State Route 262 (Mission Boulevard) Cross Connector Project

Final

Existing Conditions Operations Analysis Report

Prepared for:
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Table of Contents

Appendices

List of Figures

List of Tables

1. Introduction

1.1 Project Description

State Route 262/Mission Boulevard (SR-262), is a conventional highway located in the City of Fremont (City) and serves as major east-west connector between Interstates 680 (I-680) and 880 (I-880) serving freight traffic, regional, and local commutes. SR-262 is also proximate to major economic drivers in the Bay Area such as manufacturing, information technology, and Silicon Valley. Additionally, SR-262 serves as a primary route to the Warm Spring/South Fremont BART station and Tesla. The housing/work imbalance between jobs in the Silicon Valley and housing in the Tri-Valley, Contra Costa County, and Central Valley, as well as growth in the City causes pass-through traffic on the corridor and through the area. Due to these factors, the issues arising on the corridors include the following:

- SR-262 is a major east-west connector between I-880 and I-680 that experiences heavy daily commute and commercial vehicle trips.
- Existing travel demand and operational deficiencies cause recurring traffic congestion on SR-262 and adjoining I-680 and I-880 freeways, throughout the day on weekdays and weekends.
- Congestion adversely affects local city circulation, inhibits access to local land uses, and results in undesirable use of local neighborhood streets. The SR-262 (Mission Boulevard) Cross Connector Project (Project), currently acts as a route for regional traffic between I-880 and I-680.
- Vehicle delay and restricted mobility impacts the economic vitality of the local community.

The SR-262 (Mission Boulevard) Cross Connector Project (Project), currently in the Project Initiation Document (PID) Phase, will propose a range of alternatives to address these issues, focusing on improvements to SR-262 between I-880 and I-680, and the extents of related SR-262 ramp modifications to/from I-880 and I-680. The purpose of these improvements would include reducing congestions and improving traffic flow for the local and regional transportation networks in the vicinity of SR-262, improve east-west regional connectivity in southern Alameda County, and encourage mode shift from single-occupancy vehicles to increase vehicle occupancy and person through-put by promoting multimodal components within the corridor. This report evaluates Existing Conditions for study periods set to coincide with the anticipated weekday morning (5:00 AM to 12:00 PM) and evening (1:00 PM to 9:00 PM) peak periods at buildout.

1.2 Purpose of Report

The purpose of this report is to present the existing traffic operating conditions on the transportation network that Caltrans will consider when evaluating the project's benefits and impacts, as defined in Chapter 2-1 and shown in **Figure 1-1**, and identify operational deficiencies that may be addressed within the Project boundaries. The report describes the existing transportation infrastructure, and presents the study segments, traffic data, analysis methods, and results of the existing traffic operations analysis for purposes of validating the VISSIM micro-simulation models to be used in subsequent tasks to evaluate the project operations. The results contained in this report will serve as the foundation for the evaluating the project's future traffic impacts on the transportation network.

1.3 Report Organization

The remainder of the report is organized into the following sections:

Data Collection and Analysis Methodology – Chapter 2 presents the study area, data collection and operational analysis methodologies.

Existing Conditions – Chapter 3 presents the existing physical and operational characteristics of the transportation system within the study area to be incorporated into the VISSIM micro-simulation model that will be used to evaluate the potential improvements for SR 262.

Figure 1-1

Project Location

2. Data Collection and Analysis Methodology

2.1 Study Area

The Project study area is in southern Alameda County and includes SR-262 from I-880 to Paseo Padre Parkway; I-680 between Washington Boulevard and State Route 237 (SR-237)/E Calaveras Boulevard; and I-880 between the Auto Mall Parkway and the SR-237 Interchange. In addition, the study area includes Warren Avenue from Landing Parkway to Warm Springs Boulevard. The project study area was based on input from the project team, including Caltrans staff, as shown in **Figure 1-1**.

The study analyzed the freeway operations on the following segments:

- I-680 Northbound freeway segments from the SR-237 off-ramp to the Washington Boulevard on-ramp (9.1 miles)
- I-680 Southbound freeway segments from the Washington Boulevard on-ramp to the SR-237 on-ramp (9.1 miles)
- I-880 Northbound from the SR-237 off-ramp to the Auto Mall Parkway diagonal on-ramp (7.8 miles)
- I-880 Southbound from the Auto Mall Parkway off-ramp to the SR-237 on-ramp (8.4 miles)

SR-262 is analyzed as part of the following thirteen (13) intersections:

1. Warren Avenue at Landing Parkway/Bayside Parkway
2. Warren Avenue at Lakeview Boulevard/Southbound I-880 ramps
3. Warren Avenue at Northbound I-880 ramps
4. Warren Avenue at Kato Road
5. Warren Avenue at Mission Falls Court
6. Warren Avenue at Warm Springs Boulevard
7. Kato Road at Mission Boulevard off-ramp

8. Kato Road at Mission Boulevard on-ramp
9. SR-262 at Warm Springs Boulevard
10. SR-262 at Mohave Drive
11. Mission Boulevard at Curtner Road
12. Mission Boulevard at Paseo Padre Parkway
13. Eastbound SR-262 at I-880 Ramps & Westbound SR-262 at I-880 Ramps

2.2 Data Collection

Data collection efforts were undertaken in March, April, and May 2018 while local schools were in session to determine existing AM and PM peak period traffic volumes by vehicle occupancy, peak hour pedestrian and bicycle volumes, truck volumes and percentages, freeway bottleneck locations and queues, and queues on key local roadways within the study area. Collision data was collected for calendar years 2013 through 2018. In addition, lane configurations, signal timings, ramp metering rates, and posted speed limits were collected for study area roadways.

2.2.1 Travel Speed Data

The study corridor freeway travel speeds were obtained from the INRIX data base. INRIX provides a traffic flow archive with the capability to access speeds reported at the segment level for specific days and times of day. INRIX data is gathered from a variety of sources, including in-vehicle GPS systems, mobile smart phones, and roadway sensors. INRIX provides a much larger data set than could be collected performing travel-time surveys utilizing the floating-car method and therefore is more reliable. INRIX speed data was reviewed for mid-week days during March, April, May, and October in 2018. These days and times were used to identify a data set that most represented a typical weekday. Based on our review of the data, along with review of PeMS count data, we determined that the Tuesday March 6th, 2018 during the PM Period and Wednesday March 7th, 2018 during the AM Period data set was most representative of a typical weekday.

2.2.1.1 Methodology

On freeways, the speeds presented by INRIX are an aggregate of speeds across all travel lanes (including High Occupancy Vehicle (HOV) or Express Lane/s where provided). At locations where there are no HOV2+/Express Lanes the INRIX speed data were used to directly represent traffic conditions on the general-purpose lanes. At locations where an HOV2+/Express Lane is provided, the INRIX speed data were adjusted to determine speeds on the general-purpose lanes. The following equation, which has been

used in other similar studies, was used to estimate speeds on the General Purpose (GP) Lanes at locations where an HOV2+/Express Lane is provided:

*INRIX Speed = % GP Lane Traffic*GP Lane Speed + % HOV Lane Traffic*HOV Lane Speed; or*

*GP Lane Speed = (INRIX Speed - % HOV Lane Traffic*HOV Lane Speed) / % GP Lane Traffic*

Where % GP lane traffic and % HOV2+/Express Lane traffic is based on count data and the HOV Lane speed data is based on available PeMS data. Since the speeds on the HOV2+/Express Lane are typically higher than on the GP Lanes, the outcome of the equation above is that the GP Lane speeds are typically 0 to 5 mph lower than the aggregate speeds presented by INRIX.

2.2.1.2 Data

Detailed speed data by segment for the AM and PM peak periods is provided in **Appendix A**. **Table 2-1** and **Table 2-2** provide peak period travel speed and time summaries for Single Occupancy Vehicles (SOV) for the study limits for both directions of I- 680 and I-880, respectively. The southbound I-680 travel times and average speeds are from the State Route 238/Mission Boulevard (SR-238) on-ramp merge gore point to Calaveras Boulevard on-ramp gore point. The northbound I-680 travel times and speeds are from Calaveras Boulevard off-ramp merge gore point to the SR-238 off-ramp gore point. The southbound I-880 travel times and speeds are from the Stevenson Boulevard on-ramp gore point to SR-237 on-ramp gore point. The northbound I-880 travel times and speeds are from Calaveras off-ramp gore point to Stevenson Boulevard on-ramp gore point.

2.2.2 Bottleneck and Queue Observations

Below is a summary of key bottleneck and queuing observations.

2.2.2.1 Westbound SR-262

2.2.2.1.1 AM Peak Period

Excessive queuing on the westbound approach to the SR-262 and Mohave Drive intersection begins around 7 AM and impacts traffic operations on westbound SR-262 and the I-680 southbound off-ramp to westbound SR-262. The I-680 southbound off-ramp to westbound SR-262 is effectively in queue from around 7 AM to 11 AM and impacts southbound I-680 mainline operations during this same period. The queue forms because the westbound demand is higher than the effective green capacity at the SR-262 and Mohave Drive intersection.

The westbound SR-262 loop on-ramp to southbound I-680 is metered during the AM peak period. Field observations indicate that the queues from the ramp meter are contained on the on-ramp, which includes

a collector-distributor road, and does not impact traffic operations upstream of the on-ramp on westbound SR-262.

2.2.2.1.2 PM Peak Period

No major bottlenecks with excessive queuing were observed. Queuing occurs on the westbound approach to the SR-262/Mohave Drive intersection and impacts traffic operations on westbound SR-262 and the I-680 southbound off-ramp to westbound SR-262. However, the queues on the I-680 southbound off-ramp are contained within the ramp itself and do not impact operations on southbound I-680. Similar than the AM peak period, the queue forms because the westbound demand is higher than the effective green capacity at the SR-262 and Mohave Drive intersection.

2.2.2.2 Eastbound SR-262

2.2.2.2.1 AM Peak Period

No major bottlenecks with excessive queuing were observed on eastbound SR-262 during the AM peak period. Queueing was observed at the signalized intersections, but the queues were generally contained within the available storage.

2.2.2.2.2 PM Peak Period

During the PM period, there is a queue that forms at a bottleneck on northbound I-680 that extends back onto eastbound SR-262 and subsequently the northbound I-880 off-ramp. In addition, the northbound I-680 collector-distributor road restricts the movement of traffic from eastbound SR 262 onto northbound I-680. This queue is present between 2 PM and 7 PM and extends back to Warm Springs Boulevard.

2.2.2.3 Southbound I-680

2.2.2.3.1 AM Peak Period

During the AM peak period, vehicle queue spillback from the southbound off-ramp to westbound SR-262 was observed to start around 7 AM. The vehicle queue spillback results in queuing on the outer two lanes of southbound I-680.

There is a bottleneck that forms at 9 AM between the SR-238 on-ramp and Washington Boulevard off-ramp. However, the duration of this bottleneck is less than 1 hour (about ½ hour). The queue from this bottleneck extends to about the SR-238 off-ramp.

2.2.2.3.2 PM Peak Period

There are no bottlenecks within the study area; however, there is a bottleneck that forms outside the southern end of the study area, south of the Hostetter Road interchange with queues that extend into the SR-237 off-ramp and on-ramp segment area between 4 PM and 6 PM.

Table 2-1
I-680 INRIX Speed and Travel Time

Time Period	Southbound I-680 from Washington Blvd to SR-237 (9.1 miles)		Northbound I-680 from SR-237 to Washington Blvd (9.1 miles)	
	Average Time in minutes SOV non-toll	Average Speed in mph SOV non-toll	Average Time in minutes SOV non-toll	Average Speed in mph SOV non-toll
AM Period: 5:00 AM to 12:00 PM				
5:00 AM to 6:00 AM	8	70	8	67
6:00 AM to 7:00 AM	8	69	8	66
7:00 AM to 8:00 AM	8	67	8	67
8:00 AM to 9:00 AM	9	61	8	66
9:00 AM to 10:00 AM	10	59	8	67
10:00 AM to 11:00 AM	8	65	8	67
11:00 AM to 12:00 PM	8	70	8	68
PM Period: 1:00 PM to 9:00 PM				
1:00 PM to 2:00 PM	8	70	8	68
2:00 PM to 3:00 PM	8	71	13	49
3:00 PM to 4:00 PM	8	71	22	43
4:00 PM to 5:00 PM	8	70	23	43
5:00 PM to 6:00 PM	9	64	21	42
6:00 PM to 7:00 PM	8	68	17	43
7:00 PM to 8:00 PM	8	70	12	53
8:00 PM to 9:00 PM	8	70	8	67

Source: INRIX (AM - Tuesday March 6th and PM - Wednesday March 7th) and Fehr & Peers

2.2.2.4 Northbound I-680

2.2.2.4.1 AM Peak Period

There is no mainline congestion or bottlenecks in the AM period on northbound I-680. During field observations, westbound queue spill back from the SR-262/Mohave Drive intersection was observed to extend back onto the I-680 northbound loop off-ramp and along the northbound collector-distributor

road and ultimately, reaching the northbound I-680 freeway. While the queues did not deteriorate the speeds of the vehicles traveling though the northbound I-680 freeway, it deteriorates operations for the vehicles exiting the freeway at the SR-262 off-ramp.

2.2.2.4.2 PM Peak Period

During the PM peak period there is a bottleneck that develops between 2 PM and 8 PM between the Washington Boulevard on-ramp and SR-238 off-ramp. The queue from this bottleneck extends as far as the SR-262 interchange and impedes drivers on SR-262 from accessing northbound I-680. There is a second bottleneck that forms outside the northern end of the study area, north of the Andrade Road interchange, with queues that extend into the study area between 3 PM and 8 PM. The bottleneck between the Washington Boulevard on-ramp and SR-238 off-ramp becomes hidden within the congestion of the second bottleneck between 3 PM and 8 PM.

2.2.2.5 Southbound I-880

2.2.2.5.1 AM Peak Period

During the AM peak period there is a bottleneck that develops between 7 AM and 9 AM between the Stevenson Boulevard on-ramp and Auto Mall Parkway off-ramp. The queue from this bottleneck extends beyond the northern end of the study area. There is a second bottleneck that forms between 7 AM and 9 AM between the Fremont Boulevard loop on-ramp and Fremont Boulevard diagonal on-ramp. The maximum queue from the second bottleneck extends to the Auto Mall Parkway on-ramp and does not combine with the Stevenson Boulevard bottleneck. At the southern end of the study area there is a bottleneck that forms outside the study area on westbound SR-237. This bottleneck results in queueing on the southbound I-880 to westbound SR-237 off-ramp and southbound I-880 to westbound SR-237 HOV/Express Lane direct connector. Queuing on the off-ramp and HOV/Express Lane direct connector impacts traffic operations on southbound I-880 between SR-262 and SR-237 and result in congestion between 7 AM and 10 AM.

2.2.2.5.2 PM Peak Period

There is no congestion or bottlenecks in the PM peak period on southbound I-880.

2.2.2.6 Northbound I-880

2.2.2.6.1 AM Peak Period

There is no congestion or bottlenecks in the AM peak period on northbound I-880.

2.2.2.6.2 PM Peak Period

During the PM peak period there is a bottleneck that develops between 3 PM and 8 PM between the SR-262 on-ramp and Fremont Boulevard off-ramp. The queue from this bottleneck extends as far as the Dixon Landing interchange. There is a second bottleneck that forms from 3 PM to 8 PM between the Auto Mall Parkway on-ramp and Stevenson Boulevard off-ramp. The queue from the second bottleneck extends through the first bottleneck between 3 PM and 8 PM. The bottleneck between the SR-262 on-ramp and Fremont Boulevard off-ramp becomes hidden within the congestion of the downstream second bottleneck between 3 PM and 8 PM.

