Ratio	0.74	0.66	0.49	0.72	0.73	0.54	1.07	0.52	0.47	0.73	0.73	0.78
Control Delay	53.6	38.1	13.8	67.2	49.3	22.4	104.7	47.4	23.6	68.1	62.5	34.2
Queue Delay	0.0	0.0	0.7	0.0	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.



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		

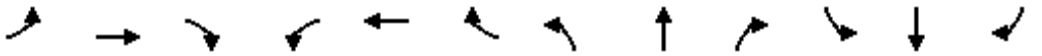
c Critical Lane Group



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.



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		

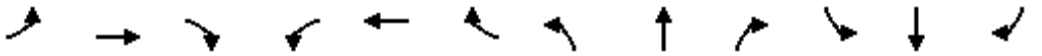
c Critical Lane Group



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.



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	1	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.



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 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	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

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.

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	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1770	1837		1770	3532			1793			1806	
Flt Permitted	0.35	1.00		0.05	1.00			0.59			0.82	
Satd. Flow (perm)	644	1837		102	3532			1080			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		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
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			0.21							
v/s Ratio Perm	0.02			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

Lane Group	EBT	WBT	WBR	SBL
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.

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	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/s Ratio Perm		c0.19		0.27		
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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
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
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)	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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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				Perm			Perm
Protected Phases		2			6							
Permitted Phases									2			6
Actuated Green, G (s)		125.0			125.0				125.0			
Effective Green, g (s)		125.0			125.0				125.0			
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)		3529			3539				1611			
v/s Ratio Prot		c0.56			0.42							
v/s Ratio Perm									0.02			
v/c Ratio		0.56			0.42				0.02			
Uniform Delay, d1		0.0			0.0				0.0			
Progression Factor		1.00			1.00				1.00			
Incremental Delay, d2		0.5			0.3				0.0			
Delay (s)		0.5			0.3				0.0			
Level of Service		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

Lane Group	EBL	EBT	EBR	WBL	WBT	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.

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	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)	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	4.9	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	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	HCM 2000 Level of Service		E	
HCM 2000 Volume to Capacity ratio	0.88				
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

Lane Group	EBT	WBT	NBR	SBR
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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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				Prot			Perm
Protected Phases		8			2 4				2			
Permitted Phases												6
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
Vehicle Extension (s)		3.0							3.0			3.0
Lane Grp Cap (vph)		1613			5017				1011			584
v/s Ratio Prot		c0.37			c0.42				0.07			
v/s Ratio Perm												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

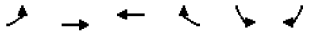
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	741	657	0	1312	0	210
Future Volume (Veh/h)	741	657	0	1312	0	210
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	805	714	0	1426	0	228
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	442			634		
pX, platoon unblocked					0.72	
vC, conflicting volume			805		1518	402
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			805		934	402
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	62
cM capacity (veh/h)			815		190	597

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%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBT	WBR	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



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	6.5	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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.

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		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	1.00	0.95	
Frt	1.00	0.99		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	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3499		3433	3461		1770	3539	1583	1770	3299	
Flt Permitted	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		1770	3539	1583	1770	3299	
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	49	0	146	0
Lane Group Flow (vph)	202	878	0	472	901	0	137	441	429	228	538	0
Turn Type	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	27.8		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

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		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

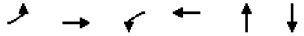
Intersection Summary



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	
Frt	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		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	3.2	14.6		1.4	12.9			11.9			11.9	
Effective Green, g (s)	3.2	14.6		1.4	12.9			11.9			11.9	
Actuated g/C Ratio	0.08	0.35		0.03	0.30			0.28			0.28	
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)	133	1214		58	1064			486			509	
v/s Ratio Prot	c0.04	c0.17		0.03	0.05							
v/s Ratio Perm								c0.17			0.15	
v/c Ratio	0.47	0.48		0.86	0.18			0.62			0.55	
Uniform Delay, d1	18.7	10.9		20.4	10.8			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		68.8	0.1			1.6			0.7	
Delay (s)	19.7	11.1		89.2	10.9			14.9			13.7	
Level of Service	B	B		F	B			B			B	
Approach Delay (s)		12.0			26.7			14.9			13.7	
Approach LOS		B			C			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.

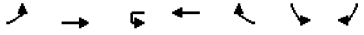
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	1247	25	45	479	49	34	193	361	163	114	17
Future Volume (vph)	28	1247	25	45	479	49	34	193	361	163	114	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	4.9			4.9			4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	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	3490			1704			1799	
Flt Permitted	0.95	1.00		0.95	1.00			0.96			0.38	
Satd. Flow (perm)	1770	3529		1770	3490			1648			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		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	3.7	42.1		3.4	42.0			46.1			46.1	
Effective Green, g (s)	3.7	42.1		3.4	42.0			46.1			46.1	
Actuated g/C Ratio	0.03	0.40		0.03	0.40			0.43			0.43	
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	1401		56	1382			716			309	
v/s Ratio Prot	0.02	c0.39		c0.03	0.16							
v/s Ratio Perm								0.36			c0.45	
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

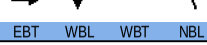
Intersection Summary
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	64	1611	0	496	120	171	48
Future Volume (vph)	64	1611	0	496	120	171	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.9		4.9	
Lane Util. Factor	1.00	0.95		0.95		1.00	
Frt	1.00	1.00		0.97		0.97	
Flt Protected	0.95	1.00		1.00		0.96	
Satd. Flow (prot)	1770	3539		3436		1740	
Flt Permitted	0.95	1.00		1.00		0.96	
Satd. Flow (perm)	1770	3539		3436		1740	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	1751	0	539	130	186	52
RTOR Reduction (vph)	0	0	0	15	0	11	0
Lane Group Flow (vph)	70	1751	0	654	0	227	0
Turn Type	Prot	NA	Prot	NA		Prot	
Protected Phases	5	2	1	6		4	
Permitted Phases							
Actuated Green, G (s)	7.5	77.9		66.2		18.1	
Effective Green, g (s)	7.5	77.9		66.2		18.1	
Actuated g/C Ratio	0.07	0.73		0.62		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)	125	2600		2145		297	
v/s Ratio Prot	0.04	c0.49		0.19		c0.13	
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.

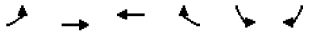
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1698	48	130	617	52	48
Future Volume (vph)	1698	48	130	617	52	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		4.4	5.4	4.9	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	1.00		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	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	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	c0.54		c0.08	0.19	c0.04	
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

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

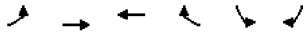
Intersection Summary



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			
Frt	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	

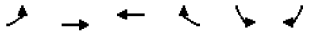
Intersection Summary				
HCM 2000 Control Delay	4.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.7	
Intersection Capacity Utilization	51.3%	ICU Level of Service	A	
Analysis Period (min)	15			

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.



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	5.7	4.9	4.0
Lane Util. Factor	1.00	0.95	0.95	0.88	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)	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	c0.46	0.15	0.09	c0.27	
v/s Ratio Perm						0.06
v/c Ratio	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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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
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)	3388		1770	3539	3539	1583
Flt Permitted	0.96		0.95	1.00	1.00	1.00
Satd. Flow (perm)	3388		1770	3539	3539	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	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases						6
Actuated Green, G (s)	23.3		6.7	42.3	30.6	30.6
Effective Green, g (s)	23.3		6.7	42.3	30.6	30.6
Actuated g/C Ratio	0.31		0.09	0.56	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)	1052		158	1995	1443	645
v/s Ratio Prot	c0.27		0.06	c0.42	0.24	
v/s Ratio Perm						0.11
v/c Ratio	0.87		0.70	0.74	0.58	0.27
Uniform Delay, d1	24.4		33.2	12.2	17.2	14.8
Progression Factor	1.00		0.89	1.54	1.00	1.00
Incremental Delay, d2	7.3		8.3	2.0	1.7	1.0
Delay (s)	31.7		37.9	20.8	18.9	15.8
Level of Service	C		D	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



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

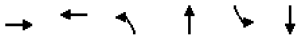
Intersection Summary
m Volume for 95th percentile queue is metered by upstream signal.



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
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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.

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		4.4	5.0		4.4	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.94			0.96		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1702			1735		1770	3536		1770	3472	
Flt Permitted		0.83			0.81		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1454			1451		1770	3536		1770	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		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4				6				
Actuated Green, G (s)		32.0			32.0		7.5	97.5		6.2	96.2	
Effective Green, g (s)		32.0			32.0		7.5	97.5		6.2	96.2	
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			309		88	2298		73	2226	
v/s Ratio Prot							c0.03	c0.36		0.02	0.32	
v/s Ratio Perm		c0.24			0.01							
v/c Ratio		1.14			0.04		0.68	0.55		0.48	0.50	
Uniform Delay, d1		59.0			46.8		70.1	14.3		70.3	14.2	
Progression Factor		1.00			1.00		1.24	0.69		1.00	1.00	
Incremental Delay, d2		96.1			0.0		13.5	0.8		1.8	0.8	
Delay (s)		155.1			46.8		100.4	10.6		72.1	15.0	
Level of Service		F			D		F	B		E	B	
Approach Delay (s)		155.1			46.8			14.7			16.7	
Approach LOS		F			D			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

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	45	0	87	0	1076	110	259	838	0
Future Volume (vph)	0	0	0	45	0	87	0	1076	110	259	838	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	
Frt					0.91			0.99		1.00	1.00	
Flt Protected					0.98			1.00		0.95	1.00	
Satd. Flow (prot)					1668			3490		1770	3539	
Flt Permitted					0.89			1.00		0.95	1.00	
Satd. Flow (perm)					1504			3490		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	49	0	95	0	1170	120	282	911	0
RTOR Reduction (vph)	0	0	0	0	133	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				Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)					5.6			45.1		10.0	59.5	
Effective Green, g (s)					5.6			45.1		10.0	59.5	
Actuated g/C Ratio					0.07			0.60		0.13	0.79	
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)					112			2098		236	2807	
v/s Ratio Prot								c0.37		c0.16	0.26	
v/s Ratio Perm					c0.01							
v/c Ratio					0.10			0.61		1.19	0.32	
Uniform Delay, d1					32.3			9.4		32.5	2.2	
Progression Factor					1.00			1.43		0.96	1.24	
Incremental Delay, d2					0.1			1.0		116.7	0.3	
Delay (s)					32.5			14.5		147.9	2.9	
Level of Service					C			B		F	A	
Approach Delay (s)		0.0			32.5			14.5			37.2	
Approach LOS		A			C			B			D	

Intersection Summary				
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.3	
Intersection Capacity Utilization	67.4%	ICU Level of Service	C	
Analysis Period (min)	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		535
Turn Bay Length (ft)			60	
Base Capacity (vph)	365	4512	148	3256
Starvation Cap Reductn	0	0	0	23
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.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Lane Util. Factor	1.00		0.91		1.00	0.95
Frt	0.89		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						
Sign Control	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
Hadj (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%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	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
Hadj (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%	ICU Level of Service	A
Analysis Period (min)		15		



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		1658
Turn Bay Length (ft)			110	
Base Capacity (vph)	2556	2101	265	2849
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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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		5.5		4.4	5.5
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.95		0.98		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

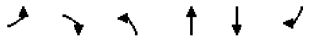
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	241	41	870	126	22	387
v/c Ratio	0.33	0.11	0.52	0.08	0.11	0.22
Control Delay	15.4	7.4	9.1	0.4	20.6	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	7.4	9.1	0.4	20.6	5.4
Queue Length 50th (ft)	18	0	50	0	4	18
Queue Length 95th (ft)	60	20	146	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



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
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	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		17.7	25.4	0.6	23.0
Effective Green, g (s)	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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	90	151	280	1422	218	410
Future Volume (vph)	90	151	280	1422	218	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
Frt	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			5	2	6	
Permitted Phases	4	4				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	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	247	221	498	2426	1120	1583
v/s Ratio Prot			0.17	c0.44	0.07	
v/s Ratio Perm	0.06	0.01				c0.28
v/c Ratio	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			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	12	236	478	10	1199	54	347
v/c Ratio	0.16	0.06	0.58	0.72	0.08	0.73	0.43	0.19
Control Delay	30.8	28.4	29.9	12.7	33.9	19.9	45.0	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	28.4	29.9	12.7	33.9	19.9	45.0	9.9
Queue Length 50th (ft)	13	4	92	28	4	240	23	36
Queue Length 95th (ft)	37	19	165	128	19	#380	#73	78
Internal Link Dist (ft)		96	647			1978		933
Turn Bay Length (ft)					100		135	
Base Capacity (vph)	505	526	515	737	126	1745	126	1898
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.