Table 2-2
I-880 INRIX Speed and Travel Time

Time Period	Southbound I-880 from Stevenson Blvd to SR-237 (8.4 miles)		Northbound I-880 from SR-237 to Auto Mall Pkwy (7.8 miles)	
	Average Time in minutes SOV non-toll	Average Speed in mph SOV non-toll	Average Time in minutes SOV non-toll	Average Speed in mph SOV non-toll
AM Period: 5:00 AM to 12:00 PM				
5:00 AM to 6:00 AM	8	67	7	66
6:00 AM to 7:00 AM	8	61	7	70
7:00 AM to 8:00 AM	10	52	7	69
8:00 AM to 9:00 AM	14	40	7	69
9:00 AM to 10:00 AM	12	46	7	69
10:00 AM to 11:00 AM	8	64	7	70
11:00 AM to 12:00 PM	7	68	7	67
PM Period: 1:00 PM to 9:00 PM				
1:00 PM to 2:00 PM	8	67	7	67
2:00 PM to 3:00 PM	7	68	8	62
3:00 PM to 4:00 PM	7	67	10	49
4:00 PM to 5:00 PM	8	66	14	39
5:00 PM to 6:00 PM	8	66	19	32
6:00 PM to 7:00 PM	8	67	23	32
7:00 PM to 8:00 PM	7	69	10	50
8:00 PM to 9:00 PM	7	68	7	65

Source: INRIX (AM - Tuesday March 6th and PM - Wednesday March 7th) and Fehr & Peers

2.2.2.7 Summary of Bottleneck Locations

The bottleneck locations are summarized in **Table 2-3** and Table 2-4 PM Study Area Bottleneck Locations**Table 2-4**.

Table 2-3
AM Study Area Bottleneck Locations

AM Period		Time Period Active	Notes
SR-262	***Westbound***		
	SR-262/Mohave Drive intersection	7:00 AM - 8:00 AM 8:00 AM - 9:00 AM *9:00 AM - 10:00 AM* *10:00 AM - 11:00 AM*	*Controlling bottleneck only from: 7:00 AM - 11:00 AM; Capacity = Varies depending on effective green*
	Eastbound		
	No major bottlenecks		
I-680	***Southbound***		
	SR-262 Off-ramp	7:00 AM - 8:00 AM 8:00 AM - 9:00 AM *9:00 AM - 10:00 AM* *10:00 AM - 11:00 AM*	*Queue spillback; Capacity cannot be calculated because segment is in queue.*
	SR-238 to Washington Blvd	9:00 AM - 10:00 AM	*Controlling bottleneck when active (30 minutes) Capacity cannot be calculated at this time because it is not a full one-hour period.*
	Northbound		
	No bottlenecks		
I-880	***Southbound***		
	Stevenson Boulevard On-Ramp to Auto Mall Parkway Off-Ramp	*7:00 AM - 8:00 AM* *8:00 AM - 9:00 AM*	*Controlling bottleneck when active; Capacity = 5600 vph GP lanes + HOV vehicles*
	Fremont Boulevard Loop On-Ramp to Diagonal On-Ramp	*7:00 AM - 8:00 AM* *8:00 AM - 9:00 AM*	*Controlling bottleneck when active; Capacity = 5750 vph GP lanes + HOV vehicles*
	SR-237 Off-ramp	7:00 AM - 8:00 AM 8:00 AM - 9:00 AM *9:00 AM - 10:00 AM*	*Queue spillback; Capacity cannot be calculated because segment is in queue.*
	Northbound		
	No bottlenecks		

Source: Fehr and Peers 2019

Table 2-4
PM Study Area Bottleneck Locations

AM Period		Time Period Active	Notes
SR-262	***Westbound***		
	No major bottlenecks		
	Eastbound		
	I-680 Northbound	*2:00 PM - 3:00 PM* *3:00 PM - 4:00 PM* *4:00 PM - 5:00 PM* *5:00 PM - 6:00 PM* *6:00 PM - 7:00 PM*	*Queue spillback; Capacity cannot be calculated because segment is in queue.*
I-680	***Southbound***		
	Hostetter Road Interchange	*4:00 PM - 5:00 PM* *5:00 PM - 6:00 PM*	*Queue spillback; Capacity cannot be calculated because segment is in queue.*
	Northbound		
	Washington Boulevard On-Ramp to Mission Boulevard Off-Ramp	*2:00 PM - 3:00 PM* *3:00 PM - 4:00 PM* *4:00 PM - 5:00 PM* *5:00 PM - 6:00 PM* *6:00 PM - 7:00 PM* *7:00 PM - 8:00 PM*	*Controlling bottleneck only from: 2:00 PM - 3:00 PM; Capacity = 4900 vph GP lanes* *Hidden bottleneck during other active hours; Capacity cannot be calculated because segment is in queue.*
I-880	***Southbound***		
	No bottlenecks		
	Northbound		
	Auto Mall Parkway On-Ramp to Stevenson Boulevard Off-Ramp	*3:00 PM - 4:00 PM* *4:00 PM - 5:00 PM* *5:00 PM - 6:00 PM* *6:00 PM - 7:00 PM*	*Controlling bottleneck when active; Capacity = 5350 vph GP lanes + HOV vehicles*
	SR-262 On-Ramp to Fremont Boulevard Off-Ramp	*3:00 PM - 4:00 PM* *4:00 PM - 5:00 PM* *5:00 PM - 6:00 PM* *6:00 PM - 7:00 PM*	*Hidden bottleneck during active hours; Capacity cannot be calculated because segment is in queue.*

Source: Fehr and Peers 2019

2.2.3 Ramp and Mainline Counts

An extensive amount of ramp and mainline volume data based on traffic counts was obtained from the following data sources:

- Ramp counts from April/May 2018 using pneumatic tubes and video collection

- Ramp, mainline and vehicle occupancy counts from the I-680 Data Collection Summary Report (Fehr & Peers, August 2017, data collected February/March 2017)
- Ramp volumes from the SR 84 Expressway Widening and SR 84/I-680 Interchange Improvements Project TOAR (Fehr & Peers, approved May 2017)
- Mainline counts obtained from the Performance Measurement System (PeMS) database (2018)
- Ramp counts from the Caltrans Census database (2016) for a reasonability check of the ramp tube counts

The data was supplemented with available PeMS data and Caltrans census counts as well as new three-day ramp and mainline counts to replace missing data.

The extensive amount of available count data was reviewed to identify ramp and mainline traffic volumes that represent a typical weekday condition. **Appendix B** shows the count volumes for the mainline and ramp sections of I-680 and I-880 in the study area.

2.2.3.1 Freeway Mainline Traffic Volumes

Given the length of queues present along I-680 and I-880 in the AM and PM peak period, available data from 2017 or 2018 as well as available PeMS data and Caltrans census counts was reviewed to estimate bottleneck throughputs at the bottleneck locations as well as the edges of the network. Further field work observations were conducted to support the analysis all of which is discussed in the previous section.

2.2.3.2 Interchange Ramp Traffic Volumes

Available data from 2017 or 2018 as well as available PeMS data and Caltrans census counts were reviewed to estimate traffic volumes at the study ramp locations. If PeMS data was incomplete, missing, or pre-2017 we collected new three-day ramp counts to replace the PeMS data. All the ramps at the following interchanges are included in the study area:

- I-680 at SR-238
- I-680 at Washington Boulevard
- I-680 at Auto Mall Parkway
- I-680 at SR-262
- I-680 at Scott Creek Road
- I-680 at Jacklin Road

- I-680 at SR-237/E Calaveras Boulevard
- I-880 at Stevenson Boulevard
- I-880 at Auto Mall Parkway
- I-880 at Fremont Boulevard
- I-880 at SR-262
- I-880 at Warren Avenue
- I-880 at Dixon Landing Road
- I-880 at SR-237/ Calaveras Boulevard
- SR-262 at Kato Road

2.2.3.3 Vehicle Classification Methodology

The study area has both Express and HOV lanes. The express lanes require drivers in SOV to pay a toll dependent on demand while HOV users, may drive the lane at no cost. There is an express lane on I-680 southbound from north of the study area to SR-237/E Calaveras Boulevard, while there is neither an express nor HOV lane in the northbound direction. I-880 has an HOV lane in both directions in the study corridor. HOV bypass lanes are also provided on several on-ramps throughout the study area. I-880 HOV lanes connect directly to the SR-237 HOV lanes in both directions via designated ramps. SR-237 has an express lane as well in both directions. The express and HOV are active for certain times during the day. The active time periods are list in **Table 2-5.**

Table 2-5
Active Express and HOV Lane Hours

Location	Active Hours
HOV on-ramp Lanes	24 Hour
Express Lanes on SB I-680	5AM – 8PM
HOV Lanes on SB I-880 & NB I-880	5AM – 9AM 3PM – 7PM
Express Lanes from SB I-880 to WB SR 237	5AM – 10AM 3PM – 7PM
Express Lanes from EB SR 237 to NB I-880	5AM – 9AM 3PM – 7PM

Source: Fehr & Peers, 2019

The mainline and ramp volumes for the study corridors were further categorized by type of volume: SOV, HOV, Toll, or Truck. SOV volumes were calculated by taking the difference of the total volumes and the sum of the other volumes.

The HOV, Toll, and SOV volumes were calculated based on the managed lane volumes of the study area using PeMS data, the I-680 Data Collection Summary, August 2017, and publicly available data on VTA's website.[1] Truck volumes were calculated based on a global percent of trucks for the system from the I-680 Sunol Southbound Express Lane Report.

2.2.4 Intersection Traffic Data

New intersection counts were collected on Thursday, October 25, 2018. They were collected for the morning (5:00 AM to 12:00 PM) and evening (1:00 PM to 9:00 PM) peak periods at the following locations:

1. Warren Avenue at Landing Parkway/Bayside Parkway
2. Warren Avenue at Lakeview Boulevard/southbound I-880 ramps
3. Warren Avenue at Northbound I-880 ramps
4. Warren Avenue at Kato Road
5. Warren Avenue at Mission Falls Court
6. Warren Avenue at Warm Springs Boulevard
7. Kato Road at Mission Boulevard off-ramp
8. Kato Road at Mission Boulevard on-ramp
9. SR-262 at Warm Springs Boulevard
10. SR-262 at Mohave Drive
11. Mission Boulevard at Curtner Road
12. Mission Boulevard at Paseo Padre Parkway

The existing intersection configuration is shown in **Appendix C** and the existing intersection counts are shown in **Appendix D**

[1] http://vtaorgcontent.s3-us-west-1.amazonaws.com/Site_Content/FY2019_Q2%20SR%20237%20EL%20Report_Final.pdf

2.2.5 Pedestrian and Bicycle Counts

AM and PM peak period pedestrian and bicycle counts were conducted as part of the intersection turning movement counts as shown in **Appendix E** The following intersections experienced high pedestrian and bicycle volumes:

- Lakeview Boulevard & Warren Avenue (#2)
    - The intersection has very low pedestrian volumes.
    - The intersection has significant westbound left turn bike volumes at 7 AM.
- Kato Road & Warren Avenue (#4)
    - The intersection has very low pedestrian volumes.
    - The intersection has high westbound through bike volumes during the AM peak period.
- Mission Falls Court & Warren Avenue (#5)
    - The intersection has low pedestrian volumes.
    - The intersection has high westbound through bike volumes during the AM peak and eastbound through in the PM peak.
- Warm Springs Boulevard & Warren Avenue (#6)
    - The intersection has generally high pedestrian volumes but reaches its highest volumes at 3 PM, particularly in the eastbound direction on the southern leg.
    - The intersection has significant bike volumes in the westbound through and southbound right directions.
- Warm Springs Boulevard & Mission Boulevard (#9)
    - This intersection has generally high pedestrian volumes, particularly in the eastbound direction on the southern leg in the early afternoon between 3-5 PM.
    - The intersection has high southbound through bike volumes in the AM period and high bike volumes in the northbound through movement during the PM period.
- Mohave Drive & Mission Boulevard (#10)

- This intersection has high pedestrian volumes on the western leg.
- The intersection does not have high bike volumes.

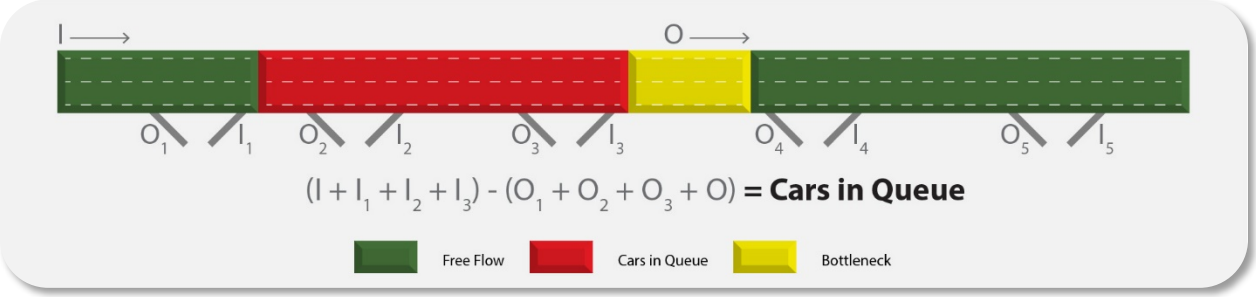
2.3 Estimated Demand Volumes

2.3.1 Methodology

The Input / Output Count Method was used to estimate demand volumes from the traffic counts.

The first step in the Input / Output Count Method is to determine the number of vehicles in queue by subtracting the total volume from the traffic count collected at the bottleneck plus all of the off-ramp traffic counts from the total volume of a traffic count collected just upstream of the end of the queue plus all of the on-ramp traffic counts. The exception to this calculation is if any on-ramps are in queue. For on-ramps that are in queue, demand volumes approaching the on-ramp are used instead of the collected traffic count volume. This calculation is graphically displayed below in **Figure 2-1**. The number of vehicles in queue reflects the vehicles that were un-served.

Figure 2-1 Demand Calculation Example



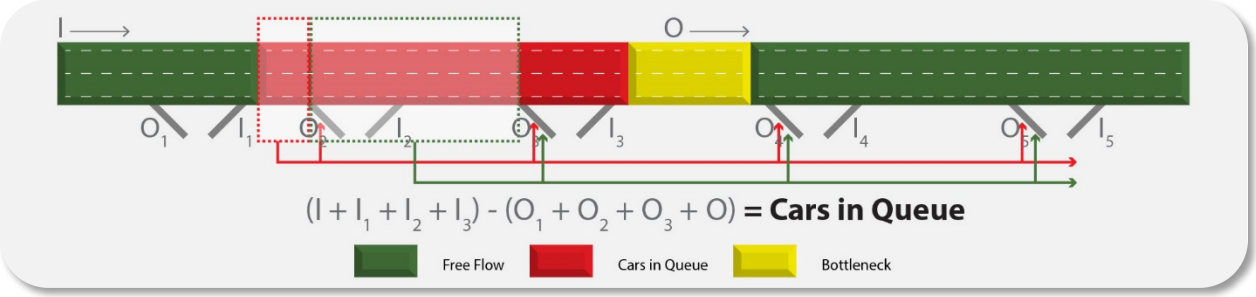
The second step is to proportionally distribute the unserved vehicles to the off-ramps and downstream mainline sections using the following process which is also graphically displayed in **Figure 2-1:**

- Start with the most upstream section in queue
- Distribute queue to each downstream off-ramp based on the relative proportion of the off-ramp count and immediate upstream mainline volume[2]
- Move on to the next section in queue and repeat distribution

[2] The immediate upstream mainline volume is determined by first starting with the most upstream mainline volume not in queue and adding on-ramp demand volumes and subtracting off-ramp demand volumes until the immediate upstream mainline location is reached.