26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

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	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.99			1.00	0.85	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	
Satd. Flow (prot)	1770	1839			1805	1583	1770	3467		1770	3461	
Flt Permitted	0.95	1.00			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1839			1805	1583	1770	3467		1770	3461	
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	
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	
Vehicle Extension (s)	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	C	
HCM 2000 Volume to Capacity ratio	0.69			
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	71.7%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

27: Morena Blvd & Baker St

Timing Plan: AM Peak Period



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
Grade	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)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1052	850			875	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1052	850			875	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	87			97	
cM 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			A		
Approach Delay (s)	23.8	0.0		0.6		
Approach LOS	C					

Intersection Summary					
Average Delay	1.4				
Intersection Capacity Utilization	51.5%	ICU Level of Service			A
Analysis Period (min)	15				

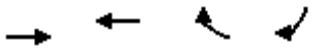
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	88	951	45	52	372
v/c Ratio	0.23	0.39	0.04	0.19	0.14
Control Delay	11.0	7.1	4.0	20.0	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	7.1	4.0	20.0	3.2
Queue Length 50th (ft)	6	46	1	9	14
Queue Length 95th (ft)	38	146	14	39	31
Internal Link Dist (ft)	1333	298			3361
Turn Bay Length (ft)			95	95	
Base Capacity (vph)	1316	2458	1110	277	2885
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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Frt	0.92		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	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	4.2
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	0.96	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		

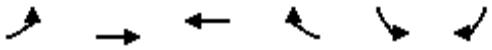
c Critical Lane Group



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.



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
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	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	Perm		Prot
Protected Phases		1 4	8			1
Permitted Phases				8		
Actuated Green, G (s)		38.2	16.1	16.1		14.1
Effective Green, g (s)		38.2	16.1	16.1		14.1
Actuated g/C Ratio		1.00	0.42	0.42		0.37
Clearance Time (s)			4.0	4.0		4.0
Vehicle Extension (s)			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

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
~~Olney St~~	~~II~~	~~30~~	~~12.1~~	~~44.6~~	~~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	~~45.4~~ 10.2	~~69.6~~ 34.4	0.23	21.2	D
Balboa WB Ramps	II	45	7.1	0.4	7.5	0.07	31.4	B
Moraga Ave *	II	45	22.2	~~5.2~~ 3.4	~~27.4~~ 25.6	0.20	26.8	C
Clairemont 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

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
~~Clairemont Dr~~	~~II~~	~~45~~	~~14.7~~	~~31.6~~	~~46.3~~	~~0.13~~	~~19.5~~	~~F~~
Moraga 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
Olney 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~~	~~23.8~~	~~2.5~~	~~26.1~~	~~0.20~~	~~27.2~~	~~D~~
~~Mission Bay Dr~~	~~III~~	~~35~~	~~15.7~~	~~9.0~~	~~24.7~~	~~0.12~~	~~17.0~~	~~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
Bluffside Av	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
~~Bluffside Av~~	~~III~~	~~35~~	~~20.0~~	~~20.0~~	~~40.0~~	~~0.16~~	~~14.0~~	~~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~~	~~15.7~~	~~1.1~~	~~28.1~~	~~0.12~~	~~28.8~~	~~C~~
Total	III		117.4	134.3	251.7	0.89	12.8	E

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.

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			6			8			4	
Permitted Phases	2			6			8			4		
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			0.41							
v/s Ratio Perm	0.16			0.08				c0.37			0.11	
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				

c Critical Lane Group

Lane Group	EBT	WBT	WBR	SBL
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

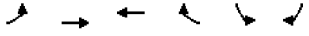
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
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	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	1627	1441	1112	
v/s Ratio Prot		0.12	c0.30		c0.29	
v/s Ratio Perm				0.49		
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		

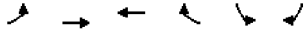
c Critical Lane Group



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)	#96	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.



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	70
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

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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				Perm			Perm
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							
v/s Ratio Perm									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			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	0.66		
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

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.

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	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)	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			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			0.17
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

Lane Group	EBT	WBT	NBR	SBR
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

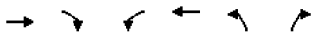
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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
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			5054				2787			1611
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3539			5054				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	1442	0	0	2159	91	0	0	875	0	0	205
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	20	0	0	39
Lane Group Flow (vph)	0	1442	0	0	2250	0	0	0	855	0	0	166
Turn Type		NA			NA				Prot			Perm
Protected Phases		8			2 4				2			
Permitted Phases												6
Actuated Green, G (s)		23.4			49.4				18.0			18.0
Effective Green, g (s)		23.4			49.4				18.0			18.0
Actuated g/C Ratio		0.47			1.00				0.36			0.36
Clearance Time (s)		4.0							4.0			4.0
Vehicle Extension (s)		3.0							3.0			3.0
Lane Grp Cap (vph)		1676			5054				1015			587
v/s Ratio Prot		c0.41			0.45				c0.31			
v/s Ratio Perm												0.10
v/c Ratio		0.86			0.45				0.84			0.28
Uniform Delay, d1		11.5			0.0				14.4			11.1
Progression Factor		1.00			1.00				1.00			1.00
Incremental Delay, d2		4.8			0.1				6.4			0.3
Delay (s)		16.3			0.1				20.8			11.4
Level of Service		B			A				C			B
Approach Delay (s)		16.3			0.1			20.8			11.4	
Approach LOS		B			A			C			B	

Intersection Summary

HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	49.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

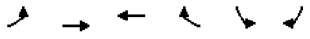
c Critical Lane Group



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	Stop	
Grade	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)						
Median type	None			None		
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
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	9
cM capacity (veh/h)			495		55	401

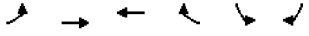
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	692	692	935	799	799	366
Volume Left	0	0	0	0	0	0
Volume Right	0	0	935	0	0	366
cSH	1700	1700	1700	1700	1700	401
Volume to Capacity	0.41	0.41	0.55	0.47	0.47	0.91
Queue Length 95th (ft)	0	0	0	0	0	243
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	57.9
Lane 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.



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	6.5	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	382	1145	585	1211	78	426	473	376	933
v/c Ratio	0.96	0.99	1.06	0.94	0.70	0.72	0.74	1.04	0.87
Control Delay	99.0	71.9	110.5	57.9	95.7	62.6	39.0	113.0	53.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.0	71.9	110.5	57.9	95.7	62.6	39.0	113.0	53.6
Queue Length 50th (ft)	180	542	~298	551	70	196	311	~367	411
Queue Length 95th (ft)	#314	#787	#463	#787	#155	254	446	#629	496
Internal Link Dist (ft)		3203		630		1350			860
Turn Bay Length (ft)	240		220		200		100	120	
Base Capacity (vph)	396	1153	552	1282	123	831	635	360	1277
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	0.96	0.99	1.06	0.94	0.63	0.51	0.74	1.04	0.73

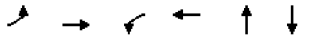
Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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	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	3514		3433	3463		1770	3539	1583	1770	3383	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3514		3433	3463		1770	3539	1583	1770	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	pm+ov	Prot	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	72.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	140.7	Sum of lost time (s)	20.5
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	36	427	152	596	442	288
v/c Ratio	0.19	0.45	0.89	0.43	0.73	0.48
Control Delay	27.1	17.0	78.4	15.0	22.2	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	17.0	78.4	15.0	22.2	15.4
Queue Length 50th (ft)	9	47	39	49	93	53
Queue Length 95th (ft)	39	106	#183	157	216	131
Internal Link Dist (ft)		1172		936	328	244
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	212	1479	171	1424	1172	1150
Starvation Cap Reductn	0	0	0	0	9	60
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.29	0.89	0.42	0.38	0.26

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	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			1819	
Flt Permitted	0.95	1.00		0.95	1.00			0.97			0.96	
Satd. Flow (perm)	1770	3486		1770	3516			1786			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		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
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	
Vehicle Extension (s)	2.0	2.8		2.0	2.5			2.0			2.0	
Lane Grp Cap (vph)	61	1092		163	1311			566			555	
v/s Ratio Prot	0.02	0.12		c0.09	c0.17							
v/s Ratio Perm								c0.24			0.16	
v/c Ratio	0.59	0.38		0.93	0.45			0.77			0.50	
Uniform Delay, d1	24.7	13.9		23.4	12.3			16.0			14.4	
Progression Factor	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	
Delay (s)	34.5	14.1		73.7	12.5			21.6			14.7	
Level of Service	C	B		E	B			C			B	
Approach Delay (s)		15.7			24.9			21.6			14.7	
Approach LOS		B			C			C			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

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	45	1073	146	1486	351	393
v/c Ratio	0.54	0.66	0.79	0.80	0.64	0.99
Control Delay	84.6	31.8	86.1	26.0	40.4	85.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	14.5
Total Delay	84.6	31.8	86.1	26.0	40.4	100.0
Queue Length 50th (ft)	39	396	133	314	234	324
Queue Length 95th (ft)	#87	495	#221	416	331	#509
Internal Link Dist (ft)		276		1076	315	328
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	90	1620	206	1849	613	445
Starvation Cap Reductn	0	0	0	0	0	48
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.66	0.71	0.80	0.57	0.99

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

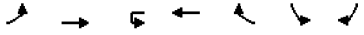
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	930	57	134	1151	216	30	174	119	94	213	54
Future Volume (vph)	41	930	57	134	1151	216	30	174	119	94	213	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	4.9			4.9			4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.95			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	3509		1770	3455			1762			1802	
Flt Permitted	0.95	1.00		0.95	1.00			0.92			0.66	
Satd. Flow (perm)	1770	3509		1770	3455			1633			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		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	5.5	61.8		14.0	70.5			43.8			43.8	
Effective Green, g (s)	5.5	61.8		14.0	70.5			43.8			43.8	
Actuated g/C Ratio	0.04	0.46		0.10	0.53			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)	72	1618		184	1817			533			393	
v/s Ratio Prot	0.03	0.30		c0.08	c0.43							
v/s Ratio Perm								0.20			c0.32	
v/c Ratio	0.62	0.66		0.79	0.81			0.63			0.99	
Uniform Delay, d1	63.2	28.0		58.6	26.3			38.2			44.8	
Progression Factor	1.00	1.00		1.07	0.83			1.00			1.00	
Incremental Delay, d2	11.5	2.1		15.9	3.3			1.7			41.7	
Delay (s)	74.8	30.1		78.8	25.1			39.8			86.5	
Level of Service	E	C		E	C			D			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

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

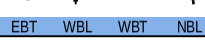
Intersection Summary
m Volume for 95th percentile queue is metered by upstream signal.