In the **Figure 2-2** example, no adjustments would be made to the first off-ramp ($O_{1)}$ since it is not affected by the downstream vehicle queue. Adjustments would be made to off-ramps O_2 through O_5 and all the mainline sections downstream of on-ramp I_1. The process presented above was performed for each hour there was a bottleneck.

Figure 2-2 Demand Calculation Example



The estimated demand volumes are found in **Appendix D** and **Appendix F**.

2.3.2 On-Ramp Metering Demand Volume Adjustments

On I-680, most of the northbound on-ramps within the study corridor are metered starting from 6 AM to 10 AM and 3 PM to 7 PM. Most southbound on-ramps within the study corridor are metered starting from 6 AM to 10 AM and 2 PM to 7 PM. On I-880, most of the on-ramps within the study corridor are metered starting from 6 AM to 10 AM and 3 PM to 7 PM.

Typically, counts collected at metered on-ramps are collected just downstream of the on-ramp meter. For this study it was assumed that the throughput through the ramp meters reflects the maximum demand (constrained demand) that gets on the freeway. While it is recognized that there is queuing on the metered on-ramps these queues do not affect mainline operations; therefore, no adjustments were made to account for the queues on the on-ramps.

2.4 Analysis Method

Freeway and intersection analyses for the project were conducted using procedures and methodologies consistent with the *2010 Highway Capacity Manual* (Transportation Research Board, 2011). These methods were applied using the VISSIM microsimulation analysis software. The VISSIM software package was used to evaluate freeway operations and intersection operations along the SR-262 corridor and the I-680 and I-880 mainlines in one model.

The following procedures and assumptions have been used in developing the existing conditions VISSIM traffic operations analysis model.

- Traffic volumes are entered in 1-hour intervals at the roadway network gateways. The variation in volume among the 1-hour intervals provides enough variation in traffic volume such that no peak hour factor will be used.

- Travel patterns (origin-destination) have been obtained from the base year AM and PM peak period Alameda CTC travel demand forecasting model (May 2018). Hourly origin-destination matrices were developed for the study area using an iterative estimation procedure. The base year matrixes were refined with Streetlight Data to enhance its representation of exiting traffic patterns. The resulting matrices were used to route vehicles through the VISSIM roadway network.

- Speeds for the model network were initially set based on the posted speed limit and the results of the travel time surveys; adjustments were made during model calibration/validation, as warranted.

The Existing Conditions traffic analysis model was validated to observed traffic counts, travel times, bottleneck locations and queues prior to extracting measures of effectiveness from the model (see **Section 3.2.3**). The procedures used are consistent with *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Micro-Simulation Modeling Software* (FHWA, 2004).

2.4.1 Mainline Facilities

Freeway facility operations are described with the term level of service (LOS). LOS is a qualitative description of traffic flow based on speed, travel time, delay, and freedom to maneuver, with six levels, ranging from LOS A to LOS F. LOS E represents "at-capacity" operations. When volumes exceed capacity, stop-and-go conditions result, and operations are designated as LOS F. The service level for a freeway section is based on vehicle density expressed as passenger cars per mile per lane. **Table 2-6** presents a summary of the relationship between density and level of service for freeway sections and ramp junctions.

2.4.1.1 Measures of Effectiveness

It is often useful to supplement the individual corridor analyses performance measures such as average travel time, average travel speed, and maximum individual delay with system-wide performance measures such as volume served, vehicle miles of travel, and vehicle hours of delay to obtain a better understanding of overall traffic operations. This information can be particularly useful when comparing project alternatives. Several Measures of Effectiveness (MOEs) computed by the VISSIM models were used to quantify traffic operations of the study corridor:

- ***Average Travel Time*** – is a corridor measure of the time taken by all vehicles (on average) to travel through the network i.e., between two discreet points during the study period. The travel time calculation considers the average delay, vehicle queues, and friction caused by merging vehicles.

- ***Average Travel Speed*** – is a corridor measure of vehicle speeds in the network that travel between two discreet points during the study period. This measure depends both on the posted speed for a given link and the level of congestion.

- ***Maximum Individual Vehicle Delay*** – is a corridor measure of the maximum delay that would be experienced by a traveler through a specific corridor during the highest congested time period (i.e., the highest congested 1- hour period in the peak period). This measure is calculated by subtracting the average travel time through the corridor under free-flow conditions from the travel time during the highest congested period.

Table 2-6
Freeway LOS Criteria

Level of Service	Description	Basic Mainline Segment Density Criteria[1]	Ramp Junctions & Weave Segments Density Criteria[1]
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	≤ 11.0	≤ 10.0
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 11.0 to 18.0	> 10.0 to 20.0
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 18.0 to 26.0	> 20.0 to 28.0
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 26.0 to 35.0	> 28.0 to 35.0
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35.0 to 45.0	> 35.0
F	Represents a breakdown in flow.	> 45.0	v/c > 1.0

Notes:
1. Density in passenger cars per mile per lane
Source: *2010 Highway Capacity Manual.*

- ***Volume Served*** – is a system-wide measure of the vehicles that can be served for the entire study area during the analysis period. For those locations that are over-capacity for a given time period, the volume served will be less than the demand volume.

- ***Vehicle Miles of Travel (VMT)*** – is a system-wide measure of the total vehicle throughput of the study area taking into consideration the actual volume served versus the demand and the trip lengths of those vehicles.

- ***Vehicle Hours of Delay (VHD)*** – is a system-wide measure of the total delay incurred by all vehicles during the study period due to congestion

2.4.1.2 Mainline Weaving Sections

Per Caltrans' requirements, the LOS for freeway weaving sections was also determined using the Leisch Method as outlined in Figure 504.7A of the *Highway Design Manual* (California Department of Transportation, May 2012). The Leisch Method calculates the LOS based on the service flow (passenger cars/per hour/per lane) through the weaving section.

2.4.2 Intersections

Study intersections were analyzed using the *2010 Highway Capacity Manual* (Transportation Research Board, December 2010) methodologies.

Intersection operations are also described by the term level of service (LOS), which is a measure of the quality of traffic operating conditions varying from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing over-saturated conditions where traffic flows exceed capacity resulting in long queues and delays). LOS grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving.

The LOS is determined differently depending on the type of control at the intersection. For side-street stop-controlled intersections, the LOS rating is based on the delay for the worst approach measured in seconds per vehicle. At all-way stop-controlled and signalized intersections, the LOS rating is based on the weighted average control delay of all movements measured in seconds per vehicle. **Table 2-7** summarizes the relationship between the average control delay per vehicle and LOS for signalized intersections. **Table 2-8** summarizes the relationship between average control delay per vehicle and LOS for unsignalized intersections. Results from VISSIM were used to determine delay and LOS at all intersections.

Table 2-7
Signalized Intersection LOS Criteria

Level of Service	Description	Signalized Criteria (Delay Seconds)
A	Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop. Short cycle lengths may also contribute to low delay.	≤ 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: 2010 *Highway Capacity Manual*.

Table 2-8
Unsignalized Intersection LOS Criteria

Level of Service	Description	Unsignalized Criteria (Delay in Seconds)
A	Little or no delays	≤ 10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: 2010 *Highway Capacity Manual*.

3. Existing Conditions

The existing conditions chapter presents the physical and operational characteristics of the transportation system within the study area.

3.1 Roadway System

Interstate 680 (I-680) is a north-south freeway that runs from San Jose in the south (at a junction with US 101 and I-280) to Fairfield in the north (at a junction with I-80 and SR-12). In the study area, I-680 is a three-to-four lane freeway. It serves as a vital link between residential areas in eastern Contra Costa County and eastern Alameda County to job centers in Santa Clara County. A HOV or express lane is provided along southbound I-680 between State Route 84 and State Route 237. A northbound express lane from State Route 262 to State Route 84 is currently under construction and expected to be in operation by 2020. As discussed in Chapter 2, most of the northbound on-ramps within the study corridor are metered starting from 6 AM to 10 AM and 3 PM to 7 PM. Most southbound on-ramps within the study corridor are metered starting from 6 AM to 10 AM and 2 PM to 7 PM. The speed limit on the facility is 65 miles per hour. Lane configuration, with gore distance, illustrations are found in **Appendix G**.

Interstate 880 (I-880) is a north-south freeway that runs from San Jose in the south (at a junction with SR 17 and I-280) to Bay Bridge in the north (at a junction with I-80 and I-580). In the study area, I-880 is a four-to-five lane freeway. It serves as a vital link between residential areas and job centers in the East Bay, from San Francisco to Santa Clara. A high-occupancy lane is provided in both directions within the study area. Conversion of HOV lanes to express lanes southbound from Hegenberger Road to Dixon Landing Road and northbound from Dixon Landing Road to Lewelling Blvd are under construction and expected to be in operation by 2020. As discussed in Chapter 2, most of the on-ramps within the study corridor are metered starting from 6 AM to 10 AM and 3 PM to 7 PM. The speed limit on the facility is 65 miles per hour. The speed limit on the facility is 65 miles per hour. Lane configuration, with gore distance, illustrations are found in **Appendix G**.

SR-262 (Mission Boulevard) is an east-west conventional highway between I-680 and I-880 that serves regional, local, and freight traffic. Mission Boulevard then extends further east to Interstate 238, where it becomes E 14th Street in Hayward. However, the study limits of SR-262/Mission Boulevard only extend to Paseo Padre Parkway in Fremont.

Warren Avenue is an east-west collector that runs from Fremont Boulevard in the West to Curtner Road in the East. It runs partially parallel to SR-262. There is an on- and off-ramp for each respective I-880 direction that connect directly to Warren Avenue.

Warm Springs Boulevard is a north-south arterial that runs perpendicular to Warren Avenue and SR-262 and parallel to I-680 and I-880. In Fremont, Warm Spring Boulevard begins from South Grimmer Boulevard, and in the City of Milpitas becomes Milpitas Boulevard ending at Montague Expressway. Within the study area, it connects Warren Avenue and SR-262.

3.2 Traffic Operations

The development of the VISSIM model included three basic steps: (1) setup, (2) calibration, and (3) validation. The analysis assumptions and methodology were previously described in **Chapter 2**.

3.2.1 VISSIM Model Development

The VISSIM model was constructed by drawing the roadway network using aerial photography as a background. The number of lanes, ramp locations, turning restrictions, and the location of lane additions and drops were confirmed by field observations. Driver behavior parameters were adjusted based on field observations. The distribution of vehicle types was also calibrated to local conditions so that the percentage of trucks is consistent with observations.

The VISSIM model was validated to existing conditions using the criteria suggested in *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Micro-Simulation Modeling Software* (FHWA, 2004). Several iterations were required to successively adjust the default VISSIM parameters for driver behavior until the model was validated to observed conditions.

The calibrated and validated model is used to generate performance measures that are consistent with the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2011). The validated VISSIM model serves as the basis for future traffic operation conditions analyses.[3]

Model development required input of geometric, traffic control, and traffic data, as described below.

3.2.1.1 Geometric Data

Roadway geometric data was gathered using aerial photographs and field observations. The lane configurations that were taken initially from aerial photographs were confirmed or revised based on field observations and mapping available from the project team. Intersection lane configurations are depicted

[3] A single random seed was used for existing conditions and the same seed will be used for future scenarios.

in **Appendix C** and the freeway lane configuration and distances between ramps are depicted in **Appendix G**.

3.2.1.2 Traffic Control Data

The posted speed limits for the roadway system were collected during field observations, traffic signal operations / timings were observed to verify signal timing and phasing worksheets that were provided by either Caltrans or local agencies, and stop controlled intersections were noted.

3.2.1.3 Traffic Flow Data

Freeway counts on I-880 and I-680 are presented in **Appendix B**. The freeway traffic demand volumes are calculated based on the process described in **Chapter 2** are presented in **Appendix F**. Intersection counts and demand volumes are presented in **Appendix D**.

3.2.2 VISSIM Model Calibration

VISSIM (build version 11.00-07) was used for the analysis. Adjustments to the VISSIM model focus on the model components related to driver behavior, driver performance, vehicle fleet mix, and vehicle performance. The following VISSIM model parameters were adjusted to calibrate the model:

- Vehicle fleet composition (passenger cars, pickup trucks, sport-utility vehicles (SUVs), HOV-lane eligible vehicles, medium and heavy trucks, etc.)
- Vehicle headways
- Distance between stopped vehicles (standstill distance)
- Driver behavior when changing lanes
- Driver behavior at ramp junctions (i.e., weaving sections, ramp merges, ramp diverges, etc.)

The VISSIM model calibration process began by adjusting the VISSIM default values on certain parameters to more reasonable initial values based on field observations and experiences on similar projects elsewhere in northern California. For example, the vehicle composition provided as a default setting in VISSIM contains only standard sedans. However, a significant portion of vehicles in the study area (and in most U.S. metropolitan areas) are SUVs, a category that also includes light trucks, so the vehicle composition parameter has been adjusted to reflect a more representative condition. Furthermore, the default setting in VISSIM assumes there are zero 2-axle trucks in the traffic stream which is inconsistent with field observations and the actual truck traffic counts. Similarly, the default lane change distances in VISSIM are appropriate for most arterial roadway networks, but they do not represent freeway conditions,

where advanced guide signs are typically provided so that drivers traveling at high speeds can anticipate the need to change lanes and have adequate time to react.

The following standard calibration/validation process was employed:

1. Make a base model run with initial parameters
2. Compare predicted and field-observed performance measures
3. Assess differences between predicted and field-observed performance measures
4. Select reasonable model input changes to reduce differences
5. Make a new model run with selected input changes
6. Repeat process until predictions are acceptable

The initial base model run with the initial parameters did not result in the model replicating observed field conditions. Per standard practice, parameters affecting roadway capacity and driver behavior were adjusted at specific locations along the study corridor so that the observed traffic conditions (speed and queuing) could be replicated in the VISSIM models. **Table 3-1** lists the model calibration adjustments made to the VISSIM model. It is important to recognize that there are multiple combinations of adjusted parameters that can closely replicate field observed conditions. Ultimately, what is important is that the combination of the adjusted parameters reasonably replicate field observed behavior for the study period.

3.2.3 VISSIM Model Validation

During validation, the VISSIM model estimates are compared against observed data to measure the model's accuracy. FHWA suggests validation criteria (*Traffic Analysis Toolbox Volume III - Guidelines for Applying Traffic Micro-Simulation Modeling Software*, FHWA, 2004) and Caltrans, District 4, generally accepts the FHWA guidance except as noted below.

- Link volumes for more than 85 percent of cases should meet the following criteria:
  - For volumes less than 700 vph, within 100 vph
  - For volumes between 700 and 2,700 vph, within 15 percent
  - For volumes greater than 2,700, within 400 vph
  - Link volumes for more than 85 percent of cases should have a GEH statistic (a measure of goodness of fit named after the statistician who developed it) less than 5
  - Sum of link volumes should be within 5 percent
  - Sum of link volumes should have a GEH statistic less than 4

Table 3-1
Model Calibration Adjustments

Category	Parameter	VISSIM Default	Adjusted Typical Range
Vehicle Fleet Composition	SOV/HOV Vehicle Type – Sedans	100%	46%
	SOV/HOV Vehicle Type – SUVs	0%	36%
	SOV/HOV Vehicle Type – Sports Cars	0%	15%
	Truck Vehicle Type – 2 Axles	0%	50%
	Truck Vehicle Type – 3 or More Axles	100%	50%
	Clean Air	0%	100%
Freeway off-ramp Connectors	Lane Change – Minimum Emergency Stop	16.4 ft	16.4 ft to 250 ft
	Lane Change – Minimum Lane Change per Lane	656.2 ft	656.2 ft to 2,500 ft
Freeway Driving Behavior	Following – Standstill Distance	4.92 ft	5 ft to 20 ft
	Maximum Collision Time for Cooperative Lane Change	Off	Off to 15 seconds
	Following – Headway	0.90 seconds	0.9 to 1.58 seconds
	Maximum Look Ahead Distance	820.21 ft	820.21 ft to 2,500 ft
	Lane Change – Max Deceleration for cooperative braking	- 9.84 ft/s^2	- 9.84 ft/s^2 to -29.50 ft/s^2
	Maximum Speed Difference - Cooperative Lane Change	Off	Off to 25 mph
	Lane Change – Safety distance reduction factor	0.60	0.1 to 0.67

Source: Fehr & Peers, 2019

- Average travel times should be within 15 percent (or one minute, if higher) for more than 85 percent of cases
- Bottleneck locations should have a GEH statistic of less than 2 in the controlling bottlenecks for each time slice i.e., 1-hour interval. (This guidance is specific to Caltrans, District 4. Exceptions may be made in consultation with Caltrans reviewers, but it must be demonstrated that enough effort has been made to achieve 2.0 and that further effort will not be effective)
- Individual link speeds should have a visually acceptable speed-flow relationship
- Bottlenecks should create visually acceptable queuing. Bottleneck capacities are based on count data; the capacities of the bottlenecks are summarized in **Table 2-3** and Table 2-4 PM Study Area Bottleneck Locations**Table 2-4.**

3.2.3.1 Validation Summary

Table 3-2 provides a summary of validation criteria thresholds and model outputs for all vehicles (SOVs, HOVs, trucks) for I-680, SR-262, and I-880. Shown in **Table 3-2,** all the validation criteria are met. The AM

and PM controlling bottlenecks are modeled to within a 2.0 GEH for all 1-hour intervals and the other mainline count locations have GEH statistics less than 5.0. All link volume characteristics in the AM and PM period are within the criteria thresholds. The speed contour maps, provided in **Appendix A**, show that the extent and duration of vehicle queues approaching the bottlenecks are visually reasonable.

Table 3-2
VISSIM Model Validation Criteria Thresholds Comparison

Category	Criteria	Threshold	% Met Target Criteria	Study period		
				Study Period	% Met	Pass/Fail
Mainline Volumes at Bottleneck Locations	GEH statistics	Less than 2.0 in each 1-hour interval	100%	AM	100.0%	Pass
				PM	100.0%	Pass
Mainline Volumes at Non-Bottleneck Locations	GEH statistics	Less than 5.0 in each 1-hour interval	100%	AM	100.0%	Pass
				PM	100.0%	Pass
Ramp Volumes	GEH statistics	5.0 all 1-hour intervals	85%	AM	99.6%	Pass
				PM	99.1%	Pass
Link Volumes	< 700 vph	100 vph	> 85%	AM	99.7%	Pass
	Btwn 700 & 2,700 vph	0.15		PM	98.5%	Pass
	> 2,700 vph	400 vph				
Sum of Link Volumes in each 1-hour Interval [1]	GEH Statistic	Less than 4.0 in each 1-hour interval	85%	AM	100%	Pass
				PM	100%	Pass
Travel Time in 1-hour Intervals	Travel Paths	0.15	> 85%	AM	100%	Pass
				PM	100%	Pass
Visual Inspection in 1-hour Intervals	Travel Speeds	Match observations		Match observations		
	Queuing	Match observations		Match observations		

Notes
[1] Sum of all on-ramp and off-ramp volumes and mainline locations where counts are available.
Source: Fehr & Peers, 2019

3.2.3.2 Travel Time Validation Summary

Table 3-3 and **Table 3-4** provide a summary of field and model travel time comparisons along I-680 and I-880 corridors, respectively. The modeled travel times are generally within the FHWA recommended 15% threshold compared to the measured travel time for all 1-hour intervals during the AM and PM study periods. There are only two time slices in the PM peak period model that do not meet the FHWA recommended threshold – 94% if the freeway time slices meet the criteria.

Table 3-3
Interstate 680 – Travel Time Validation Results

Interval	Southbound I-680 in minutes SOV non-toll[1,3]			Northbound I-680 in minutes SOV non-toll[2,3]		
	Measured	Modeled	% Difference	Measured	Modeled	% Difference
AM Period: 5:00 AM to 12:00 PM						
5:00 AM to 6:00 AM	8	8	1%	8	8	-3%
6:00 AM to 7:00 AM	8	8	1%	8	8	-2%
7:00 AM to 8:00 AM	8	8	1%	8	8	1%
8:00 AM to 9:00 AM	9	9	-2%	8	8	2%
9:00 AM to 10:00 AM	10	11	8%	8	9	8%
10:00 AM to 11:00 AM	8	9	7%	8	8	-2%
11:00 AM to 12:00 PM	8	8	3%	8	8	0%
PM Period: 1:00 PM to 9:00 PM						
1:00 PM to 2:00 PM	8	8	2%	8	8	3%
2:00 PM to 3:00 PM	8	8	4%	13	14	2%
3:00 PM to 4:00 PM	8	8	3%	22	22	-4%
4:00 PM to 5:00 PM	8	8	3%	23	25	10%
5:00 PM to 6:00 PM	9	9	2%	21	19	-10%
6:00 PM to 7:00 PM	8	8	0%	17	16	-3%
7:00 PM to 8:00 PM	8	8	1%	12	11	-4%
8:00 PM to 9:00 PM	8	8	1%	8	8	-2%

Notes: **Bold** indicates a difference of greater than 15.0%

1. Travel time and speed is between Washington Boulevard on-ramp merge gore point to Calaveras Boulevard on-ramp gore point
2. Travel time and speed is between Calaveras Boulevard off-ramp merge gore point to the Mission Boulevard off-ramp gore point
3. Average time and speed shown as: SOVs not paying to use express lane (HOV or SOV toll payers in express lane)

Source: Fehr & Peers, April 2019

Table 3-4
Interstate 880 – Travel Time Validation Results

Interval	Southbound I-880 in minutes SOV non-toll[1,3]			Northbound I-880 in minutes SOV non-toll[2,3]		
	Measured	Modeled	% Difference	Measured	Modeled	% Difference
AM Period: 5:00 AM to 12:00 PM						
5:00 AM to 6:00 AM	8	7	-1%	7	7	-5%
6:00 AM to 7:00 AM	8	8	-5%	7	7	2%
7:00 AM to 8:00 AM	10	9	-8%	7	7	1%
8:00 AM to 9:00 AM	14	13	-6%	7	7	1%
9:00 AM to 10:00 AM	12	13	3%	7	7	0%
10:00 AM to 11:00 AM	8	8	-2%	7	7	1%
11:00 AM to 12:00 PM	7	8	2%	7	7	-4%
PM Period: 1:00 PM to 9:00 PM						
1:00 PM to 2:00 PM	8	7	-2%	7	7	-3%
2:00 PM to 3:00 PM	7	7	0%	8	7	-7%
3:00 PM to 4:00 PM	7	8	0%	10	10	0%
4:00 PM to 5:00 PM	8	7	-3%	14	17	**20%**
5:00 PM to 6:00 PM	8	7	-2%	19	20	2%
6:00 PM to 7:00 PM	8	7	-1%	23	17	**-24%**
7:00 PM to 8:00 PM	7	7	1%	10	11	3%
8:00 PM to 9:00 PM	7	7	-2%	7	8	13%

Notes: **Bold** indicates a difference of greater than 15.0%

1. Travel time and speed is between Stevenson Boulevard on-ramp gore point to SR-237 on-ramp gore point
2. Travel time and speed is between Calaveras off-ramp gore point to Stevenson Boulevard off-ramp gore point.
3. Average time and speed shown as: SOVs not paying to use express lane (HOV or SOV toll payers in express lane)

Source: Fehr & Peers, April 2019

3.2.3.3 Bottleneck and Queue Validation Summary

The modeled bottlenecks and vehicle queues were compared to observed conditions for I-680 and I-880. The speed contour maps (measured and modeled) are provided in **Appendix A.**

3.2.3.3.1 Southbound I-680 AM Peak Period

The modeled speed contour map for southbound I-680 in the AM study period shows that a slowdown occurs starting at 7 AM at the SR-262 off-ramp, dissipating at 11 AM. This is consistent with field observations.

3.2.3.3.2 Southbound I-680 PM Peak Period

The modeled speed contour map for southbound I-680 in the PM study period shows that the corridor operates at free-flow conditions (no bottlenecks). This is consistent with field observations.

3.2.3.3.3 Northbound I-680 AM Peak Period

The modeled speed contour map for northbound I-680 in the AM study period shows that the corridor operates at free-flow conditions (no bottlenecks). This is consistent with field observations.

3.2.3.3.4 Northbound I-680 PM Peak Period

The modeled speed contour map for northbound I-680 in the PM study period shows that a bottleneck begins to form between the Washington Boulevard on-ramp and Mission Boulevard off-ramp at 2 PM and dissipates by 8 PM. The model is consistent with field observations.

3.2.3.3.5 Southbound I-880 AM Peak Period

The modeled speed contour map for southbound I-880 in the AM study period shows that a bottleneck begins to form between the Stevenson Boulevard on-ramp and Auto Mall Parkway off-ramp from 7 AM to 9 AM and between the Fremont Boulevard diagonal on-ramp from 7 AM and dissipates at 10 AM. The model is consistent with field observations.

The modeled speed contour map shows that there is a slow down at the SR-237 off-ramp due to the queuing at the off-ramp extending back onto southbound I-880. The slow down begins at 7 AM and dissipates by 10 AM. This is consistent with field observations.

3.2.3.3.6 Southbound I-880 PM Peak Period

The modeled speed contour map for southbound I-880 in the PM study period shows that the corridor operates at free-flow conditions (no bottlenecks). This is consistent with field observations.

3.2.3.3.7 Northbound I-880 AM Peak Period

The modeled speed contour map for northbound I-880 in the AM study period shows that the corridor operates at free-flow conditions (no bottlenecks). This is consistent with field observations.

3.2.3.3.8 Northbound I-880 PM Peak Period

The modeled speed contour map for northbound I-880 in the PM study period shows that a bottleneck begins to form between the Auto Mall Parkway on-ramp to the Stevenson Boulevard off-ramp and from SR-262 on-ramp to Fremont Boulevard off-ramp start at 3 PM and dissipates by 9 PM. Detailed model observations indicate that the bottleneck dissipates by 8:20 PM. The combination of queue in the first 20 minutes plus the free flow conditions after 8:20 PM results in an average speed over the hour lower than free flow conditions. The model is not able to clear queues by 8 PM as observed during field observations.

3.2.4 Existing Level of Service Results

Using the validated VISSIM model for the AM and PM study periods, the peak 1-hour traffic operations results were summarized.

3.2.4.1 Freeway Segments

Table 3-5 below presents the freeway segment density and LOS for the peak 1-hour time slices in the AM and PM peak periods. The AM peak 1-hour period for the study area is from 8:00 AM to 9:00 AM. The PM peak 1-hour period for the study area is from 5:00 PM to 6:00 PM. The complete hour-by-hour LOS is provided in **Appendix H**.

3.2.4.1.1 I-680

For the AM peak period, southbound I-680 mainline basic segments operate at LOS E between the Auto Mall Parkway interchange and the Mission Boulevard/SR-262 interchange. This is to be expected due to the right lane overload from the queue at the Mission Boulevard/SR 262 off-ramp extending back onto the freeway. All other segments operate at LOS C or better corresponding to free flow conditions.

During the PM peak period, southbound I-680 operates at LOS F at the southern end of the study segment where an upstream bottleneck outside the study area extends into the study area back to the SR-237 interchange. All other segments operate at LOS B or better corresponding to free flow conditions.

For the AM peak period, the northbound I-680 operates at LOS F approaching the Mission Boulevard/SR-262 interchange. This is due to traffic queues extending back onto the freeway from the Mission Boulevard/SR-262 intersection with Mohave Drive. All other segments operate at LOS D or better corresponding to free flow conditions.

Table 3-5
Existing Freeway Operations
Global Study Area Peak 1-Hour

Segment	Segment Type	Density (pc/mi/lane)	LOS
AM Global Peak Hour: 8:00 AM to 9:00 AM			
Southbound I-680 (Travel Direction: Down Table)			
Washington Boulevard Onramp	Basic	21.3	C
Washington Boulevard to Auto Mall Parkway	Basic	23.7	C
Auto Mall Parkway Offramp	Basic	**35.7**	**E**
Auto Mall Parkway Offramp to Onramp	Basic	**36.5**	**E**
Auto Mall Parkway Onramp	Basic	**42.8**	**E**
Auto Mall Parkway to Mission Boulevard	Basic	**40.3**	**E**
SR 262 Offramp	Basic	33.6	D
SR 262 Offramp to Onramp	Basic	20.4	C
SR 262 Onramp	Basic	19.1	C
SR 262 to Scott Creek Road	Basic	18.1	C
Scott Creek Road Offramp	Basic	18.4	C
Scott Creek Road Offramp to Onramp	Basic	17.9	B
Scott Creek Road Onramp	Basic	16.5	B
Scott Creek Road to Jacklin Road	Basic	15.8	B
Jacklin Road Offramp	Basic	17.6	B
Jacklin Road Offramp to Onramp	Basic	19.6	C
Jacklin Road to SR 237	Weave	20.7	C
SR 237 Offramp to Onramp	Basic	15.9	B
SR 237 Onramp	Merge	19.6	B
Northbound I-680 (Travel Direction: Down Table)			
SR 237 Offramp	Diverge	27.1	C
SR 237 Offramp to Lane Drop	Basic	28.1	D
Lane Drop to SR 237 Onramp	Basic	27.9	D
SR 237 to Jacklin Road	Weave	26.3	C
Jacklin Road Offramp to Onramp	Basic	28.2	D
Jacklin Road Onramp	Merge	30.3	D
Jacklin Road to Scott Creek Road	Basic	31.4	D
Scott Creek Road Offramp	Basic	32.5	D
Scott Creek Road Offramp to Onramp	Basic	25.3	C
Scott Creek Road Onramp	Merge	25.5	C
Scott Creek Road to SR 262	Basic	28.3	D
SR 262 Offramp	Diverge	**46.9**	**F**
SR 262 Offramp to Onramp	Basic	20.2	C
SR 262 Onramp	Merge	31.3	D
SR 262 to Durham Road	Basic	24.6	C
Durham Road Offramp	Diverge	24.4	C
Durham Road Offramp to Onramp	Basic	21.7	C
Durham Road Onramp	Merge	18.1	B
Durham Road to Lane Drop	Basic	22.7	C
Lane Drop to Washington Boulevard	Basic	23.9	C
Washington Boulevard Offramp	Diverge	24.2	C