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	
Lane Util. Factor	1.00	0.95		0.95		1.00	
Frt	1.00	1.00		0.99		0.97	
Flt Protected	0.95	1.00		1.00		0.96	
Satd. Flow (prot)	1770	3539		3515		1733	
Flt Permitted	0.95	1.00		1.00		0.96	
Satd. Flow (perm)	1770	3539		3515		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	
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	c0.36		c0.48		c0.06	
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



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

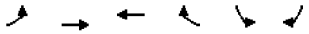
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1200	35	96	1543	18	28
Future Volume (vph)	1200	35	96	1543	18	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		4.4	5.4	4.9	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	1.00		1.00	1.00	0.92	
Flt 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	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		c0.06	c0.47	c0.01	
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

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

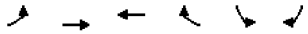
Intersection Summary



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			
Frt	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	c0.07	0.35	c0.49			
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	

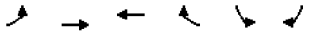
Intersection Summary				
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.7	
Intersection Capacity Utilization	58.6%	ICU Level of Service	B	
Analysis Period (min)	15			

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.



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
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	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



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.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3326		1770	3539	3539	1583
Flt Permitted	0.97		0.95	1.00	1.00	1.00
Satd. Flow (perm)	3326		1770	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	NA	NA	Perm
Protected Phases	4		5	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	
v/s Ratio Perm						0.35
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	D	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

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.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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.

18: Mission Bay Dr & Driveway/Magnolia Ave

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	
Frt		0.92			0.94		1.00	1.00		1.00	0.97	
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		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		12.1	115.0		6.7	109.6	
Effective Green, g (s)		34.0			34.0		12.1	115.0		6.7	109.6	
Actuated g/C Ratio		0.20			0.20		0.07	0.68		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)		297			284		125	2393		69	2210	
v/s Ratio Prot							c0.06	c0.42		0.02	0.38	
v/s Ratio Perm		c0.24			0.01							
v/c Ratio		1.19			0.04		0.80	0.62		0.48	0.59	
Uniform Delay, d1		68.0			54.8		77.8	15.3		79.9	17.3	
Progression Factor		1.00			1.00		1.08	0.61		1.00	1.00	
Incremental Delay, d2		112.2			0.0		22.9	1.0		1.9	1.2	
Delay (s)		180.2			54.8		107.0	10.4		81.8	18.5	
Level of Service		F			D		F	B		F	B	
Approach Delay (s)		180.2			54.8			16.5			20.1	
Approach LOS		F			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

19: Mission Bay Dr & Driveway/Bunker Hill St

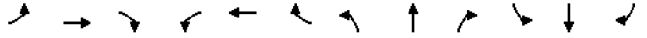
Timing Plan: PM Peak Period



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
Turn Bay Length (ft)			90	
Base Capacity (vph)	416	1959	208	2565
Starvation Cap Reductn	0	124	0	0
Spillback Cap Reductn	30	0	0	749
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.

19: Mission Bay Dr & Driveway/Bunker Hill St



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			5.0		4.4	5.0	
Lane Util. Factor					1.00			0.95		1.00	0.95	
Frt					0.94			0.99		1.00	1.00	
Flt Protected					0.97			1.00		0.95	1.00	
Satd. Flow (prot)					1703			3521		1770	3539	
Flt Permitted					0.83			1.00		0.95	1.00	
Satd. Flow (perm)					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	0	123	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	181	0	0	1341	0	204	1095	0
Turn Type				Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4								
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								c0.38		c0.12	0.31	
v/s Ratio Perm					c0.12							
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

20: Mission Bay Dr & Rosewood St



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	31	2731	5	2166
v/c Ratio	0.21	0.60	0.04	0.66
Control Delay	19.8	3.8	41.4	2.8
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	19.8	3.9	41.4	2.8
Queue Length 50th (ft)	2	0	3	0
Queue Length 95th (ft)	28	372	m5	433
Internal Link Dist (ft)	221	960		536
Turn Bay Length (ft)			60	
Base Capacity (vph)	329	4583	122	3284
Starvation Cap Reductn	0	0	0	27
Spillback Cap Reductn	0	521	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.67	0.04	0.67

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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	25	2486	27	5	1993
Future Volume (vph)	4	25	2486	27	5	1993
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.91		1.00	0.95
Frt	0.88		1.00		1.00	1.00
Flt Protected	0.99		1.00		0.95	1.00
Satd. Flow (prot)	1633		5077		1770	3539
Flt Permitted	0.99		1.00		0.95	1.00
Satd. Flow (perm)	1633		5077		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	27	2702	29	5	2166
RTOR Reduction (vph)	26	0	1	0	0	0
Lane Group Flow (vph)	5	0	2730	0	5	2166
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		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
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	55		4109		27	3085
v/s Ratio Prot	c0.00		0.54		0.00	c0.61
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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	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%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	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
Hadj (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%	ICU Level of Service	B
Analysis Period (min)			15		



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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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		5.5		4.4	5.5
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.97		0.92		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	c0.14		0.15		0.03	c0.27
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



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

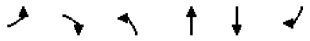
Intersection Summary



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
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	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)	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					6		5
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	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		0.48	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	55.8%	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.



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
Frt	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	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	384	343	133	2103	1502	1583
v/s Ratio Prot			0.06	0.39	0.24	
v/s Ratio Perm	0.09	0.06				c0.67
v/c Ratio	0.42	0.26	0.74	0.65	0.56	0.67
Uniform Delay, d1	14.3	13.8	19.2	5.7	9.2	0.0
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			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	34	359	576	5	896	141	985
v/c Ratio	0.29	0.05	0.73	0.85	0.03	0.56	0.69	0.62
Control Delay	14.4	9.7	25.1	25.4	7.4	9.6	32.4	11.4
Queue Delay	0.0	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	11.4
Queue Length 50th (ft)	18	5	89	108	1	76	28	99
Queue Length 95th (ft)	46	19	#204	#278	5	117	#107	146
Internal Link Dist (ft)		105	678			1978		882
Turn Bay Length (ft)					100		135	
Base Capacity (vph)	343	755	554	747	211	1927	250	1945
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	0.25	0.05	0.65	0.77	0.02	0.46	0.56	0.51

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

26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

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	644	180	130	895	11
Future Volume (vph)	80	27	5	300	30	530	5	644	180	130	895	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	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.98			1.00	0.85	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	
Satd. Flow (prot)	1770	1822			1782	1583	1770	3423		1770	3533	
Flt Permitted	0.45	1.00			0.72	1.00	0.21	1.00		0.24	1.00	
Satd. Flow (perm)	830	1822			1343	1583	384	3423		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	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	16.5	16.5			16.5	16.5	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	
Actuated g/C Ratio	0.37	0.37			0.37	0.37	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	
Vehicle Extension (s)	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	
v/s Ratio Prot		0.02						0.25			0.28	
v/s Ratio Perm	0.10				0.27	c0.30	0.01			c0.31		
v/c Ratio	0.29	0.05			0.73	0.81	0.03	0.54		0.68	0.61	
Uniform Delay, d1	10.0	9.1			12.2	12.8	6.8	8.9		9.7	9.3	
Progression Factor	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	
Delay (s)	10.5	9.1			17.5	21.3	6.9	9.3		18.8	10.0	
Level of Service	B	A			B	C	A	A		B	A	
Approach Delay (s)		10.1			19.9			9.3			11.1	
Approach LOS		B			B			A			B	

Intersection Summary				
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	44.8	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	70.8%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

27: Morena Blvd & Baker St

Timing Plan: PM Peak Period



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	28	380	22	47	840
Future Volume (Veh/h)	15	28	380	22	47	840
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	30	413	24	51	913
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	972	413			437	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	972	413			437	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	95			95	
cM 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			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				

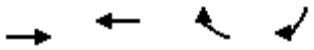
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	134	439	50	111	985
v/c Ratio	0.34	0.26	0.06	0.30	0.44
Control Delay	9.8	10.4	4.7	17.5	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	10.4	4.7	17.5	5.5
Queue Length 50th (ft)	8	38	0	21	49
Queue Length 95th (ft)	43	76	16	61	100
Internal Link Dist (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						
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	c0.03		0.12		0.06	c0.28
v/s 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

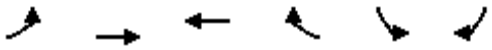
Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	36.2	Sum of lost time (s)	14.7
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



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



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	Perm		Prot
Protected Phases		1 4	8			1
Permitted Phases				8		
Actuated Green, G (s)		81.7	31.4	31.4		44.3
Effective Green, g (s)		77.7	31.4	31.4		44.3
Actuated g/C Ratio		0.95	0.38	0.38		0.54
Clearance Time (s)			4.0	4.0		2.0
Vehicle Extension (s)			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

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
~~Olney St~~	~~II~~	~~30~~	~~12.1~~	~~96.9~~	~~109.0~~	~~0.09~~	~~2.8~~	~~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	~~18.8~~ 12.4	~~43.0~~ 36.6	0.23	19.5	D
Balboa WB Ramps	II	45	7.1	1.0	8.1	0.07	29.0	B
Moraga Ave*	II	45	22.2	~~6.5~~ 4.3	~~28.7~~ 26.5	0.20	25.6	C
Clairemont 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
~~Clairemont Dr~~	~~II~~	~~45~~	~~14.7~~	~~57.9~~	~~72.6~~	~~0.13~~	~~6.7~~	~~F~~
Moraga 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
Olney 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
~~Rosewood St~~	~~III~~	~~35~~	~~23.6~~	~~3.8~~	~~27.4~~	~~0.20~~	~~25.9~~	~~B~~
~~Mission Bay Dr~~	~~III~~	~~35~~	~~15.8~~	~~17.7~~	~~33.5~~	~~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
Bluffside Av	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

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
~~Bluffside Av~~	~~III~~	~~35~~	~~20.0~~	~~42.1~~	~~62.1~~	~~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
~~Rosewood St~~	~~III~~	~~35~~	~~15.8~~	~~2.8~~	~~18.6~~	~~0.12~~	~~22.6~~	~~C~~
Total	III		117.4	258.0	375.4	0.89	8.6	F

APPENDIX I

MITIGATED PREFERRED FUTURE CONDITIONS ANALYSIS SUPPORTING INFORMATION

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	0.95		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	3490		1770	3532		1770	1812			1806	
Flt Permitted	0.35	1.00		0.17	1.00		0.53	1.00			0.86	
Satd. Flow (perm)	657	3490		312	3532		992	1812			1578	
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	10	0	0	1	0	0	14	0	0	9	0
Lane Group Flow (vph)	14	1262	0	8	747	0	125	86	0	0	236	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		13.1	13.1			13.1	
Effective Green, g (s)	37.1	37.1		37.1	37.1		13.1	13.1			13.1	
Actuated g/C Ratio	0.62	0.62		0.62	0.62		0.22	0.22			0.22	
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)	406	2157		192	2183		216	395			344	
v/s Ratio Prot		c0.36			0.21			0.05				
v/s Ratio Perm	0.02			0.03			0.13				c0.15	
v/c Ratio	0.03	0.59		0.04	0.34		0.58	0.22			0.68	
Uniform Delay, d1	4.5	6.8		4.5	5.5		21.0	19.2			21.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.2	1.2		0.4	0.4		2.3	0.1			4.5	
Delay (s)	4.6	8.0		4.9	6.0		23.3	19.3			26.0	
Level of Service	A	A		A	A		C	B			C	
Approach Delay (s)		8.0			6.0			21.5			26.0	
Approach LOS		A			A			C			C	

Intersection Summary				
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.8	
Intersection Capacity Utilization	59.9%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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

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

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	0	52	0	0	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	95% Back of 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.

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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

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	0.95		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	3474		1770	3530		1770	1823			1752	
Flt Permitted	0.13	1.00		0.18	1.00		0.65	1.00			0.89	
Satd. Flow (perm)	236	3474		329	3530		1209	1823			1574	
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	17	0	0	2	0	0	10	0	0	14	0
Lane Group Flow (vph)	34	1120	0	16	1458	0	327	130	0	0	175	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)	31.6	31.6		31.6	31.6		18.6	18.6			18.6	
Effective Green, g (s)	31.6	31.6		31.6	31.6		18.6	18.6			18.6	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.31	0.31			0.31	
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)	124	1829		173	1859		374	565			487	
v/s Ratio Prot		0.32			c0.41			0.07				
v/s Ratio Perm	0.14			0.05			c0.27				0.11	
v/c Ratio	0.27	0.61		0.09	0.78		0.87	0.23			0.36	
Uniform Delay, d1	7.9	9.9		7.1	11.5		19.6	15.4			16.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	5.4	1.5		1.1	3.4		19.2	0.1			0.2	
Delay (s)	13.3	11.5		8.1	14.9		38.8	15.5			16.2	
Level of Service	B	B		A	B		D	B			B	
Approach Delay (s)		11.5			14.8			31.8			16.2	
Approach LOS		B			B			C			B	

Intersection Summary				
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		9.8
Intersection Capacity Utilization	75.9%	ICU Level of Service		D
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.97	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	5049		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	5049		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)	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		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		0.04	0.12	0.12	c0.11	c0.19	
v/s Ratio Perm						0.03			0.15			0.07
v/c Ratio	0.76	0.83		0.96	0.69	0.11	0.60	0.53	0.67	0.96	0.69	0.28
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 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.85			
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	20.5	
Intersection Capacity Utilization	73.1%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
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		3530
Flt Permitted	0.95	1.00	1.00	1.00		0.94
Satd. Flow (perm)	1770	1583	1863	1583		3316
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		8		2	6	
Actuated Green, G (s)	17.7	17.7	10.4	10.4		10.4
Effective Green, g (s)	17.7	17.7	10.4	10.4		10.4
Actuated g/C Ratio	0.49	0.49	0.29	0.29		0.29
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)	867	776	536	456		955
v/s Ratio Prot	c0.36		0.10			
v/s Ratio Perm		0.00		0.05		c0.11
v/c Ratio	0.74	0.01	0.36	0.18		0.38
Uniform Delay, d1	7.3	4.7	10.2	9.6		10.3
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)	10.6	4.7	10.6	9.8		10.5
Level of Service	B	A	B	A		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 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	36.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
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	95% Back of Queue 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.

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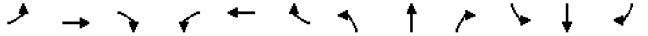
APPENDIX J

REDUCED FUTURE CONDITIONS ANALYSIS SUPPORTING INFORMATION



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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	1056	46	3	689	15	47	49	6	103	74	80
Future Volume (vph)	45	1056	46	3	689	15	47	49	6	103	74	80
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	0.99		1.00	1.00			0.99			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1770	1851		1770	3528			1805			1749	
Flt Permitted	0.34	1.00		0.05	1.00			0.69			0.81	
Satd. Flow (perm)	635	1851		101	3528			1276			1452	
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)	49	1148	50	3	749	16	51	53	7	112	80	87
RTOR Reduction (vph)	0	1	0	0	1	0	0	2	0	0	16	0
Lane Group Flow (vph)	49	1197	0	3	764	0	0	109	0	0	263	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)	74.3	74.3		74.3	74.3			21.9			21.9	
Effective Green, g (s)	74.3	74.3		74.3	74.3			21.9			21.9	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.21			0.21	
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)	445	1297		70	2472			263			299	
v/s Ratio Prot		c0.65			0.22							
v/s Ratio Perm	0.08			0.03				0.09			c0.18	
v/c Ratio	0.11	0.92		0.04	0.31			0.41			0.88	
Uniform Delay, d1	5.1	13.4		4.9	6.1			36.5			40.8	
Progression Factor	1.00	1.00		1.47	1.34			1.00			1.00	
Incremental Delay, d2	0.5	12.3		1.0	0.3			0.4			24.0	
Delay (s)	5.6	25.7		8.2	8.4			36.9			64.8	
Level of Service	A	C		A	A			D			E	
Approach Delay (s)		24.9			8.4			36.9			64.8	
Approach LOS		C			A			D			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					

Lane Group	EBT	WBT	WBR	SBL
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.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)		1086	1178	1441	1496	
v/s Ratio Prot			0.16		c0.30	
v/s Ratio Perm		c0.20		0.27		
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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
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/s 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

Lane Group	EBT	WBT	NBR
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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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 (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	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				Perm			Perm
Protected Phases		2			6							
Permitted Phases									2			6
Actuated Green, G (s)		125.0			125.0				125.0			
Effective Green, g (s)		125.0			125.0				125.0			
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)		3529			3539				1611			
v/s Ratio Prot		c0.57			0.43							
v/s Ratio Perm									0.02			
v/c Ratio		0.57			0.43				0.02			
Uniform Delay, d1		0.0			0.0				0.0			
Progression Factor		1.00			1.00				1.00			
Incremental Delay, d2		0.6			0.3				0.0			
Delay (s)		0.6			0.3				0.0			
Level of Service		A			A				A			
Approach Delay (s)		0.6			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	0.61		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
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)	752	713	579	233	574	263	478	599	286	272	358	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	1.9	0.0
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	51	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	1.14	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.

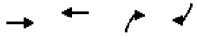
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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	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)	752	713	579	233	574	263	478	599	286	272	358	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	4.9	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)	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)		76.6			49.0			41.1			41.1	
Approach LOS		E			D			D			D	

Intersection Summary

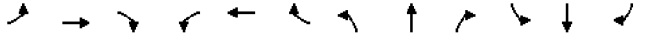
HCM 2000 Control Delay	55.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBR	SBR
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

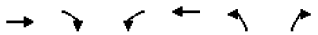
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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				Prot			Perm
Protected Phases		8			2 4				2			
Permitted Phases												6
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
Vehicle Extension (s)		3.0							3.0			3.0
Lane Grp Cap (vph)		1608			5015				1013			585
v/s Ratio Prot		c0.36			c0.41				0.07			
v/s Ratio Perm												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	HCM 2000 Level of Service	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			

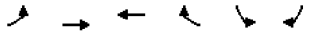
c Critical Lane Group



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	Stop	
Grade	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					0.72	
vC, conflicting volume			802		1508	401
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			802		925	401
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	62
cM capacity (veh/h)			817		193	599

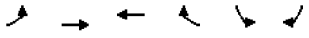
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	401	401	714	706	706	228
Volume Left	0	0	0	0	0	0
Volume Right	0	0	714	0	0	228
cSH	1700	1700	1700	1700	1700	599
Volume to Capacity	0.24	0.24	0.42	0.42	0.42	0.38
Queue Length 95th (ft)	0	0	0	0	0	44
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.7
Lane 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%	ICU Level of Service	A		
Analysis Period (min)	15				



Lane Group	EBL	EBT	WBT	WBR	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		501	
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



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	6.5	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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	1.00	0.95	
Frt	1.00	0.99		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	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3499		3433	3461		1770	3539	1583	1770	3298	
Flt Permitted	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		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	0.92
Adj. Flow (vph)	203	811	66	468	772	134	136	439	474	228	371	310
RTOR Reduction (vph)	0	6	0	0	12	0	0	0	49	0	146	0
Lane Group Flow (vph)	203	871	0	468	894	0	136	439	425	228	535	0
Turn Type	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



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

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	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.96			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	3520		1770	3486			1781			1845	
Flt Permitted	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (perm)	1770	3520		1770	3486			1730			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		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	3.2	14.6		1.4	12.9			11.9			11.9	
Effective Green, g (s)	3.2	14.6		1.4	12.9			11.9			11.9	
Actuated g/C Ratio	0.08	0.35		0.03	0.30			0.28			0.28	
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)	133	1214		58	1063			486			508	
v/s Ratio Prot	c0.04	c0.17		0.03	0.05							
v/s Ratio Perm								c0.17			0.16	
v/c Ratio	0.47	0.48		0.86	0.18			0.62			0.56	
Uniform Delay, d1	18.7	10.9		20.4	10.8			13.2			13.0	
Progression Factor	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	
Delay (s)	19.7	11.1		89.2	10.9			14.9			13.7	
Level of Service	B	B		F	B			B			B	
Approach Delay (s)		12.0			26.6			14.9			13.7	
Approach LOS		B			C			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	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	30	1386	50	580	646	322
v/c Ratio	0.32	0.97	0.70	0.40	0.84	1.06
Control Delay	57.5	49.6	96.6	23.5	33.7	99.2
Queue Delay	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
Queue Length 50th (ft)	20	~498	35	108	330	~240
Queue Length 95th (ft)	51	#660	m#99	206	#547	#417
Internal Link Dist (ft)		276		1076	315	328
Turn Bay Length (ft)	50		50			
Base Capacity (vph)	101	1430	71	1447	772	304
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	0.70	0.40	0.84	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.

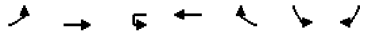
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	1250	25	46	481	52	34	189	372	167	114	15
Future Volume (vph)	28	1250	25	46	481	52	34	189	372	167	114	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total 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	
Frt	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		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	3.7	42.1		3.4	42.0			46.1			46.1	
Effective Green, g (s)	3.7	42.1		3.4	42.0			46.1			46.1	
Actuated g/C Ratio	0.03	0.40		0.03	0.40			0.43			0.43	
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	1401		56	1381			715			303	
v/s Ratio Prot	0.02	c0.39		c0.03	0.16							
v/s Ratio Perm								0.36			c0.46	
v/c Ratio	0.49	0.99		0.89	0.41			0.82			1.06	
Uniform Delay, d1	50.2	31.7		51.1	23.1			26.4			29.9	
Progression Factor	1.00	1.00		1.02	1.01			1.00			1.00	
Incremental Delay, d2	2.3	21.4		78.7	0.9			7.3			67.5	
Delay (s)	52.5	53.2		131.1	24.2			33.7			97.5	
Level of Service	D	D		F	C			C			F	
Approach Delay (s)		53.1			32.7			33.7			97.5	
Approach LOS		D			C			C			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

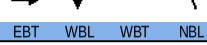
Intersection Summary
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	64	1630	0	503	120	172	48
Future Volume (vph)	64	1630	0	503	120	172	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.9		4.9	
Lane Util. Factor	1.00	0.95		0.95		1.00	
Frt	1.00	1.00		0.97		0.97	
Flt Protected	0.95	1.00		1.00		0.96	
Satd. Flow (prot)	1770	3539		3437		1740	
Flt Permitted	0.95	1.00		1.00		0.96	
Satd. Flow (perm)	1770	3539		3437		1740	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	1772	0	547	130	187	52
RTOR Reduction (vph)	0	0	0	15	0	10	0
Lane Group Flow (vph)	70	1772	0	662	0	229	0
Turn Type	Prot	NA	Prot	NA		Prot	
Protected Phases	5	2	1	6		4	
Permitted Phases							
Actuated Green, G (s)	7.5	77.8		66.1		18.2	
Effective Green, g (s)	7.5	77.8		66.1		18.2	
Actuated g/C Ratio	0.07	0.73		0.62		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)	125	2597		2143		298	
v/s Ratio Prot	0.04	c0.50		0.19		c0.13	
v/s Ratio Perm							
v/c Ratio	0.56	0.68		0.31		0.77	
Uniform Delay, d1	47.7	7.5		9.3		41.9	
Progression Factor	1.04	0.50		0.91		1.00	
Incremental Delay, d2	1.1	0.5		0.4		10.2	
Delay (s)	50.6	4.3		8.9		52.1	
Level of Service	D	A		A		D	
Approach Delay (s)		6.0		8.9		52.1	
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	0.73		
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.