Table 3-5
Existing Freeway Operations
Global Study Area Peak 1-Hour

Segment	Segment Type	Density (pc/mi/lane)	LOS
Washington Boulevard Offramp to Onramp	Basic	21.2	C
Washington Boulevard Onramp	Merge	25	C
Southbound I-880 (Travel Direction: Down Table)			
Auto Mall Parkway WB Onramp	Basic	33.2	D
Auto Mall Parkway to Weigh Station	Basic	**35.2**	**E**
Weigh Station Offramp to Onramp	Merge	33.9	D
Weigh Station Onramp	Weave	**37.9**	**E**
Fremont Onramp Boulevard Offramp	Basic	**46.3**	**F**
Fremont Onramp Boulevard Offramp to Lane Drop	Basic	**52.2**	**F**
Lane Drop to Fremont Onramp Boulevard Onramp	Basic	**50**	**F**
Fremont Onramp Boulevard WB Onramp	Basic	**53.7**	**F**
Fremont Onramp Boulevard to SR 262	Basic	29.8	D
SR 262 Offramp to Warren Avenue Onramp	Merge	25.9	C
Warren Avenue Onramp	Weave	26.1	C
Warren Avenue Onramp to SR 262 Onramp	Basic	26.8	D
SR 262 Onramp	Merge	22.2	C
SR 262 to Dixon Landing Road	Basic	62.2	F
Dixon Landing Road Offramp	Basic	**67.2**	**F**
Dixon Landing Road Offramp to Onramp	Basic	**71.9**	**F**
Dixon Landing Road WB Onramp	Basic	**66.4**	**F**
Dixon Landing Road EB Onramp	Basic	**68.5**	**F**
Dixon Landing Road to SR 237	Basic	**57.4**	**F**
SR 237 HOT Offramp	Merge	**47.5**	**F**
SR 237 WB Offramp	Basic	23.8	C
SR 237 EB Offramp	Basic	26.6	C
SR 237 Offramp to Great Mall Parkway Offramp	Basic	23.8	C
Great Mall Parkway Offramp	Diverge	21.6	C
Great Mall Parkway Offramp to SR 237 Onramp	Basic	21.8	C
SR 237 Onramp	Diverge	28.2	D
Northbound I-880 (Travel Direction: Down Table)			
SR 237 Offramp	Basic	19.8	C
SR 237 Offramp to Onramp	Basic	19.3	C
McCarthy Boulevard Onramp	Merge	20.3	C
SR 237 WB Onramp	Merge	20.8	C
SR 237 EB Onramp	Basic	17.9	B
SR 237 EB Onramp to HOT Onramp	Basic	18.5	C
SR 237 HOT Onramp	Basic	18.4	C
SR 237 to Dixon Landing Road	Basic	17.8	B
Dixon Landing Road Offramp	Basic	20	C
Dixon Landing Road Offramp to Onramp	Basic	20.1	C
Dixon Landing Road Onramp	Basic	19.1	C
Dixon Landing Road to SR 262	Basic	18.3	C
SR 262 Offramp	Basic	19.2	C

Table 3-5
Existing Freeway Operations
Global Study Area Peak 1-Hour

Segment	Segment Type	Density (pc/mi/lane)	LOS
Warren Avenue Offramp	Diverge	24.1	C
Warren Avenue Offramp to Onramp	Basic	21.1	C
Warren Avenue Onramp	Merge	21.1	C
SR 262 to Fremont Onramp Boulevard	Weave	20	C
Fremont Onramp Boulevard Offramp to Onramp	Basic	18.2	C
Fremont Onramp Boulevard Eastbound Onramp	Merge	19.5	B
Fremont Onramp Boulevard to Weigh Station	Weave	20.6	C
Weigh Station Offramp to Onramp	Basic	19.2	C
Weigh Station to Auto Mall Parkway	Weave	18	B
Auto Mall Parkway Offramp to Onramp	Basic	16.7	B
Auto Mall Parkway EB Onramp	Merge	18.2	B
Auto Mall Parkway WB Onramp	Merge	23.6	C
PM Global Peak Hour: 5:00 PM to 6:00 PM			
Southbound I-680 (Travel Direction: Down Table)			
Washington Boulevard Onramp	Basic	15.5	B
Washington Boulevard to Auto Mall Parkway	Basic	13.9	B
Auto Mall Parkway Offramp	Basic	14.2	B
Auto Mall Parkway Offramp to Onramp	Basic	14.7	B
Auto Mall Parkway Onramp	Basic	13.5	B
Auto Mall Parkway to Mission Boulevard	Basic	14.1	B
SR 262 Offramp	Basic	13.5	B
SR 262 Offramp to Onramp	Basic	13.3	B
SR 262 Onramp	Basic	14.4	B
SR 262 to Scott Creek Road	Basic	14	B
Scott Creek Road Offramp	Basic	15.4	B
Scott Creek Road Offramp to Onramp	Basic	16.5	B
Scott Creek Road Onramp	Basic	15.9	B
Scott Creek Road to Jacklin Road	Basic	15.2	B
Jacklin Road Offramp	Basic	16.4	B
Jacklin Road Offramp to Onramp	Basic	17.8	B
Jacklin Road to SR 237	Weave	17.7	B
SR 237 Offramp to Onramp	Basic	**69.3**	**F**
SR 237 Onramp	Merge	**81.5**	**F**
Northbound I-680 (Travel Direction: Down Table)			
SR 237 Offramp	Diverge	21.6	C
SR 237 Offramp to Lane Drop	Basic	21	C
Lane Drop to SR 237 Onramp	Basic	21.5	C
SR 237 to Jacklin Road	Weave	20.9	C
Jacklin Road Offramp to Onramp	Basic	21.5	C
Jacklin Road Onramp	Merge	22.5	C
Jacklin Road to Scott Creek Road	Basic	22.6	C
Scott Creek Road Offramp	Basic	22.4	C
Scott Creek Road Offramp to Onramp	Basic	20.2	C

Table 3-5
Existing Freeway Operations
Global Study Area Peak 1-Hour

Segment	Segment Type	Density (pc/mi/lane)	LOS
Scott Creek Road Onramp	Merge	22.5	C
Scott Creek Road to SR 262	Basic	23.7	C
SR 262 Offramp	Diverge	23.5	C
SR 262 Offramp to Onramp	Basic	26.9	D
SR 262 Onramp	Merge	**87.6**	**F**
SR 262 to Durham Road	Basic	**83**	**F**
Durham Road Offramp	Diverge	**85.7**	**F**
Durham Road Offramp to Onramp	Basic	**84.6**	**F**
Durham Road Onramp	Merge	**91**	**F**
Durham Road to Lane Drop	Basic	**75.9**	**F**
Lane Drop to Washington Boulevard	Basic	**74.1**	**F**
Washington Boulevard Offramp	Diverge	**79**	**F**
Washington Boulevard Offramp to Onramp	Basic	**75.5**	**F**
Washington Boulevard Onramp	Merge	**63.1**	**F**
Southbound I-880 (Travel Direction: Down Table)			
Auto Mall Parkway WB Onramp	Basic	19.1	B
Auto Mall Parkway to Weigh Station	Basic	21.9	C
Weigh Station Offramp to Onramp	Merge	21.9	C
Weigh Station Onramp	Weave	18.5	C
Fremont Onramp Boulevard Offramp	Basic	18.8	C
Fremont Onramp Boulevard Offramp to Lane Drop	Basic	20.1	C
Lane Drop to Fremont Onramp Boulevard Onramp	Basic	20.3	C
Fremont Onramp Boulevard WB Onramp	Basic	24.7	C
Fremont Onramp Boulevard to SR 262	Basic	21.9	C
SR 262 Offramp to Warren Avenue Onramp	Merge	20.7	C
Warren Avenue Onramp	Weave	22.2	C
Warren Avenue Onramp to SR 262 Onramp	Basic	22.9	C
SR 262 Onramp	Merge	18.1	C
SR 262 to Dixon Landing Road	Basic	18.5	C
Dixon Landing Road Offramp	Basic	20.1	C
Dixon Landing Road Offramp to Onramp	Basic	20.4	C
Dixon Landing Road WB Onramp	Basic	21	C
Dixon Landing Road EB Onramp	Basic	18.1	B
Dixon Landing Road to SR 237	Basic	20.8	C
SR 237 HOT Offramp	Merge	21.6	C
SR 237 WB Offramp	Basic	24.1	C
SR 237 EB Offramp	Basic	25.7	C
SR 237 Offramp to Great Mall Parkway Offramp	Basic	24.1	C
Great Mall Parkway Offramp	Diverge	23.3	C
Great Mall Parkway Offramp to SR 237 Onramp	Basic	16.7	B
SR 237 Onramp	Diverge	19.7	B
Northbound I-880 (Travel Direction: Down Table)			
SR 237 Offramp	Basic	21.8	C

Table 3-5
Existing Freeway Operations
Global Study Area Peak 1-Hour

Segment	Segment Type	Density (pc/mi/lane)	LOS
SR 237 Offramp to Onramp	Basic	21	C
McCarthy Boulevard Onramp	Merge	22.8	C
SR 237 WB Onramp	Merge	23.7	C
SR 237 EB Onramp	Basic	19.4	C
SR 237 EB Onramp to HOT Onramp	Basic	21.1	C
SR 237 HOT Onramp	Basic	21.1	C
SR 237 to Dixon Landing Road	Basic	21	C
Dixon Landing Road Offramp	Basic	29.6	D
Dixon Landing Road Offramp to Onramp	Basic	**93.5**	**F**
Dixon Landing Road Onramp	Basic	**123.6**	**F**
Dixon Landing Road to SR 262	Basic	**105.7**	**F**
SR 262 Offramp	Basic	**78.3**	**F**
Warren Avenue Offramp	Diverge	**94.1**	**F**
Warren Avenue Offramp to Onramp	Basic	**86.3**	**F**
Warren Avenue Onramp	Merge	**77.2**	**F**
SR 262 to Fremont Onramp Boulevard	Weave	**67**	**F**
Fremont Onramp Boulevard Offramp to Onramp	Basic	**68**	F
Fremont Onramp Boulevard Eastbound Onramp	Merge	**77.2**	**F**
Fremont Onramp Boulevard to Weigh Station	Weave	**69.3**	**F**
Weigh Station Offramp to Onramp	Basic	**61.1**	**F**
Weigh Station to Auto Mall Parkway	Weave	**68.6**	**F**
Auto Mall Parkway Offramp to Onramp	Basic	**65**	**F**
Auto Mall Parkway EB Onramp	Merge	**75.6**	**F**
Auto Mall Parkway WB Onramp	Merge	**53.5**	**F**

Notes: **Bold** indicates failing operations
Source: Fehr & Peers, April 2019

During the PM peak period, northbound I-680 operates at LOS F from the Mission Boulevard/SR-262 interchange to the northern end of the study area. This is expected due to the bottleneck between the Washington Boulevard on-ramp and the Mission Boulevard/SR 238 off-ramp. All other segments operate at LOS C or better corresponding to free flow conditions.

3.2.4.1.2 I-880

During the AM peak period, southbound I-880 operates at LOS E or F from the Auto Mall Parkway interchange to the Fremont Boulevard interchange. This is expected due to the bottleneck after the Fremont Boulevard diagonal on-ramp. Also, southbound I-880 operates at LOS F from the Dixon Landing Road interchange to the SR-237 interchange. This is expected due to the congestion outside the study

area on SR 237 which queues back onto southbound I-880. All other segments operate at LOS D or better corresponding to free flow conditions.

During the PM peak period, southbound I-880 operates at LOS C at all segments corresponding to free flow conditions.

During the AM peak period, northbound I-880 operates at LOS C at all segments corresponding to free flow conditions.

During the PM peak period, northbound I-880 operates at LOS F from the Dixon Landing Road interchange to the Auto Mall Parkway interchange at the end of the study area. This is expected due to the bottleneck at Auto Mall Parkway on-ramp. All other segments operate at LOS D or better corresponding to free flow conditions.

Further discussion of the northbound I-680 and I-880 weaving sections is provided in **Section 3.2.6**.

The LOS and average density at key freeway ramp junctions and mainline sections under existing conditions are provided in **Appendix H.**

3.2.4.2 Intersections

Intersection traffic operations were determined from the VISSIM model which accounts for delays associated with stopping and/or slowing down as a result of signals, stop, or yield controls. In addition, the traffic operations analysis results account for vehicle queue spillback impacts from adjacent intersections and turn pocket overflow. The delays presented by the VISSIM model are consistent with the 2010 HCM control delay.

The intersection operations results are presented in **Table 3-6** for the global peak hours of 8:00 AM to 9:00 AM and 5:00 PM to 6:00 PM**.** The results for each VISSIM 1-hour time slice during the peak period are provided in **Appendix I**.

During the AM peak hour and consistent with field observations, the Mohave Drive/Mission Boulevard-SR 262 intersection operates at LOS F. The queue at the intersection's westbound approach extends back to both the southbound I-680 diagonal off-ramp and the northbound I-680 loop off-ramp. In both instances the queue adversely impacts the freeway operations. Warm Spring Boulevard/Mission Boulevard operates at LOS F due to long eastbound queues. All other intersections operate at LOS D or better.

Table 3-6
Existing Intersection Operations
Global Study Area AM/PM Peak 1-hour

Intersection		Peak Period	Control	Average Delay (seconds/veh) [1]	LOS
AM Global Peak Hour: 8:00 AM to 9:00 AM					
1	Landing Parkway/Bayside Parkway/Warren Avenue	AM	Signal	9	A
2	I-880 SB Ramps/Lakeview Boulevard/Warren Avenue	AM	Signal	19	B
3	I-880 NB Ramps/Warren Avenue	AM	Signal	16	B
4	Kato Road/Warren Avenue	AM	Signal	30	C
5	Mission Falls Ct/Warren Avenue	AM	Side-street Stop	1 (10)	A
6	Warm Springs Boulevard/Warren Avenue	AM	Signal	35.0	D
7	Kato Road/Kato Road/Mission Boulevard Off-Ramp	AM	All-way Stop	13 (18)	B
8	Kato Road/Mission Boulevard On-Ramp	AM	Uncontrolled	1 (1)	A
9	Warm Springs Boulevard/Mission Boulevard	AM	Signal	**>120**	**F**
10	Mohave Drive/Mission Boulevard	AM	Signal	**>120**	**F**
11	Curtner Road/Mission Boulevard	AM	Side-street Stop	18 (75)	C
PM Global Peak Hour: 5:00 PM to 6:00 PM					
1	Landing Parkway/Bayside Parkway/Warren Avenue	PM	Signal	25	C
2	I-880 SB Ramps/Lakeview Boulevard/Warren Avenue	PM	Signal	31	C
3	I-880 NB Ramps/Warren Avenue	PM	Signal	13	B
4	Kato Road/Warren Avenue	PM	Signal	42	D
5	Mission Falls Ct/Warren Avenue	PM	Side-street Stop	4 (5)	A
6	Warm Springs Boulevard/Warren Avenue	PM	Signal	40	D
7	Kato Road/Kato Road/Mission Boulevard Off-Ramp	PM	All-way Stop	1 (1)	A
8	Kato Road/Mission Boulevard On-Ramp	PM	Uncontrolled	1 (1)	A
9	Warm Springs Boulevard/Mission Boulevard	PM	Signal	**>120**	**F**
10	Mohave Drive/Mission Boulevard	PM	Signal	53	D
11	Curtner Road/Mission Boulevard	PM	Side-street Stop	3 (14)	A
12	Mission Boulevard/Paseo Padre Parkway	PM	Signal	38	D
12	Mission Boulevard/Paseo Padre Parkway	PM	Signal	38	D

Notes: **Bold** indicates unacceptable intersection operations
1. Weighted average control delay presented for signalized intersections. Delay for side-street stop-controlled intersections presented as Whole-Intersection Average Delay (Worst Approach Delay)
Source: Fehr & Peers, April 2019

During the PM peak hour, the I-680 northbound collector-distributor road at the Mission Boulevard/SR 262 interchange causes traffic to queue back onto the northbound I-680 loop on-ramp and then onto the

Mission Boulevard/SR 262 corridor where the queue extends back through the Mohave Drive and the Warm Springs Boulevard signalized intersections and ultimately back to northbound I-880 and the associated ramp connectors to eastbound Mission Boulevard/SR 262. Note that the Mohave Drive/Mission Boulevard/SR 262 intersection operates at LOS D even with long eastbound queues/delays. This is because the westbound, northbound, and southbound approaches operate with small queues/delay. All other intersections operate at LOS D or better.