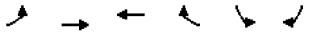
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1718	46	129	625	51	48
Future Volume (vph)	1718	46	129	625	51	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		4.4	5.4	4.9	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	1.00		1.00	1.00	0.93	
Flt 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	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	c0.54		c0.08	0.19	c0.04	
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

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

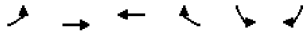
Intersection Summary



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			
Frt	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	0	1	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	c0.07	c0.53	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	

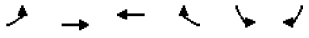
Intersection Summary				
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.7	
Intersection Capacity Utilization	51.8%	ICU Level of Service	A	
Analysis Period (min)	15			

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.



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
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	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	c0.46	0.15	0.09	c0.26	
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



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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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
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)	3385		1770	3539	3539	1583
Flt Permitted	0.96		0.95	1.00	1.00	1.00
Satd. Flow (perm)	3385		1770	3539	3539	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	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	c0.26		0.06	c0.42	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



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.

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
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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	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	59.9%	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)	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.



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	0.95		1.00	0.95	
Frt		0.94			0.96		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	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		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		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4				6				
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							c0.03	c0.35		0.02	0.31	
v/s Ratio Perm		c0.22			0.01							
v/c Ratio		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	

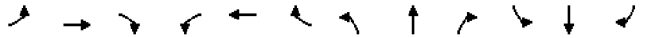
Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	133	1263	260	899
v/c Ratio	0.51	0.57	1.10	0.30
Control Delay	10.7	13.5	115.6	2.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.7	13.5	115.6	2.6
Queue Length 50th (ft)	0	221	~168	71
Queue Length 95th (ft)	32	314	m#324	m147
Internal Link Dist (ft)	514	495		804
Turn Bay Length (ft)			90	
Base Capacity (vph)	514	2207	236	2956
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	0.26	0.57	1.10	0.30

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	44	0	78	0	1058	104	239	827	0
Future Volume (vph)	0	0	0	44	0	78	0	1058	104	239	827	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	
Frt					0.91			0.99		1.00	1.00	
Flt Protected					0.98			1.00		0.95	1.00	
Satd. Flow (prot)					1672			3492		1770	3539	
Flt Permitted					0.88			1.00		0.95	1.00	
Satd. Flow (perm)					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	0.92
Adj. Flow (vph)	0	0	0	48	0	85	0	1150	113	260	899	0
RTOR Reduction (vph)	0	0	0	0	125	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	8	0	0	1256	0	260	899	0
Turn Type				Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)					4.4			46.3		10.0	60.7	
Effective Green, g (s)					4.4			46.3		10.0	60.7	
Actuated g/C Ratio					0.06			0.62		0.13	0.81	
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)					87			2155		236	2864	
v/s Ratio Prot								c0.36		c0.15	0.25	
v/s Ratio Perm					c0.01							
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	SBT
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.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Lane Util. Factor	1.00		0.91		1.00	0.95
Frt	0.89		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	c0.00		0.29		0.01	c0.73
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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	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			
Hadj (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%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	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
Hadj (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%	ICU Level of Service		A
Analysis Period (min)	15			



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		1658
Turn Bay Length (ft)			110	
Base Capacity (vph)	2561	2105	265	2855
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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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		5.5		4.4	5.5
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.95		0.98		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	3312		3456		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	3312		3456		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		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	c0.03		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

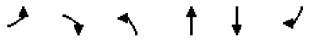
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	250	40	868	129	23	383
v/c Ratio	0.34	0.11	0.52	0.08	0.12	0.22
Control Delay	15.4	7.4	9.2	0.4	20.9	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	7.4	9.2	0.4	20.9	5.5
Queue Length 50th (ft)	19	0	50	0	4	18
Queue Length 95th (ft)	62	20	147	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



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
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	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
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	0.15	0.23	0.45	0.56	0.16	0.28

Intersection Summary



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
Frt	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	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	246	220	497	2428	1125	1583
v/s Ratio Prot			0.17	c0.44	0.06	
v/s Ratio Perm	0.06	0.01				c0.28
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			

c Critical Lane Group

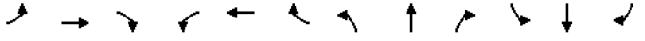


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	12	236	478	10	1217	54	331
v/c Ratio	0.16	0.06	0.59	0.72	0.08	0.74	0.44	0.18
Control Delay	30.8	28.4	30.2	12.9	33.9	20.0	45.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	28.4	30.2	12.9	33.9	20.0	45.5	9.7
Queue Length 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.

26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

Timing Plan: AM Peak Period



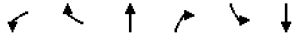
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	10	1	140	77	440	9	970	150	50	258	47
Future Volume (vph)	29	10	1	140	77	440	9	970	150	50	258	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.99			1.00	0.85	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	
Satd. Flow (prot)	1770	1839			1805	1583	1770	3468		1770	3457	
Flt Permitted	0.95	1.00			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1839			1805	1583	1770	3468		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	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	3.9	3.9			13.5	13.5	0.7	30.1		2.0	31.4	
Effective Green, g (s)	3.9	3.9			13.5	13.5	0.7	30.1		2.0	31.4	
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	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	105	109			372	326	18	1593		54	1657	
v/s Ratio Prot	c0.02	0.01			c0.13		0.01	c0.35		c0.03	0.09	
v/s Ratio Perm						0.10						
v/c Ratio	0.30	0.10			0.63	0.50	0.56	0.76		1.00	0.19	
Uniform Delay, d1	29.5	29.1			23.7	23.0	32.2	14.7		31.8	9.8	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.4			3.5	1.2	32.3	2.1		122.5	0.1	
Delay (s)	31.1	29.6			27.3	24.2	64.5	16.8		154.2	9.8	
Level of Service	C	C			C	C	E	B		F	A	
Approach Delay (s)		30.7			25.2			17.1			30.1	
Approach LOS		C			C			B			C	

Intersection Summary				
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C	
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

27: Morena Blvd & Baker St

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
Grade	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			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1054	851			875	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1054	851			875	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	87			97	
cM 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			A		
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			

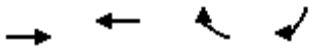
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	89	950	46	51	372
v/c Ratio	0.23	0.39	0.04	0.18	0.14
Control Delay	10.9	7.1	4.0	20.0	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	7.1	4.0	20.0	3.2
Queue Length 50th (ft)	6	46	1	9	14
Queue Length 95th (ft)	38	146	14	39	31
Internal Link Dist (ft)	1333	298			3361
Turn Bay Length (ft)			95	95	
Base Capacity (vph)	1317	2458	1110	277	2885
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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Frt	0.92		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	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		

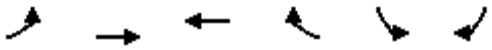
c Critical Lane Group



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.



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
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	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	Perm		Prot
Protected Phases		1 4	8			1
Permitted Phases				8		
Actuated Green, G (s)		38.2	16.1	16.1		14.1
Effective Green, g (s)		38.2	16.1	16.1		14.1
Actuated g/C Ratio		1.00	0.42	0.42		0.37
Clearance Time (s)			4.0	4.0		4.0
Vehicle Extension (s)			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		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

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
~~Olney St~~	~~II~~	~~30~~	~~12.1~~	~~28.1~~	~~40.2~~	~~0.09~~	~~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	~~15.2~~ 10.0	~~39.4~~ 34.2	0.23	21.3	D
Balboa WB Ramps	II	45	7.1	0.4	7.5	0.07	31.4	B
Moraga Ave*	II	45	22.2	~~5.2~~ 3.4	~~27.4~~ 25.6	0.20	26.8	C
Clairemont 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

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
~~Clairemont Dr~~	~~II~~	~~45~~	~~14.7~~	~~31.5~~	~~46.2~~	~~0.13~~	~~19.5~~	~~F~~
Moraga 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
Olney 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
~~Rosewood St~~	~~III~~	~~35~~	~~23.6~~	~~1.9~~	~~25.5~~	~~0.20~~	~~27.8~~	~~B~~
~~Mission Bay Dr~~	~~III~~	~~35~~	~~15.7~~	~~8.7~~	~~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
Bluffside Av	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
~~Bluffside Av~~	~~III~~	~~35~~	~~20.0~~	~~19.7~~	~~39.7~~	~~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
~~Rosewood St~~	~~III~~	~~35~~	~~15.7~~	~~2.9~~	~~18.6~~	~~0.12~~	~~22.5~~	~~C~~
Total	III		117.4	133.6	251.0	0.89	12.8	E

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		50			
Base Capacity (vph)	117	1127	111	2154	371	493
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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	919	64	7	1370	30	143	70	6	49	32	118
Future Volume (vph)	81	919	64	7	1370	30	143	70	6	49	32	118
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	0.99		1.00	1.00			1.00			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (prot)	1770	1844		1770	3528			1797			1693	
Flt Permitted	0.10	1.00		0.10	1.00			0.63			0.88	
Satd. Flow (perm)	192	1844		182	3528			1176			1510	
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)	88	999	70	8	1489	33	155	76	7	53	35	128
RTOR Reduction (vph)	0	3	0	0	2	0	0	2	0	0	20	0
Lane Group Flow (vph)	88	1066	0	8	1520	0	0	236	0	0	196	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)	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							
v/s Ratio Perm	0.46			0.04				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

Lane Group	EBT	WBT	WBR	SBL
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 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	0.50	0.90

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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
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	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/s Ratio Perm				0.50		
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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	95	1260	1854	549	492	118
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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	87	1159	1706	505	453	109
Future Volume (vph)	87	1159	1706	505	453	109
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)	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/s 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

Lane Group	EBT	WBT	NBR
Lane Group Flow (vph)	1733	2245	47
v/c Ratio	0.49	0.63	0.03
Control Delay	0.5	1.0	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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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				Perm			Perm
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)		3513			3539				1611			
v/s Ratio Prot		0.49			c0.63							
v/s Ratio Perm									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			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

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.

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	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			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	
Approach LOS		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

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

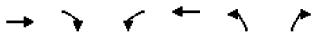
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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
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			5054				2787			1611
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3539			5054				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	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				Prot			Perm
Protected Phases		8			2 4				2			
Permitted Phases												6
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
Vehicle Extension (s)		3.0							3.0			3.0
Lane Grp Cap (vph)		1672			5054				1017			588
v/s Ratio Prot		c0.40			0.44				c0.31			
v/s Ratio Perm												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	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	49.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

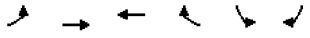
c Critical Lane Group



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	
Grade	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)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	442			634		
pX, platoon unblocked					0.69	
vC, conflicting volume			1378		2170	689
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1378		1797	689
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	6
cM capacity (veh/h)			493		49	388

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%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	370	1360	1272	93	104	312
v/c Ratio	0.71	0.55	0.76	0.12	0.44	0.70
Control Delay	37.2	6.4	19.3	3.4	32.8	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	6.4	19.3	3.4	32.8	14.9
Queue Length 50th (ft)	75	110	211	0	41	16
Queue Length 95th (ft)	#145	213	342	24	83	84
Internal Link Dist (ft)		554	3203		501	
Turn Bay Length (ft)	215			250	155	
Base Capacity (vph)	520	2485	1677	799	807	869
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	0.71	0.55	0.76	0.12	0.13	0.36

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

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	6.5	5.6	5.6
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	382	1136	579	1203	77	425	466	376	929
v/c Ratio	0.96	0.99	1.05	0.94	0.69	0.72	0.74	1.04	0.87
Control Delay	98.9	69.8	107.4	56.8	95.2	62.7	38.4	112.6	53.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.9	69.8	107.4	56.8	95.2	62.7	38.4	112.6	53.3
Queue Length 50th (ft)	180	535	~291	543	69	195	303	~366	408
Queue Length 95th (ft)	#314	#777	#457	#780	#153	254	436	#629	494
Internal Link Dist (ft)		3203		630		1350			860
Turn Bay Length (ft)	240		220		200		100	120	
Base Capacity (vph)	396	1153	552	1283	123	832	634	360	1278
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	0.96	0.99	1.05	0.94	0.63	0.51	0.74	1.04	0.73

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.

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	0.95		0.97	0.95		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	3514		3433	3462		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	3514		3433	3462		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	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	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)	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	70.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	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

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	39	425	151	597	443	290
v/c Ratio	0.20	0.46	0.89	0.44	0.73	0.48
Control Delay	27.5	17.3	79.1	15.3	21.7	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	17.3	79.1	15.3	21.7	15.3
Queue Length 50th (ft)	10	50	41	53	93	53
Queue Length 95th (ft)	42	106	#182	157	216	132
Internal Link Dist (ft)		1172		936	328	244
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	211	1469	170	1413	1163	1141
Starvation Cap Reductn	0	0	0	0	9	61
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.29	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.

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	
Frt	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		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	1.9	16.4		4.8	19.4			16.8			16.8	
Effective Green, g (s)	1.9	16.4		4.8	19.4			16.8			16.8	
Actuated g/C Ratio	0.04	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	
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							
v/s Ratio Perm								c0.24			0.16	
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

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (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.

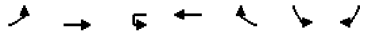
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	934	56	141	1155	223	29	171	126	97	212	51
Future Volume (vph)	38	934	56	141	1155	223	29	171	126	97	212	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.1		4.4	4.9			4.9			4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.95			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	3509		1770	3453			1758			1803	
Flt Permitted	0.95	1.00		0.95	1.00			0.93			0.65	
Satd. Flow (perm)	1770	3509		1770	3453			1640			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		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			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							
v/s Ratio Perm								0.21			c0.33	
v/c Ratio	0.58	0.67		0.81	0.82			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

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

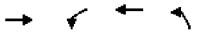
Intersection Summary



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	
Lane Util. Factor	1.00	0.95		0.95		1.00	
Frt	1.00	1.00		0.99		0.97	
Flt Protected	0.95	1.00		1.00		0.96	
Satd. Flow (prot)	1770	3539		3515		1733	
Flt Permitted	0.95	1.00		1.00		0.96	
Satd. Flow (perm)	1770	3539		3515		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	
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	c0.36		c0.48		c0.06	
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



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

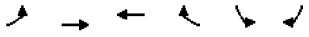
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1214	34	95	1560	18	28
Future Volume (vph)	1214	34	95	1560	18	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9		4.4	5.4	4.9	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	1.00		1.00	1.00	0.92	
Flt 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	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

Lane Group	EBL	EBT	WBT
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

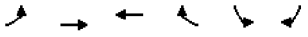
Intersection Summary



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			
Frt	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	c0.06	0.35	c0.49			
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	

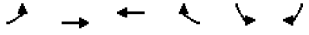
Intersection Summary				
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.7	
Intersection Capacity Utilization	58.3%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (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.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	87	1058	1334	1130	960	234
Future Volume (vph)	87	1058	1334	1130	960	234
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
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	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						0.16
v/c Ratio	0.74	0.53	0.81	0.62	0.92	0.16
Uniform Delay, d1	77.3	19.1	34.9	30.1	54.5	0.0
Progression Factor	1.00	1.00	1.01	1.12	0.97	1.00
Incremental Delay, d2	17.4	0.9	3.4	1.7	10.8	0.2
Delay (s)	94.7	20.0	38.7	35.3	63.6	0.2
Level of Service	F	B	D	D	E	A
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



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.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3320		1770	3539	3539	1583
Flt Permitted	0.97		0.95	1.00	1.00	1.00
Satd. Flow (perm)	3320		1770	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	NA	NA	Perm
Protected Phases	4		5	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	
v/s Ratio Perm						0.33
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



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.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	186	190	1217	223	98	1376
Future Volume (vph)	186	190	1217	223	98	1376
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
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	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.



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	
Frt		0.92			0.94		1.00	1.00		1.00	0.97	
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							c0.05	c0.41		0.02	0.37	
v/s Ratio Perm		c0.22			0.01							
v/c Ratio		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	

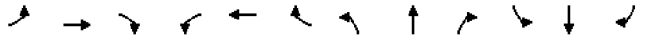
Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	284	1320	187	1082
v/c Ratio	0.84	0.66	0.90	0.42
Control Delay	38.3	17.8	79.0	8.2
Queue Delay	1.1	0.2	0.0	0.3
Total Delay	39.4	17.9	79.0	8.5
Queue Length 50th (ft)	71	365	125	236
Queue Length 95th (ft)	#157	565	m#208	m309
Internal Link Dist (ft)	514	492		804
Turn Bay Length (ft)			90	
Base Capacity (vph)	415	1998	208	2605
Starvation Cap Reductn	0	147	0	0
Spillback Cap Reductn	30	0	0	745
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.74	0.71	0.90	0.58

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.



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	
Frt					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	125	0	0	3	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	
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4								
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								c0.37		c0.11	0.31	
v/s Ratio Perm					c0.11							
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.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	14	2484	16	2	1984
Future Volume (vph)	2	14	2484	16	2	1984
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.91		1.00	0.95
Frt	0.88		1.00		1.00	1.00
Flt Protected	0.99		1.00		0.95	1.00
Satd. Flow (prot)	1631		5081		1770	3539
Flt Permitted	0.99		1.00		0.95	1.00
Satd. Flow (perm)	1631		5081		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	15	2700	17	2	2157
RTOR Reduction (vph)	15	0	0	0	0	0
Lane Group Flow (vph)	2	0	2717	0	2	2157
Turn Type	Prot		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
Vehicle Extension (s)	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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	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%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	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
Hadj (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%	ICU Level of Service		B
Analysis Period (min)		15		



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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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		5.5		4.4	5.5
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.97		0.92		1.00	1.00
Flt Protected	0.96		1.00		0.95	1.00
Satd. Flow (prot)	3382		3255		1770	3539
Flt Permitted	0.96		1.00		0.95	1.00
Satd. Flow (perm)	3382		3255		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		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	c0.13		0.15		0.03	c0.27
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



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

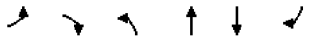
Intersection Summary



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		0.95	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	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)	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.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	150	259	90	1268	801	970
Future Volume (vph)	150	259	90	1268	801	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
Frt	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	
Vehicle Extension (s)	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				c0.67
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

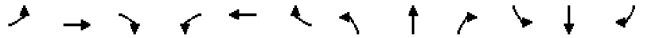


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	34	359	576	5	911	141	1011
v/c Ratio	0.29	0.05	0.73	0.85	0.03	0.57	0.70	0.63
Control Delay	14.5	9.7	25.1	26.1	7.6	9.7	34.5	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	9.7	25.1	26.1	7.6	9.7	34.5	11.6
Queue Length 50th (ft)	18	5	89	110	1	78	29	103
Queue Length 95th (ft)	46	19	#204	#281	5	121	#109	151
Internal Link Dist (ft)		105	678			1978		882
Turn Bay Length (ft)					100		135	
Base Capacity (vph)	339	750	550	740	199	1916	242	1932
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	0.26	0.05	0.65	0.78	0.03	0.48	0.58	0.52

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

26: Morena Blvd & Balboa Station Entrance/Balboa EB Ramps

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	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.98			1.00	0.85	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	
Satd. Flow (prot)	1770	1822			1782	1583	1770	3425		1770	3533	
Flt Permitted	0.44	1.00			0.72	1.00	0.20	1.00		0.24	1.00	
Satd. Flow (perm)	828	1822			1343	1583	365	3425		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	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	16.6	16.6			16.6	16.6	20.5	20.5		20.5	20.5	
Effective Green, g (s)	16.6	16.6			16.6	16.6	20.5	20.5		20.5	20.5	
Actuated g/C Ratio	0.37	0.37			0.37	0.37	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	
Vehicle Extension (s)	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						0.25			0.29	
v/s Ratio Perm	0.11				0.27	c0.30	0.01			c0.32		
v/c Ratio	0.29	0.05			0.73	0.82	0.03	0.55		0.70	0.63	
Uniform Delay, d1	10.1	9.2			12.3	12.9	6.8	9.0		9.8	9.4	
Progression Factor	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	
Delay (s)	10.6	9.2			17.6	22.1	6.9	9.4		20.4	10.2	
Level of Service	B	A			B	C	A	A		C	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			

c Critical Lane Group

27: Morena Blvd & Baker St

Timing Plan: PM Peak Period



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
Grade	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)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	970	413			438	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	970	413			438	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	95			96	
cM 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			A
Analysis Period (min)	15				

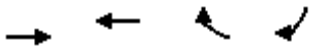
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	134	439	50	112	985
v/c Ratio	0.34	0.26	0.06	0.31	0.44
Control Delay	9.8	10.4	4.7	17.6	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	10.4	4.7	17.6	5.5
Queue Length 50th (ft)	8	38	0	21	49
Queue Length 95th (ft)	43	76	16	62	100
Internal Link Dist (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	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	38	86	404	46	103	906
Future Volume (vph)	38	86	404	46	103	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	112	985
RTOR Reduction (vph)	81	0	0	31	0	0
Lane Group Flow (vph)	53	0	439	19	112	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	c0.03		0.12		0.06	c0.28
v/s 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		

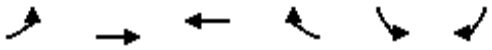
c Critical Lane Group



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.



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
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	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	Perm		Prot
Protected Phases		1 4	8			1
Permitted Phases				8		
Actuated Green, G (s)		83.0	32.7	32.7		42.3
Effective Green, g (s)		83.0	32.7	32.7		42.3
Actuated g/C Ratio		1.00	0.39	0.39		0.51
Clearance Time (s)			4.0	4.0		4.0
Vehicle Extension (s)			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

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
~~Olney St~~	~~II~~	~~30~~	~~12.1~~	~~33.5~~	~~45.6~~	~~0.09~~	~~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	~~18.2~~ 12.0	~~42.4~~ 36.2	0.23	19.8	D
Balboa WB Ramps	II	45	7.1	1.0	8.1	0.07	29.0	B
Moraga Ave*	II	45	22.2	~~6.4~~ 4.2	~~28.6~~ 26.4	0.20	25.7	C
Clairemont 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
~~Clairemont Dr~~	~~II~~	~~45~~	~~14.7~~	~~56.8~~	~~71.5~~	~~0.13~~	~~6.8~~	~~F~~
Moraga 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
Olney 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
~~Rosewood St~~	~~III~~	~~35~~	~~23.6~~	~~2.8~~	~~26.4~~	~~0.20~~	~~26.9~~	~~B~~
~~Mission Bay Dr~~	~~III~~	~~35~~	~~15.8~~	~~16.0~~	~~31.8~~	~~0.12~~	~~13.2~~	~~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
Bluffside Av	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

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
~~Bluffside Av~~	~~III~~	~~35~~	~~20.0~~	~~44.5~~	~~64.5~~	~~0.16~~	~~8.7~~	~~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
~~Rosewood St~~	~~III~~	~~35~~	~~15.8~~	~~1.8~~	~~17.7~~	~~0.12~~	~~23.7~~	~~C~~
Total	III		117.4	248.7	366.1	0.89	8.8	F

APPENDIX K

MITIGATED REDUCED FUTURE CONDITIONS ANALYSIS SUPPORTING INFORMATION

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
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)	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			0.08
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

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
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)	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		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
Vehicle Extension (s)	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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		4.4	5.3	4.4	4.4	5.3	
Lane Util. Factor	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	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5028		3433	4972		1770	3539	1583	1770	3298	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5028		3433	4972		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	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		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	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/s Ratio Perm									0.15			
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 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	20.5	
Intersection Capacity Utilization	70.1%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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
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		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		8		2	6	
Actuated Green, G (s)	8.1	8.1	21.1	21.1		21.1
Effective Green, g (s)	8.1	8.1	21.1	21.1		21.1
Actuated g/C Ratio	0.22	0.22	0.57	0.57		0.57
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)	385	344	1056	897		1907
v/s Ratio Prot	c0.12		0.15			
v/s Ratio Perm		0.00		c0.15		0.05
v/c Ratio	0.54	0.01	0.26	0.27		0.09
Uniform Delay, d1	12.9	11.4	4.1	4.1		3.7
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	1.4	0.0	0.6	0.7		0.1
Delay (s)	14.3	11.4	4.7	4.8		3.8
Level of Service	B	B	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 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	37.2	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

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 Queue Vehicles veh	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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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
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)	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	998	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
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)	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		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)	10.6	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	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	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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	897	0
Turn Type	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)	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/s Ratio Perm									0.13			
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	52.3	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	127.3	Sum of lost time (s)	20.5	
Intersection Capacity Utilization	82.0%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

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
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		3530
Flt Permitted	0.95	1.00	1.00	1.00		0.94
Satd. Flow (perm)	1770	1583	1863	1583		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
Effective Green, g (s)	17.6	17.6	10.4	10.4		10.4
Actuated g/C Ratio	0.49	0.49	0.29	0.29		0.29
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)	865	773	538	457		957
v/s Ratio Prot	c0.36		0.10			
v/s Ratio Perm		0.00		0.05		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	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	36.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

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 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	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.