3.2.5 VISSIM Study Period Measures of Effectiveness Analysis Results

Existing system-wide and corridor MOEs for the seven-hour AM and eight-hour PM study periods for the VISSIM models are presented in **Table 3-7**. The MOEs are presented for AM and PM study periods to provide an understanding of overall traffic operations during these periods. Note that some MOEs (such as volume served) are presented for all origin/destination pairs while others (such as average travel time) are presented for just travel through a corridor. A distinction is made because some MOEs are most meaningful when the delays and traffic volumes from all on-ramps and off-ramps are considered while others are most meaningful when comparing only travel through the corridor between two discreet points. The maximum individual delay, which is the difference of the highest measured travel time minus the free-flow travel time through the corridor, is presented to identify the worst measured delay for a motorist. Ultimately, this information can be used as a guide for reliability that a motorist will reach their destination on time. The system wide and corridor MOEs can be particularly useful when comparing project alternatives by demonstrating the aggregate benefits of the project beyond a single peak hour.

The combination of average corridor travel speed and maximum individual vehicle delay are good indicators for how well a corridor operates from the public's perspective. For example, high average corridor speeds combined with low maximum individual vehicle delay indicates a corridor that operates with little or no congestion while the same corridor with high maximum individual vehicle delay would suggest a corridor with substantial deterioration during some portion of the peak period.

Four travel corridors (southbound I-680, northbound I-680, southbound I-880, northbound I-880) were identified as travel corridors for the study. These four corridors will be carried forward for reporting in the future year analyses.

Southbound I-680 has minimal congestion during the AM and PM peak periods. During the AM peak period, the average speed is near 62 miles per hour, and the maximum individual delay is near three minutes. During the PM peak period, the average speed is near 66 miles per hour, and the maximum individual delay is near two minutes. The average speed and maximum individual delay reflect the observed congestion results.

Northbound I-680 has minimal congestion during the AM and has congestion during the PM peak period. During the AM peak period, the average speed is near 66 miles per hour, and the maximum individual delay is near one minute. During the PM peak period, the average speed is near 36 miles per hour, and the maximum individual delay is near 17 minutes. The average speed and maximum individual delay reflect the observed congestion results.

Table 3-7
Measures of Effectiveness

Measure	AM Peak Period	PM Peak Period
System-wide - All Origin-Destination Pairs[1]		
Volume Served	100%	100%
Vehicle Miles of Travel (VMT)	2,045,800	2,186,100
Vehicle Hours of Delay (VHD) in hours	6,760	15,520
Travel Through the Corridor (Southbound I-680)[2]		
Average Travel Time (minutes)	8.8	8.2
Average Travel Speed (mph)	62	66
Maximum Individual Vehicle Delay (minutes)	3.2	1.8
Travel Through the Corridor (Northbound I-680)[3]		
Average Travel Time (minutes)	8.2	15.3
Average Travel Speed (mph)	66	36
Maximum Individual Vehicle Delay (minutes)	0.9	17.2
Travel Through the Corridor (Southbound I-880)[4]		
Average Travel Time (minutes)	9.4	7.4
Average Travel Speed (mph)	54	68
Maximum Individual Vehicle Delay (minutes)	6.1	0.3
Travel Through the Corridor (Northbound I-880)[5]		
Average Travel Time (minutes)	6.8	12.4
Average Travel Speed (mph)	69	38
Maximum Individual Vehicle Delay (minutes)	0.2	13.5

Notes:
Delay is calculated relative to 70 mph on freeways as is the average free low capture by INRIX.

1. All origin-destination pairs consider all on- and off-ramps in the study network
2. Between Mission Boulevard/SR 238 on-ramp merge gore point and Calaveras Boulevard on-ramp gore point
3. Between Calaveras Boulevard off-ramp merge gore point and the Mission Boulevard off-ramp gore point
4. Between Stevenson Boulevard on-ramp gore point and SR-237 on-ramp gore point
5. Between Calaveras Boulevard off-ramp gore point and Stevenson Boulevard on-ramp gore point.

Source: Fehr & Peers, April 2019

Southbound I-880 has some slow down congestion during the AM and minimal congestion during the PM peak periods. During the AM peak period, the average speed is near 54 miles per hour, and the maximum individual delay is near six minutes. During the PM peak period, the average speed is near 68 miles per hour, and the maximum individual delay is near one minute. The average speed and maximum individual delay reflect the observed congestion results.

Northbound I-880 has minimal congestion during the AM and has congestion during the PM peak periods. During the AM peak period, the average speed is near 69 miles per hour, and the maximum individual delay is near one minute. During the PM peak period, the average speed is near 38 miles per hour, and the maximum individual delay is near 14 minutes. The average speed and maximum individual delay reflect the observed congestion results.

3.2.6 Weaving Area analysis

As described in **Section 2.3.2.2**, Caltrans requires the use of the Leisch Method procedure for the analysis of weaving segments. The Leisch method analysis requires the use of the peak hour service volumes through the weaving segment. **Table 3-8** presents the results from the Leisch Method analysis of the weaving area. The Leisch Method spreadsheets are included in **Appendix J**.

The Leisch Method analysis indicates that the southbound I-680 weave segment operates at LOS D or better during the segment peak hours. While the weave segments on northbound I-680 as well as northbound and southbound I-880 operate at LOS E or worse.

3.3 Collision Data

Collision data was prepared by CHS Consulting and their documentation is in **Appendix K**. The remainder of this section summarizes the data. Collision data was obtained from the Traffic Analysis Surveillance and Analysis System (TASAS), which is the collision database maintained by Caltrans. The study area roadways for which the collision data was obtained included the following:

- I-680 between Scott Creek Road and Auto Mall Parkway;
- I-880 between Dixon Landing Road and Fremont Boulevard; and
- State Route 262 (Mission Boulevard) between I-880 and I-680.

Caltrans staff provided the collision data in the study area between January 1, 2013 and December 31, 2017 (for I-680) and between January 1, 2014 and December 31, 2018 (for I-880 and SR-262). The data was summarized and is presented in **Table 3-9**.

Table 3-8
Existing Weaving Segment Operations – Leisch Method
Weave Segment Peak Hour

Segment	Segment Type	Hour	Weaving Speed (mph)	LOS
AM Period: 5:00 AM to 12:00 PM				
Southbound I-680				
Jacklin Road On-ramp to Calaveras Boulevard Off-ramp	Weave	9AM	32.7	D
Northbound I-680				
Calaveras Boulevard On-ramp to Jacklin Road Off-ramp	Weave	8AM	43.4	E
Southbound I-880				
Fremont Boulevard (South) On-ramp to Warren Avenue Off-ramp	Weave	8AM	43.3	E
Northbound I-880				
Mission Boulevard On-ramp to Fremont Boulevard Off-ramp	Weave	7AM	36.7	F
PM Period: 1:00 PM to 9:00 PM				
Southbound I-680				
Jacklin Road On-ramp to Calaveras Boulevard Off-ramp	Weave	5PM	35.5	C
Northbound I-680				
Calaveras Boulevard On-ramp to Jacklin Road Off-ramp	Weave	5PM	34.8	E
Southbound I-880				
Fremont Boulevard (South) On-ramp to Warren Avenue Off-ramp	Weave	5PM	39.4	E
Northbound I-880				
Mission Boulevard On-ramp to Fremont Boulevard Off-ramp	Weave	4PM	39.1	E

Notes: Analysis Based on Leisch Method, Jack E. Leisch & Associates, 1983
Source: Fehr & Peers, 2019

Table 3-9
Collision Summary of Study Area

Freeway	Location	Number of Accidents			Actual Accident Rate[3]			Average Accident Rate (State)[3]		
		Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury
I-680[1]	Between Scott Creek Road and Auto Mall Parkway	919	3	313	**0.89**	0.003	**0.30**	0.79	0.003	0.25
I-880[1]	Between Dixon Landing Road and Fremont Boulevard	1,025	4	277	0.89	0.003	0.24	0.89	0.003	0.27
SR-262[2]	Between I-880 and I-680	135	1	59	1.00	.007	0.44	1.39	0.011	0.61

Notes:
1. Collisions on I-680 and I-880 include both ramps and mainline.
2. Collisions on SR-262 include both intersections and roadways.
3. Actual and Average Accident Rates are measured in accidents per million vehicle miles.
Source: Fehr & Peers, April 2019

For SR-262 (Mission Boulevard) a total of 135 collisions with one fatality were reported over the five-year period. The actual collision rates for SR-262 (Mission Boulevard) are lower than the Statewide average for total accidents, fatal accidents, and for "fatal + injury" accidents.

For I-880 overall, there were 1,025 collisions with four fatalities reported. The actual collision rates for mainline and ramps combined are lower than the State average for I-880 with respect to total accidents, fatal accidents, and "fatal + injury" accidents.

There were 919 collisions reported on I-680 (freeway and ramps combined) with three fatalities: two of the fatality collisions occurred in the northbound direction and one fatality collision occurred in the southbound direction. The actual fatal collision rate for I-680 in the study area was the same as the average statewide collision rate. The actual "fatal + injury" collision rate was slightly higher than the State average; and the actual total collision rate was also slightly higher than the average.

For a full breakdown for the analysis and further detail, please go to **Appendix K**.

3.4 Truck Routes

The study corridors including I-680, I-880, and SR 262 are designated Fremont truck routes.[4] Both I-680 and I-880 are interstate routes while SR 262 is a state route. The corridors are important freight

[4] https://www.fremont.gov/DocumentCenter/View/691/Map---Truck-Routes?bidId=

connectors, connecting to major industrial centers such as the Tesla manufacturing plant, the industrial area of Newark, and the general connections to other major freight generators such as Tracy, Stockton, and Modesto. SR-262 is also used by trucks for deliveries to commercial businesses adjacent to the corridor.

3.5 Transit Routes

The primary transit service providers in the study area are the Alameda County Transit (AC Transit), Santa Clara Valley Transportation Authority (VTA), Bay Area Regional Transit (BART), and the Altamont Corridor Express train service (ACE). AC Transit provides local bus service and VTA provides express commute bus service. BART is a regional rail connecting the Bay Area. ACE provides peak-direction commuter rail service between San Joaquin County and Santa Clara County. Each service is described below and illustrated in **Figure 3-1**.

3.5.1 AC Transit

AC transit provides local bus service within the study area. There are three bus routes that utilize one or more of the study corridors. The 215-bus route provides service from Fremont BART to Warm Springs BART and ultimately the industrial cluster west of I-880 and SR-262, via Warm Springs Boulevard and Warren Avenue. The 239-bus line provides service from Fremont BART to Dixon Landing Road via Grimmer Boulevard, Mission Boulevard, and Warm Springs Boulevard. The 217-bus service provides connection from the California School for the Blind, Deaf, and Multi-handicapped, near Fremont BART, to the Great Mall/Main Station, via Mission Boulevard and Warm Springs Boulevard.[5] There are bus stops along Warm Springs Boulevard, Mission Boulevard, and Warren Avenue.

A one-way fare is 2.35 with cash and 2.25 with cashless clipper cards. Day passes are $5, regardless of format. Youth and Senior discounts of about 50% are available.

3.5.2 VTA / Express Bus Routes

VTA provides express bus service from Warm Springs BART and Fremont BART to employment centers in San Jose. These are commute peak period buses, meaning that in the mornings they only run southbound and in the evenings they run northbound.[6] They use I-880, but have no stops on the study corridors. There are 4 express bus lines, which are as follows:

- 180 – express from Warm Springs BART station to East San Jose

[5] http://www.actransit.org/pdf/maps/version_21/city_map.pdf
[6] http://www.vta.org/sfc/servlet.shepherd/document/download/069A0000001cwcWIAQ

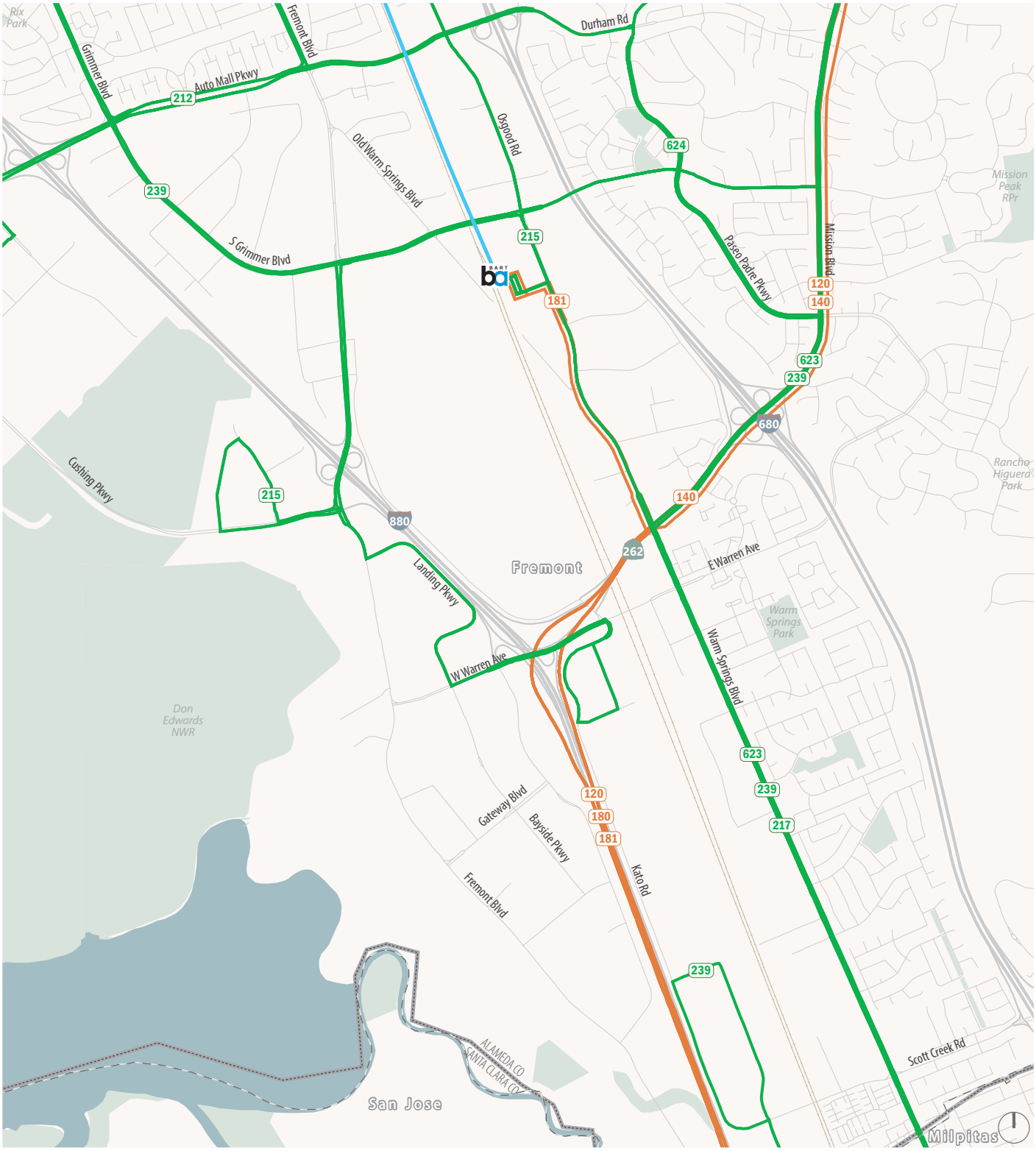


Figure 3-1

Existing Transit Service

- 181 – express from Warm Springs BART station to Downtown San Jose
- 140 – express from Fremont BART station to Mission College Santa Clara
- 120 – express from Fremont BART station to Mountain View

A one-way fare of the express service is $5, with monthly and yearly subscription service packages available.

3.5.3 BART

BART is a regional rail service that connects the Bay Area, including San Francisco, Richmond, Berkeley, Oakland, Walnut Creek, Pleasanton, and South Fremont.[7] Warm Springs/South Fremont BART Station is currently an end of line station found less than 1 mile north of SR-262. The BART extension to the Berryessa area of San Jose is under construction and the continuation of BART to downtown San Jose is under preliminary engineering analysis and design. Two lines start and end at the station, the Daly City Line and the Richmond Line. BART fares are dependent on trip length. Parking is available at the station for $3 per day or with a permit. There is a designated parking area for electric vehicle with charging stations. There are 56 on-demand bike lockers.[8]

3.6 Bicycle and Pedestrian System

Bicycle and pedestrian volumes are significant in the vicinity of the Mission Boulevard/SR-262 corridor, reflecting the residential and employment dense nature of the area.

3.6.1 Bicycle System Definitions

Typical bicycle facilities include the following:

- **Bike paths (Class I)** – Paved trails that are separated from roadways.
- **Bike lanes (Class II)** – Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs.
- **Bike routes (Class III)** – Designated roadways for bicycle use by signs only; may or may not include additional pavement width for cyclists.
- **Cycle Tracks/Separated Bikeways (Class IV) –** Bicycle facilities located on roadways that are separated through physical dividers.

[7] https://www.bart.gov/system-map
[8] https://www.bart.gov/stations/warm

3.6.2 Bicycle Facilities

There are no official bike facilities or identifiable pavement markings along SR-262 within the study area. The cross section of SR-262 between Brown Road and Warm Springs Boulevard does include a 4- to 6-foot buffer distinguished by a 4-inch stripe between traffic lanes and the curb line. There are Class II bike facilities along Warren Avenue, except over I-880, where there are Class III bike lanes that are difficult to transverse due to high traffic volumes.[9] There are also bike lanes on Warm Springs Boulevard south of Warren Avenue while bikes share the road north of Warren Avenue.

3.6.3 Existing Pedestrian Facilities

Pedestrian facilities, crosswalk and signal phasing, are summarized in **Table 3-10.** The signalized intersections have crosswalks on at least one leg and provide signal phasing and crosswalk ramps wherever crosswalks exist. The all-way stop and side-street stop intersections mostly do not have designated crosswalks, but they have crosswalk ramps. The I-680 freeway on- and off-ramps have crosswalk ramps at the local street interface but generally do not have striped crosswalks. The pedestrian facilities independent of interstate ramps are more accessible than the pedestrian facilities around the interstate interchanges.

Along Mission Boulevard/SR 262 corridor there are sidewalks east of Warm Springs Boulevard and there are no pedestrian facilities west of the intersection. The sidewalks are generally 10 feet wide with accompanying landscape except through the I-680 interchange area where the sidewalk widths reduce to 6 feet and there are minimal landscape treatments. North of I-680 the sidewalk widths narrow to 4- to 5-feet but the corridors are heavily landscaped. Sidewalks on Warm Springs Boulevard approaching Mission Boulevard/SR 262 are generally 10 feet except the southbound approach which has a 6-foot sidewalk and the sidewalks on Mohave Drive approaching Mission Boulevard/SR 262 are 8- to 10-feet wide. There are minimal sidewalk treatments on Brown Road.

[9] https://www.fremont.gov/DocumentCenter/View/2913/Map---Fremont-Bikeway-Map-12_09?bidId=

Table 3-10
Intersection Pedestrian Facilities

Intersection		Control	# of Marked Crosswalks	Signal Phasing[1]
1	Landing Parkway/Bayside Parkway/West Warren Avenue	Signal	4	Yes
2	Lakeview Boulevard/southbound I-880 ramps/Warren Avenue	Signal	2 *west, south legs*	Yes
3	Northbound I-880 ramps/Warren Avenue	Signal	1 *south leg*	Yes
4	Kato Road/Warren Avenue	Signal	2 *south, west legs*	Yes
5	Mission Falls Court/Warren Avenue	All-way Stop	0	No
6	Warm Springs Boulevard/Warren Avenue	Signal	4	Yes
7	Kato Road/Mission Boulevard off-ramp	All-way Stop	0	No
8	Kato Road/Mission Boulevard On-ramp	Uncontrolled	0	No
9	Warm Springs Boulevard/Mission Boulevard	Signal	4	Yes
10	Mohave Drive/Mission Boulevard	Signal	3 *south, north, west leg*	Yes
11	Mission Boulevard/Curtner Road	Side-street Stop	0	No
12	Mission Boulevard/Paseo Padre Parkway	Signal	4	Yes
14	Southbound I-680 Diagonal Off-Ramp	Uncontrolled	1	No
	Southbound I-680 Diagonal On-Ramp	Uncontrolled	0	No
15	Southbound I-680 Loop On-Ramp	Uncontrolled	0	No
	Southbound I-680 Loop Off-Ramp	Uncontrolled	0	No
16	Northbound I-680 Loop Off-Ramp	Uncontrolled	0	No
	Northbound I-680 Loop On-Ramp	Uncontrolled	1	No
17	Northbound I-680 Diagonal On-Ramp	Uncontrolled	0	No
	Northbound I-680 Diagonal Off-Ramp	Uncontrolled	1	No

Source: Fehr & Peers, 2019.

4. List of Abbreviations

GEH	Geoffrey E. Havers, formula used to compare two sets of traffic volumes
HOV	High Occupancy Vehicle
LOS	Level of Service
PeMS	Performance Measurement System
SOV	Single Occupancy Vehicle
TASAS	Traffic Analysis Surveillance and Analysis System
VHD	Vehicle Hour Delay
VISSIM	*Verkehr In Städten – SIMulationsmodell* (Translated: Traffic in cities - simulation model)
VMT	Vehicle Miles Traveled
VPH	Vehicles Per Hour

Appendix A:

INRIX and VISSIM Speeds

APPENDIX A
I-680 NB INRIX SPEEDS (MPH) AND TRAVEL TIME (MIN)

SPEED (MPH) // I-680 Northbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Washington Blvd On Ramp to Mission Blvd Off Ramp	3,400	63	66	66	66	66	64	70	64	37	29	26	25	27	37	62
Washington Blvd Off Ramp to Washington Blvd On Ramp	1,100	56	64	65	65	65	65	69	63	26	18	17	19	21	30	61
Auto Mall Pkwy On Ramp to Washington Blvd Off Ramp	7,200	61	67	68	68	69	67	71	67	24	14	14	15	18	27	65
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,300	64	68	69	70	69	70	70	70	23	10	10	13	17	29	68
SR-262 On Ramp to Auto Mall Pkwy Off Ramp	5,600	66	67	69	69	69	71	70	70	28	10	10	12	19	43	70
SR-262 Off Ramp to SR-262 On Ramp	3,400	71	69	68	68	67	68	67	68	41	15	17	18	42	58	70
Scott Creek Rd On Ramp to SR-262 Off Ramp	8,400	69	65	63	62	66	66	65	69	62	60	64	56	51	63	67
Scott Creek Rd Off Ramp to Scott Creek Rd On Ramp	3,400	70	67	67	65	69	67	67	71	67	69	69	67	61	66	67
Jacklin Rd On Ramp to Scott Creek Rd Off Ramp	5,000	71	65	66	63	67	67	67	69	62	68	67	67	63	66	67
Jacklin Rd Off Ramp to Jacklin Rd On Ramp	3,300	68	64	66	64	66	64	68	66	68	68	67	69	65	69	66
E Calaveras Blvd On Ramp to Jacklin Rd Off Ramp	1,100	68	64	69	64	64	64	69	66	71	68	65	70	63	69	66
E Calaveras Blvd Off Ramp to E Calaveras Blvd On Ramp	4,900	70	65	68	66	69	67	68	67	68	69	69	71	69	71	70

TRAVEL TIME (MIN) // I-680 Northbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Washington Blvd On Ramp to Mission Blvd Off Ramp	3,400	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.0	1.3	1.5	1.6	1.4	1.1	0.6
Washington Blvd Off Ramp to Washington Blvd On Ramp	1,100	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.7	0.7	0.6	0.6	0.4	0.2
Auto Mall Pkwy On Ramp to Washington Blvd Off Ramp	7,200	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.2	3.4	5.7	5.8	5.6	4.5	3.0	1.3
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,300	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	1.4	1.4	1.1	0.9	0.5	0.2
SR-262 On Ramp to Auto Mall Pkwy Off Ramp	5,600	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	2.3	6.3	6.5	5.2	3.3	1.5	0.9
SR-262 Off Ramp to SR-262 On Ramp	3,400	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.9	2.6	2.3	2.1	0.9	0.7	0.5
Scott Creek Rd On Ramp to SR-262 Off Ramp	8,400	1.4	1.5	1.5	1.5	1.4	1.4	1.5	1.4	1.5	1.6	1.5	1.7	1.9	1.5	1.4
Scott Creek Rd Off Ramp to Scott Creek Rd On Ramp	3,400	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Jacklin Rd On Ramp to Scott Creek Rd Off Ramp	5,000	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.9	0.8	0.9	0.9	0.9	0.9	0.9
Jacklin Rd Off Ramp to Jacklin Rd On Ramp	3,300	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.6	0.5	0.6	0.5	0.6
E Calaveras Blvd On Ramp to Jacklin Rd Off Ramp	1,100	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
E Calaveras Blvd Off Ramp to E Calaveras Blvd On Ramp	4,900	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Total Travel Time (minutes)	**48,100**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**13**	**22**	**23**	**21**	**17**	**12**	**8**

Legend

0 - 35 mph
36 - 55 mph
+56 mph

APPENDIX A
I-680 SB INRIX SPEEDS (MPH) AND TRAVEL TIME (MIN)

SPEED (MPH) // I-680 Southbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Mission Blvd On Ramp to Washington Blvd Off Ramp	3,700	67	65	65	59	44	61	69	71	71	69	71	68	70	67	69
Washington Blvd Off Ramp to On Ramp	1,800	66	64	64	60	48	61	69	71	70	67	69	68	70	67	70
Washington Blvd On Ramp to Auto Mall Pkwy Off Ramp	5,800	66	69	62	41	29	56	68	71	69	68	68	65	67	66	68
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,800	68	62	55	43	46	53	66	70	67	68	70	65	66	67	67
Auto Mall Pkwy On Ramp to SR262 Off Ramp	5,400	64	60	51	41	47	52	59	65	66	64	66	55	64	68	63
SR262 Off Ramp to SR 262 On Ramp	4,200	72	71	70	67	68	70	73	70	74	74	76	75	72	73	74
SR262 On Ramp to Scott Creek Rd Off Ramp	8,300	71	72	74	72	72	71	73	70	72	71	74	72	72	70	73
Scott Creek Rd Off Ramp to On Ramp	3,000	76	74	71	68	70	70	73	68	75	75	75	71	70	73	75
Scott Creek Rd On Ramp to Jacklin Rd Off Ramp	5,500	76	75	76	74	74	74	78	75	81	81	78	76	75	76	74
Jacklin Rd Off Ramp to Jacklin Rd On Ramp	3,000	66	67	70	67	64	66	68	69	67	68	69	64	64	65	64
Jacklin Rd On Ramp to CA-237 Off Ramp	600	69	69	75	73	68	71	69	70	66	64	68	56	59	66	66
CA-237 Off Ramp to CA-237 On Ramp	4,900	71	71	72	70	70	70	71	72	70	68	51	32	54	71	72

TRAVEL TIME (MIN) // I-680 Southbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Mission Blvd On Ramp to Washington Blvd Off Ramp	3,700	0.6	0.6	0.6	0.7	1.0	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Washington Blvd Off Ramp to On Ramp	1,800	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Washington Blvd On Ramp to Auto Mall Pkwy Off Ramp	5,800	1.0	1.0	1.1	1.6	2.3	1.2	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,800	0.3	0.3	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Auto Mall Pkwy On Ramp to SR262 Off Ramp	5,400	1.0	1.0	1.2	1.5	1.3	1.2	1.0	0.9	0.9	0.9	0.9	1.1	1.0	0.9	1.0
SR262 Off Ramp to SR 262 On Ramp	4,200	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.6
SR262 On Ramp to Scott Creek Rd Off Ramp	8,300	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Scott Creek Rd Off Ramp to On Ramp	3,000	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.4
Scott Creek Rd On Ramp to Jacklin Rd Off Ramp	5,500	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Jacklin Rd Off Ramp to Jacklin Rd On Ramp	3,000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Jacklin Rd On Ramp to CA-237 Off Ramp	600	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CA-237 Off Ramp to CA-237 On Ramp	4,900	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.1	1.8	1.0	0.8	0.8
Total Travel Time (minutes)	**48,000**	**8**	**8**	**8**	**9**	**10**	**8**	**8**	**8**	**8**	**8**	**8**	**9**	**8**	**8**	**8**

Legend

- 0 - 35 mph
- 36 - 55 mph
- +56 mph

APPENDIX A

I-880 NB INRIX SPEEDS (MPH) AND TRAVEL TIME (MIN)

SPEED (MPH) // I-880 Northbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Auto Mall Pkwy On Ramp to Stevenson Blvd Off Ramp	5,000	64	68	65	69	66	69	67	65	61	52	49	49	45	46	61
Auto Mall Pkwy On Ramp to Auto Mall Pkwy On Ramp	1,000	66	67	67	68	70	68	65	63	60	31	27	28	23	33	59
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,400	66	66	67	68	70	68	66	66	61	29	27	25	24	31	59
Fremont Blvd On Ramp to Auto Mall Pkwy Off Ramp	4,700	66	69	69	74	67	67	62	65	62	44	30	19	20	34	59
Fremont Blvd On Ramp to Fremont Blvd On Ramp	1,000	68	69	70	66	66	69	61	65	62	48	29	24	22	30	61
Fremont Blvd Off Ramp to Fremont Blvd On Ramp	1,400	67	69	70	65	68	68	64	65	61	47	28	22	19	29	62
SR-262 On Ramp to Fremont Blvd Off Ramp	1,500	68	70	65	62	63	68	63	62	59	48	30	22	18	28	65
SR-262 On Ramp to SR-262 On Ramp	1,500	68	70	64	62	65	70	63	66	55	31	26	17	13	25	65
SR-262 Off Ramp to SR-262 On Ramp	1,800	70	71	68	68	71	70	66	68	56	29	28	15	13	39	66
SR-262 Off Ramp to SR-262 Off Ramp	1,100	68	67	71	76	69	70	66	66	61	31	21	15	13	52	65
Dixon Landing On Ramp to SR-262 Off Ramp	6,900	67	71	71	70	70	72	69	69	64	43	21	18	11	59	67
Dixon Landing Rd Off Ramp to Dixon Landing On Ramp	4,300	65	72	69	70	73	71	71	68	64	60	31	17	18	63	69
CA-237 On Ramp to Dixon Landing Rd Off Ramp	5,700	66	72	69	68	70	71	69	67	63	62	66	54	67	64	67
CA-237 On Ramp to CA-237 On Ramp	2,500	68	71	70	71	70	72	69	68	68	66	67	67	65	67	68
CA-237 Off Ramp to CA-237 On Ramp	1,500	65	70	71	73	72	72	69	70	67	65	67	70	68	67	67