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APPENDIX L

ACTIVE TRANSPORTATION ANALYSIS DATA

PEQE Intersection Analysis

Intersection	TOTAL SCORE	PEQE RATING	1.Physical Feature					2.Operational Feature					3.ADA Curb Ramp	4. Traffic Control
			High Visibility Crosswalk	Raised Crosswalk	Advanced Stop Bar	Bulb out	Score	Pedestrian Countdown Signal	Pedestrian Lead Interval	No-Turn on Red Sign/Signal	Additional Ped Signs	Score		
Garnet / Bond	4	Medium	0	0	0	0	0	0	0	0	0	0	2	2
Garnet / Mission Bay	2	Low	0	0	0	0	0	0	0	0	1	0	0	2
Garnet / De Soto St	1	Low	0	0	0	0	0	0	0	0	0	0	0	1
Garnet / I-5 NB Off-Ramp	4	Medium	2	0	2	0	0	0	0	2	0	0	2	2
Garnet / Morena Ramp	4	Medium	1	0	0	0	0	1	0	0	0	0	2	2
Balboa / Moraga	4	Medium	0	0	1	0	0	?	0	0	0	0	2	2
Morena / Station Entrance	6	Medium	4	0	4	0	1	4	4	0	0	1	2	2
Morena / Bus Entrance	4	Medium	2	0	1	0	0	2	2	0	1	0	2	2
Morena / Paul Jones	1	Low	0	0	0	0	0	0	0	0	0	0	0	1
Morena / Ticonderoga St	1	Low	0	0	0	0	0	0	0	0	0	0	0	1
Mission Bay Drive/Rosewood	5	Medium	4	0	4	0	1	4	0	0	0	0	2	2
Mission Bay Drive/ Grand	4	Medium	0	0	4	0	0	4	0	0	0	0	2	2
Mission Bay Drive/ Bunker Hill	4	Medium	0	0	4	0	0	4	0	0	0	0	2	2
Mission Bay Drive/ Magnolia	4	Medium	0	0	4	0	0	4	0	0	0	0	2	2
Mission Bay Drive/ Damon	4	Medium	0	0	0	0	0	4	0	0	0	0	2	2
Morena / North Morena Ramps	4	Medium	2	0	2	0	0	2	0	0	0	0	2	2
Damon / Santa Fe	3	Low	2	0	2	0	0	0	0	0	0	0	2	1

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	RD20NAM	RD20SFX	RD20FULL	EBNB_Bik	WBSB_Bik	EBNB_Lar	WBSB_Lar	EBNB_Par	WBSB_Pa	EBNB_BL_	WBSB_BL_	EBNB_Spe	WBSB_Sp	EBNB_Blo	WBSB_Blo	EBNB_RT_	WBSB_RT	EBNB_RT_	WBSB_RT	EBNB_Poc	WBSB_Po	EBNB_Cro	WBSB_Cro	EBNB_Me	WBSB_Me	Study_Are	EBNB_Cro	WBSB_Cro	F_Class	GlobalID	Parking_C	Notes	Miles	FID_1	Shape__	OBJECTID	FUNCLASS	
35		MORENA	BL	MORENA	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	RA	MORENA	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	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	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	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	RA	MORENA	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-!	198	Trail conn	0.09497	17	Polyline	71	L	
35		MORENA	BL	MORENA	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	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	RA	MORENA	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	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				8ebbdf6d-	99		0.06878	39	Polyline	196		4
30		MISSION E	DR	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		ROSEWOO	ST	ROSEWOO	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		ROSEWOO	ST	ROSEWOO	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	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	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	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		ROSEWOO	ST	ROSEWOO	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 Rig	None	None	N/A	Signal	None	None	Yes		Signal		2b9c12fd-	198	Some red	0.15681	61	Polyline	664	L	
30		MISSION E	DR	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	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	BL	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-!	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	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	Boulevard	Boulevard	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	<Null>		None	None	Yes		Stop		51087d0f-	198		0.03689	80	Polyline	846	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	Uncontrol			ab5f21c9-	198		0.04162	81	Polyline	848	L	
20		FIGUEROA	BL	FIGUEROA	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None			None	None	Yes	Stop	Stop		9dc8c780-	198		0.06076	82	Polyline	394	L	
20		FIGUEROA	BL	FIGUEROA	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	Stop	None	None	Yes		Stop		a5fd231c-	198		0.06465	83	Polyline	468	L	
20		BOND	ST	BOND ST	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	Stop	Stop	None	None	Yes	Stop	Stop		41d77407	198		0.04153	84	Polyline	471	L	
20		BOND	ST	BOND ST	Route	Route	1	1	8	8	0	0	25	25	Low	Low	0	0	None	None	None	None	Stop	Stop	None	None	Yes	Stop	Stop		1f585ec2-	198		0.05834	85	Polyline	473	L	
20		FIGUEROA	BL	FIGUEROA	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes				b74ff540-!	198		0.03631	86	Polyline	493	L	
20		FIGUEROA	BL	FIGUEROA	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/a	None	None	None	Yes	N/A	Uncontrol		ee01040e	198		0.02979	87	Polyline	518	L	
20		BOND	ST	BOND ST	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	Stop	None	None	Yes	None	Stop		adeba580-	198		0.0667	88	Polyline	611	L	
20		BOND	ST	BOND ST	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	Stop	Uncontrol	None	None	Yes	Stop			03479679	198		0.07451	89	Polyline	671	L	
20		FIGUEROA	BL	FIGUEROA	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None			None	None	Yes				2729352c-	198		0.07643	90	Polyline	852	L	
30		MISSION E	DR	MISSION E	Lane	Lane	2	2	0	0	0	0	36	36	Low	Low	0	0			None	None	N/A	Signal	None	None	Yes				4a40c487-	0		0.0801	91	Polyline	7		4
30		MISSION E	DR	MISSION E	Lane	Lane	2	2	7	7	0	0	36	36	Low	Low	0	0			None	None			None	None	Yes				6eeb8143	198		0.0493	92	Polyline	773		4
30		MISSION E	DR	MISSION E	Lane	Lane	2	2	0	7	0	0	36	36	Low	Low	0	0			None	None			None	None	Yes				f1a9759a-	99		0.02372	93	Polyline	756		4
30		MISSION E	DR	MISSION E	Lane	Lane	2	2	0	7	0	0	36	36	Low	Low	0	0			None	None			None	None	Yes	Signal			58a5104a-	99		0.0702	94	Polyline	624		4
30		MISSION E	DR	MISSION E	Lane	Lane	2	2	7	7	0	0	36	36	Low	Low	0	0			None	None			None	None	Yes				13298610	198		0.03429	95	Polyline	521		4
30		MISSION E	DR	MISSION E	Lane	Lane	2	2	7	7	0	0	36	36	Low	Low	0	0			None	None	Signal	N/A	None	None	Yes				bec6d592-	198		0.10787	96	Polyline	472		4
30		MISSION E	DR	MISSION E	Lane	Lane	2	2	0	7	0	0	36	36	Low	Low	0	0			None	None	N/A	Signal	None	None	Yes				72ec09ba-	99		0.01415	97	Polyline	111		4
35		BALBOA	AV	BALBOA A	Lane		2	2	0	0	9	9	50	49	Low	Low	0	0			None	None	N/A	N/A	None	None	Yes				4d839009	0		0.00179	98	Polyline	8		4
25		GARNET	AV	GARNET A	Lane	Lane	3	3	0	0	0	0	35	35	Low	Low	0	0			None	None	N/A	Signal	None	None	Yes				79de4533	0		0.02964	100	Polyline	149		4
25		GARNET	AV	GARNET A	Lane	Lane	3	3	0	0	0	0	35	35	Low	Low	0	0			None	None			None	None	Yes				2ae3f5e8-	0		0.09693	101	Polyline	377		4
20		SANTA FE	ST	SANTA FE	Trail	None	1	1	0	7	0	0	25	25	Low	Low	0	0	None	None	None	None	Stop	N/A	None	None	Yes				328f7e32-	198		0.08142	102	Polyline	60	L	
20		SANTA FE	ST	SANTA FE	Trail	None	1	1	0	0	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	Uncontrol	None	None	Yes				10c89c4a-	0		0.12108	103	Polyline	119	L	
20		SANTA FE	ST	SANTA FE	Trail	None	1	1	0	0	0	0	40	40	Low	Low	0	0	None	None	None	None			None	None	Yes				46ee3219	0		0.02722	104	Polyline	663	L	
35		MORENA	BL	MORENA	None	Track	2	2	8	0	0	0	47	52	Low	Low	0	0			None	None			None	None	Yes				cbb45d28	99		0.14264	105	Polyline	283	C	
35		MORENA	BL	MORENA	None	Track	2	2	8	0	0	0	47	52	Low	Low	0	0			None	None			None	None	Yes				bb5c3a44-	0		0.04421	107	Polyline	761	C	
20		BUNKER H	ST	BUNKER H	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	108	Polyline	113	L	
20		BUNKER H	ST	BUNKER H	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	109	Polyline	625	L	
20		BUNKER H	ST	BUNKER H	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	110	Polyline	759	L	
35		BALBOA	AV	BALBOA 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	111	Polyline	19		4

SPEED	RD20PREI	RD20NAM	RD20SFX	RD20FULL	EBNB_Bik	WBSB_Bik	EBNB_Lar	WBSB_Lar	EBNB_Par	WBSB_Pa	EBNB_BL_	WBSB_BL	EBNB_Spe	WBSB_Sp	EBNB_Blo	WBSB_Blo	EBNB_RT_	WBSB_RT	EBNB_RT_	WBSB_RT	EBNB_Poc	WBSB_Po	EBNB_Cro	WBSB_Cr	EBNB_Me	WBSB_Me	Study_Are	EBNB_Cro	WBSB_Cr	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
35		BALBOA	AV	BALBOA A	Lane		2	2	0	0	9	9	50	49	Low	Low	0	0			None	None	N/A	N/A	None	None	Yes				b8b1d6ff-	0		0.00227	112	Polyline	20	4
35		BALBOA	AV	BALBOA A	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		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		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		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		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		2	2	0	0	9	9	35	35	Low	Low	0	0			None	None			None	None	Yes				2d1f497f-4	0		0.02811	119	Polyline	715	4
40		GARNET	AV	GARNET A	Bus		2	2	0	0	9	9	35	35	Low	Low	0	0			None	None			None	None	Yes				efbc5a0a-4	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		2	2	0	0	6	9	35	35	Low	Low	0	0			None	None	N/A	N/A	None	None	Yes				41b2f85f-4	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	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-7	99		0.19203	130	Polyline	150	C
30		MISSION E	DR	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		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	
20		SANTA FE	ST	SANTA 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	SANTA 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	SANTA 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				cbb45d28	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	UNKER 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	UNKER 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	UNKER 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	BALBOA 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	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-4	0		0.00227				
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				
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				
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				
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-4	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-4	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-4	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				-4422-942	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-8e8	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	DR	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				

ONEWAY	SEGCLASS	SPEED_1	RD20PREI	RD20NAM	RD20SFX	RD20FULL	EBNB_Bik	WBSB_Bik	EBNB_Lar	WBSB_Lar	EBNB_Par	WBSB_Pa	EBNB_BL	WBSB_BL	EBNB_Spe	WBSB_Sp	EBNB_Blo	WBSB_Blo	EBNB_RT_	WBSB_RT	EBNB_RT_	WBSB_RT	EBNB_Poc	WBSB_Po	EBNB_Cro	WBSB_Cr	EBNB_Me	WBSB_Me	Study_Ar	EBNB_Cro	WBSB_Cr	F_Class_1	GlobalID_	Parking_	Notes_1	Miles_1	EBNB_2_1	EBNB_2_2
	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		
F	5	25		MORENA	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	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		
	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		
F	5	25		MORENA	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	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		
	5	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		
	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		
F	5	25		MORENA	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	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	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	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	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	Lane	Lane	2	2	0	0	5	5	43	45	Low	Low	0	0	None	None	Straight	Straight			None	None	Yes				8ebbdf6d-	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	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		ROSEWOO	ST	ROSEWOO	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		ROSEWOO	ST	ROSEWOO	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	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	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		
	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				b800cb1f-	0		0.2131		
	5	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		
	5	20		ROSEWOO	ST	ROSEWOO	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		
	5	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		
	5	30		DAMON	AV	DAMON A			1	1	7	7	0	0	31	31	Low	Low	0	80	None	Single Rig	None	None	N/A	Signal	None	None	Yes		Signal		2b9c12fd-	198	Some red	0.15681		
	3	30		MISSION E	DR	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		
	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		
	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				5ddffde9-	198		0.03117		
	5	20		FIGUEROA	BL	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		
	5	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		
	5	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		
	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				58fa043d-	0		0.00975		
	0	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	1	1
	5	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		
	5	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-	198		0.03725		
	5	20		MAGNOLI	AV	MAGNOLI	Boulevard	Boulevard	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None		None	None	None	Yes	N/A	Uncontrol		480d4d96	198		0.02935		
	5	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		
	5	20		MAGNOLI	AV	MAGNOLI	Boulevard	Boulevard	1	1	7	7	0	0	25	25	Low	Low	0	0		None	None	None	<Null>		None	None	Yes		Stop		51087d0f-	198		0.03689		
	5	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	Uncontrol			ab5f21c9-	198		0.04162		
	5	20		FIGUEROA	BL	FIGUEROA	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None			None	None	Yes	Stop	Stop		9dc8c780-	198		0.06076		
	5	20		FIGUEROA	BL	FIGUEROA	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	Stop	None	None	Yes		Stop		a5fd231c-	198		0.06465		
	5	20		BOND	ST	BOND ST	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	Stop	Stop	None	None	Yes	Stop	Stop		41d77407	198		0.04153		
	5	20		BOND	ST	BOND ST	Route	Route	1	1	8	8	0	0	25	25	Low	Low	0	0	None	None	None	None	Stop	Stop	None	None	Yes	Stop	Stop		1f585ec2-	198		0.05834		
	5	20		FIGUEROA	BL	FIGUEROA	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	N/A	None	None	Yes				b74ff540-	198		0.03631		
	5	20		FIGUEROA	BL	FIGUEROA	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/a	None	None	None	Yes	N/A	Uncontrol		ee01040e	198		0.02979		
	5	20		BOND	ST	BOND ST	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	Stop	None	None	Yes	None	Stop		adeba580	198		0.0667		
	5	20		BOND	ST	BOND ST	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None	Stop	Uncontrol	None	None	Yes	Stop			03479679	198		0.07451		
	5	20		FIGUEROA	BL	FIGUEROA	Route	Route	1	1	7	7	0	0	25	25	Low	Low	0	0	None	None	None	None			None	None	Yes				2729352c	198		0.07643		
	3	30		MISSION E	DR	MISSION E	Route	Route	2	2	0	0	0	0	36	36	Low	Low	0	0			None	None	N/A	Signal	None	None	Yes				4a40c487-	0		0.0801		
	3	30		MISSION E	DR	MISSION E	Route	Route	2	2	7	7	0	0	36	36	Low	Low	0	0			None	None			None	None	Yes				6eeb8143	198		0.0493		
	3	30		MISSION E	DR	MISSION E	Route	Route	2	2	0	7	0	0	36	36	Low	Low	0	0			None	None			None	None	Yes				f1a9759a-	99		0.02372		
	3	30		MISSION E	DR	MISSION E	Route	Route	2	2	0	7	0	0	36	36	Low	Low	0	0			None	None			None	None	Yes	Signal			58a5104a	99		0.0702		
	3	30		MISSION E	DR	MISSION E	Route	Route	2	2	7	7	0	0	36	36	Low	Low	0	0			None	None			None	None	Yes				13298610	198		0.03429		
	3	30		MISSION E	DR	MISSION E	Route	Route	2	2	7	7	0	0	36	36	Low	Low	0	0			None	None	Signal	N/A	None	None	Yes				bec6d592	198		0.10787		
	3	30		MISSION E	DR	MISSION E	Route	Route	2	2	0	7	0	0	36	36	Low	Low	0	0			None	None	N/A	Signal	None	None	Yes				72ec09ba	99		0.01415		
	3	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				4d839009	0		0.00179		
	3	25		GARNET	AV	GARNET A	Lane	Lane	2	2	0	0	0	0	35	35	Low	Low	0	0			None	None	N/A	Signal	None	None	Yes				79de4533	0		0.02964		
	3	25		GARNET	AV	GARNET A	Lane	Lane	2	2	0	0	0	0	35	35	Low	Low	0	0			None	None			None	None	Yes				2ae3f5e8-	0		0.09693		
	5	20		SANTA FE	ST	SANTA FE	Track	None	1	1	0	7	0	0	25	25	Low	Low	0	0	None	None	None	None	Stop	N/A	None	None	Yes				328f7e32-	198		0.08142		
	5	20		SANTA FE	ST	SANTA FE	Track	None	1	1	0	0	0	0	25	25	Low	Low	0	0	None	None	None	None	N/A	Uncontrol	None	None	Yes				10c89c4a-	0		0.12108		
	5	20		SANTA FE	ST	SANTA FE	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		
	4	35		MORENA	BL	MORENA I	Track	None	2	2	8	0	0	0	47	52	Low	Low	0	0			None	None			None	None	Yes				cbb45d28	99		0.14264		
	4	35		MORENA	BL	MORENA I	Track	None	2	2	8	0	0	0	47	52	Low	Low	0	0			None	None			None	None	Yes				bb5c3a44	0		0.04421		
	5	20		BUNKER H	ST	BUNKER H	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		
	5	20		BUNKER H	ST	BUNKER H	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		
	5	20		BUNKER H	ST	BUNKER H	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		
	3	35		BALBOA	AV	BALBOA 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		

ONEWAY	SEGCLASS	SPEED_1	RD20PREI	RD20NAM	RD20SFX	RD20FULL	EBNB_Bik	WBSB_Bik	EBNB_Lar	WBSB_Lar	EBNB_Par	WBSB_Pa	EBNB_BL	WBSB_BL	EBNB_Spe	WBSB_Sp	EBNB_Blo	WBSB_Blo	EBNB_RT_	WBSB_RT	EBNB_RT_	WBSB_RT	EBNB_Poc	WBSB_Po	EBNB_Cro	WBSB_Cr	EBNB_Me	WBSB_Me	Study_Ar	EBNB_Cro	WBSB_Cr	F_Class_1	GlobalID_	Parking_	Notes_1	Miles_1	EBNB_2_1	EBNB_2_2
	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		
	3	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-	0		0.00227		
	3	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		
	3	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		
	3	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		
	3	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		
	3	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		
	3	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		
	3	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-4	0		0.02811		
	3	40		GARNET	AV	GARNET A	Lane	Route	2	2	0	0	9	9	35	35	Low	Low	0	0			None	None			None	None	Yes				efbc5a0a-4	0		0.01075		
	3	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		
	3	40		GARNET	AV	GARNET A	Lane	Route	2	2	0	0	6	9	35	35	Low	Low	0	0			None	None	N/A	N/A	None	None	Yes				41b2f85f-4	0		0.00859		
	3	40		GARNET	AV	GARNET A	Lane	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		
	3	40		GARNET	AV	GARNET A	Lane	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		
	3	40		GARNET	AV	GARNET A	Lane	Route	2	2	0	0	6	9	35	35	Low	Low	0	0			None	None			None	None	Yes				782ca079-	0		0.07295		
	3	40		GARNET	AV	GARNET A	Lane	Route	2	2	0	0	6	9	35	35	Low	Low	0	0			None	None			None	None	Yes				0df2aa0a-	0		0.03064		
	3	25		GARNET	AV	GARNET A	Lane	Route	2	2	0	0	6	9	35	35	Low	Low	0	0			None	None			None	None	Yes				8c2ab806-	0		0.00997		
	3	25		GARNET	AV	GARNET A	Lane	Lane	2	2	0	0	6	0	35	35	Low	Low	0	0			None	None			None	None	Yes				de77b70b	0		0.07887		
	3	25		GARNET	AV	GARNET A	Lane	Lane	2	2	0	0	10	0	35	35	Low	Low	0	0			None	None			None	None	Yes				eab15a99-	0		0.03266		
	4	35		MORENA	BL	MORENA I	Track	None	2	2	8	0	12	0	47	52	Low	Low	0	0			None	None	N/A	N/A	None	None	Yes				eff2bbcb-7	99		0.19203		
	3	30		MISSION E	DR	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		
	0	0							0	0	0	0	0	0	0	0			0	0														0		0.49163		
	3	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		0.08366		
	5	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		0.13276		
	0	0							0	0	0	0	0	0	0	0			0	0														0		0		
	5	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		0.13276		
	5	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		0.13276		
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				

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_Seg	EBNB_Int	EBNB_Tot	WBSB_2_	WBSB_2_	WBSB_2_	WBSB_2_	WBSB_3_	WBSB_3_	WBSB_3_	WBSB_3_	WBSB_4_	WBSB_5_	WBSB_6_	WBSB_7_	WBSB_8_	WBSB_Se	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	0					1							1	1	1	1	1					2					
		1	1	1	1	1					0							1	1	1	1	1					1					
		2	2	1	1	0					2			3	3	4	1										3			EXISTING		
		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					
		2	1	1	1	0					1							1	1	1	1	1					2					
		0	0			0					0											0					1					
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		2	1	4	1	0					4							2	1	4	1	0					4					

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_Seg	EBNB_Int	EBNB_Tot	WBSB_2_	WBSB_2_	WBSB_2_	WBSB_2_	WBSB_3_	WBSB_3_	WBSB_3_	WBSB_3_	WBSB_4_	WBSB_5_	WBSB_6_	WBSB_7_	WBSB_8_	WBSB_Se	WBSB_Int	WBSB_To	Network	EBNB_Bik	WBSB_Bike2
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	0	0			4					4											4					4			EXISTING		