TRAVEL TIME (MIN) // I-880 Northbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Auto Mall Pkwy On Ramp to Stevenson Blvd Off Ramp	5,000	0.9	0.8	0.9	0.8	0.9	0.8	0.8	0.9	0.9	1.1	1.2	1.1	1.3	1.2	0.9
Auto Mall Pkwy On Ramp to Auto Mall Pkwy On Ramp	1,000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.5	0.3	0.2
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,400	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.6	0.6	0.7	0.5	0.3
Fremont Blvd On Ramp to Auto Mall Pkwy Off Ramp	4,700	0.8	0.8	0.8	0.7	0.8	0.8	0.9	0.8	0.9	1.2	1.7	2.8	2.7	1.6	0.9
Fremont Blvd On Ramp to Fremont Blvd On Ramp	1,000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.5	0.4	0.2
Fremont Blvd Off Ramp to Fremont Blvd On Ramp	1,400	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.6	0.7	0.9	0.6	0.3
SR-262 On Ramp to Fremont Blvd Off Ramp	1,500	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.5	0.8	0.9	0.6	0.3
SR-262 On Ramp to SR-262 On Ramp	1,500	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.6	0.7	1.0	1.3	0.7	0.3
SR-262 Off Ramp to SR-262 On Ramp	1,800	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.7	0.7	1.3	1.6	0.5	0.3
SR-262 Off Ramp to SR-262 Off Ramp	1,100	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.6	0.9	1.0	0.2	0.2
Dixon Landing On Ramp to SR-262 Off Ramp	6,900	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.8	3.7	4.4	6.9	1.3	1.2
Dixon Landing Rd Off Ramp to Dixon Landing On Ramp	4,300	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	1.6	2.9	2.8	0.8	0.7
CA-237 On Ramp to Dixon Landing Rd Off Ramp	5,700	1.0	0.9	0.9	1.0	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0
CA-237 On Ramp to CA-237 On Ramp	2,500	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CA-237 Off Ramp to CA-237 On Ramp	1,500	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3
Total Travel Time (minutes)	**41,300**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**8**	**10**	**14**	**19**	**23**	**10**	**7**

Legend

0 - 35 mph

36 - 55 mph

+56 mph

APPENDIX A
I-880 SB INRIX SPEEDS (MPH) AND TRAVEL TIME (MIN)

SPEED (MPH) // I-880 Southbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Stevenson Blvd On Ramp to Auto Mall Pkwy Off Ramp	5,400	61	49	38	36	47	65	66	65	67	65	58	61	62	68	66
Auto Mall Pkwy Off Ramp to On Ramp	1,400	66	60	50	39	59	65	67	68	68	70	67	67	65	69	68
Auto Mall Pkwy On Ramp to On Ramp	1,000	69	61	49	37	61	65	71	68	67	70	66	66	66	71	72
Auto Mall Pkwy On Ramp to Fremont Blvd / Cushing Pkwy Off Ramp	5,500	64	59	39	29	55	62	64	64	64	67	68	69	73	66	65
Fremont Blvd / Cushing Pkwy Off Ramp to On Ramp	1,300	65	62	35	28	49	66	70	68	68	67	63	63	66	70	68
Fremont Blvd / Cushing Pkwy On Ramp to On Ramp	1,500	62	62	38	39	52	63	68	68	67	69	60	63	62	70	68
Fremont Blvd / Cushing Pkwy On Ramp to SR-262 Off Ramp	1,400	64	59	53	44	56	64	67	66	65	63	59	61	60	69	68
SR-262 / Mission Blvd Off Ramp to On Ramp	2,600	67	62	57	57	59	66	69	66	69	67	66	66	67	71	68
SR-262 / Mission Blvd On Ramp to On Ramp	1,700	69	64	58	54	51	66	69	67	69	72	75	78	79	69	68
SR-262 / Mission Blvd On Ramp to Dixon Landing Rd Off Ramp	7,400	71	66	62	37	26	66	68	68	69	69	69	68	67	71	71
Dixon Landing Rd Off Ramp to On Ramp	2,000	70	64	53	15	25	59	66	68	68	65	65	64	64	70	69
Dixon Landing Rd On Ramp to On Ramp	1,000	71	64	49	21	27	57	65	68	68	68	69	67	65	71	70
Dixon Landing Rd On Ramp to CA-237 HOV Off Ramp	5,100	70	64	54	33	35	55	69	68	69	68	68	68	67	70	68
CA-237 HOV Off Ramp to CA-237 GP Off Ramp	1,100	69	65	59	48	50	63	71	68	72	70	68	69	70	71	67
CA-237 GP Off Ramp to Calaveras Off Ramp	1,300	69	64	63	59	61	66	70	69	71	69	68	68	69	69	66
Calaveras Off Ramp to CA-237 On Ramp	4,700	68	65	65	65	66	70	69	68	70	66	69	65	67	70	68

TRAVEL TIME (MIN) // I-880 Southbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Stevenson Blvd On Ramp to Auto Mall Pkwy Off Ramp	5,400	1.0	1.3	1.6	1.7	1.3	1.0	0.9	0.9	0.9	1.0	1.1	1.0	1.0	0.9	0.9
Auto Mall Pkwy Off Ramp to On Ramp	1,400	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2
Auto Mall Pkwy On Ramp to On Ramp	1,000	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Auto Mall Pkwy On Ramp to Fremont Blvd / Cushing Pkwy Off Ramp	5,500	1.0	1.1	1.6	2.1	1.1	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	1.0
Fremont Blvd / Cushing Pkwy Off Ramp to On Ramp	1,300	0.2	0.2	0.4	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Fremont Blvd / Cushing Pkwy On Ramp to On Ramp	1,500	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.2	0.2
Fremont Blvd / Cushing Pkwy On Ramp to SR-262 Off Ramp	1,400	0.2	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2
SR-262 / Mission Blvd Off Ramp to On Ramp	2,600	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
SR-262 / Mission Blvd On Ramp to On Ramp	1,700	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3
SR-262 / Mission Blvd On Ramp to Dixon Landing Rd Off Ramp	7,400	1.2	1.3	1.4	2.3	3.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2
Dixon Landing Rd Off Ramp to On Ramp	2,000	0.3	0.4	0.4	1.5	0.9	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3
Dixon Landing Rd On Ramp to On Ramp	1,000	0.2	0.2	0.2	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Dixon Landing Rd On Ramp to CA-237 HOV Off Ramp	5,100	0.8	0.9	1.1	1.8	1.7	1.1	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.8	0.8
CA-237 HOV Off Ramp to CA-237 GP Off Ramp	1,100	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CA-237 GP Off Ramp to Calaveras Off Ramp	1,300	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Calaveras Off Ramp to CA-237 On Ramp	4,700	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Total Travel Time (minutes)	**44,400**	**8**	**8**	**10**	**14**	**12**	**8**	**7**	**8**	**7**	**7**	**8**	**8**	**8**	**7**	**7**

Legend

- 0 - 35 mph
- 36 - 55 mph
- +56 mph

APPENDIX A
I-680 NB VISSIM SPEEDS (MPH) AND TRAVEL TIME (MIN)

SPEED (MPH) // I-680 Northbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Washington Blvd On Ramp to Mission Blvd Off Ramp	3,400	69	67	66	66	67	68	68	63	42	23	25	24	28	43	67
Washington Blvd Off Ramp to Washington Blvd On Ramp	1,100	69	68	67	68	67	68	68	66	22	15	16	17	21	31	68
Auto Mall Pkwy On Ramp to Washington Blvd Off Ramp	7,200	69	67	67	67	67	68	68	64	22	14	14	16	20	32	67
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,300	69	68	67	68	68	69	68	66	20	11	11	13	16	32	68
SR-262 On Ramp to Auto Mall Pkwy Off Ramp	5,600	68	65	62	63	65	66	66	60	25	12	11	14	17	36	65
SR-262 Off Ramp to SR-262 On Ramp	3,400	69	68	68	65	65	69	69	66	47	15	8	33	41	61	68
Scott Creek Rd On Ramp to SR-262 Off Ramp	8,400	69	67	66	59	48	68	69	68	67	61	40	66	68	68	69
Scott Creek Rd Off Ramp to Scott Creek Rd On Ramp	3,400	69	68	67	67	68	69	69	69	68	68	69	68	68	68	69
Jacklin Rd On Ramp to Scott Creek Rd Off Ramp	5,000	68	67	66	63	67	69	69	69	68	68	68	68	68	68	69
Jacklin Rd Off Ramp to Jacklin Rd On Ramp	3,300	69	67	66	66	67	69	69	68	68	68	68	68	68	69	69
E Calaveras Blvd On Ramp to Jacklin Rd Off Ramp	1,100	68	67	64	65	66	68	68	68	67	67	68	66	67	68	69
E Calaveras Blvd Off Ramp to E Calaveras Blvd On Ramp	4,900	68	67	65	66	67	68	68	68	68	68	68	68	68	68	69

TRAVEL TIME (MIN) // I-680 Northbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Washington Blvd On Ramp to Mission Blvd Off Ramp	3,400	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.9	1.7	1.6	1.6	1.4	0.9	0.6
Washington Blvd Off Ramp to Washington Blvd On Ramp	1,100	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.8	0.7	0.7	0.6	0.4	0.2
Auto Mall Pkwy On Ramp to Washington Blvd Off Ramp	7,200	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	3.7	5.8	5.6	5.1	4.1	2.6	1.2
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,300	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.7	1.3	1.3	1.1	0.9	0.5	0.2
SR-262 On Ramp to Auto Mall Pkwy Off Ramp	5,600	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.1	2.6	5.1	5.7	4.7	3.8	1.8	1.0
SR-262 Off Ramp to SR-262 On Ramp	3,400	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.8	2.5	4.6	1.2	0.9	0.6	0.6
Scott Creek Rd On Ramp to SR-262 Off Ramp	8,400	1.4	1.4	1.4	1.6	2.0	1.4	1.4	1.4	1.4	1.6	2.4	1.4	1.4	1.4	1.4
Scott Creek Rd Off Ramp to Scott Creek Rd On Ramp	3,400	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Jacklin Rd On Ramp to Scott Creek Rd Off Ramp	5,000	0.8	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Jacklin Rd Off Ramp to Jacklin Rd On Ramp	3,300	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
E Calaveras Blvd On Ramp to Jacklin Rd Off Ramp	1,100	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
E Calaveras Blvd Off Ramp to E Calaveras Blvd On Ramp	4,900	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Total Travel Time (minutes)	**48,100**	**8**	**8**	**8**	**8**	**9**	**8**	**8**	**8**	**14**	**22**	**25**	**19**	**16**	**11**	**8**

Legend

0 - 35 mph
36 - 55 mph
+56 mph

APPENDIX A
I-680 SB VISSIM SPEEDS (MPH) AND TRAVEL TIME (MIN)

SPEED (MPH) // I-680 Southbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Mission Blvd On Ramp to Washington Blvd Off Ramp	3,700	67	65	62	60	47	67	68	68	68	68	68	68	68	69	69
Washington Blvd Off Ramp to On Ramp	1,800	67	66	65	62	36	67	68	69	69	69	69	69	69	69	69
Washington Blvd On Ramp to Auto Mall Pkwy Off Ramp	5,800	67	67	67	55	27	46	68	69	69	69	69	69	69	69	69
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,800	68	67	65	42	36	47	68	69	69	69	69	69	69	69	70
Auto Mall Pkwy On Ramp to SR262 Off Ramp	5,400	67	67	60	39	41	44	62	68	69	68	68	68	69	69	69
SR262 Off Ramp to SR 262 On Ramp	4,200	69	69	68	67	68	68	69	69	69	69	69	69	69	69	70
SR262 On Ramp to Scott Creek Rd Off Ramp	8,300	69	68	68	68	67	68	69	69	69	69	69	68	69	69	69
Scott Creek Rd Off Ramp to On Ramp	3,000	69	69	68	68	67	68	69	69	69	68	68	68	69	69	69
Scott Creek Rd On Ramp to Jacklin Rd Off Ramp	5,500	69	69	68	68	68	69	69	69	69	68	68	68	69	69	70
Jacklin Rd Off Ramp to Jacklin Rd On Ramp	3,000	68	67	66	66	66	67	68	69	68	67	67	67	68	68	69
Jacklin Rd On Ramp to CA-237 Off Ramp	600	69	67	61	62	64	65	67	66	66	65	67	66	67	67	68
CA-237 Off Ramp to CA-237 On Ramp	4,900	70	68	67	68	67	68	68	68	67	66	55	28	57	69	69

TRAVEL TIME (MIN) // I-680 Southbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Mission Blvd On Ramp to Washington Blvd Off Ramp	3,700	0.6	0.6	0.7	0.7	0.9	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Washington Blvd Off Ramp to On Ramp	1,800	0.3	0.3	0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Washington Blvd On Ramp to Auto Mall Pkwy Off Ramp	5,800	1.0	1.0	1.0	1.2	2.5	1.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,800	0.3	0.3	0.3	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Auto Mall Pkwy On Ramp to SR262 Off Ramp	5,400	0.9	0.9	1.0	1.6	1.5	1.4	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
SR262 Off Ramp to SR 262 On Ramp	4,200	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
SR262 On Ramp to Scott Creek Rd Off Ramp	8,300	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Scott Creek Rd Off Ramp to On Ramp	3,000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Scott Creek Rd On Ramp to Jacklin Rd Off Ramp	5,500	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Jacklin Rd Off Ramp to Jacklin Rd On Ramp	3,000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Jacklin Rd On Ramp to CA-237 Off Ramp	600	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CA-237 Off Ramp to CA-237 On Ramp	4,900	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0	2.0	1.0	0.8	0.8
Total Travel Time (minutes)	**48,000**	**8**	**8**	**8**	**9**	**11**	**9**	**8**	**8**	**8**	**8**	**8**	**9**	**8**	**8**	**8**

Legend

0 - 35 mph
36 - 55 mph
+56 mph

APPENDIX A

I-880 NB VISSIM SPEEDS (MPH) AND TRAVEL TIME (MIN)

SPEED (MPH) // I-880 Northbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Auto Mall Pkwy On Ramp to Stevenson Blvd Off Ramp	5,000	69	66	65	66	67	68	68	66	61	54	54	55	55	55	60
Auto Mall Pkwy On Ramp to Auto Mall Pkwy On Ramp	1,000	69	68	68	68	68	68	67	66	65	21	19	20	20	19	33
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,400	69	68	68	68	69	69	69	68	68	21	17	18	18	18	30
Fremont Blvd On Ramp to Auto Mall Pkwy Off Ramp	4,700	74	71	71	71	72	73	73	72	71	42	29	29	29	29	46
Fremont Blvd On Ramp to Fremont Blvd On Ramp	1,000	69	68	67	68	68	68	67	67	66	39	20	19	19	24	44
Fremont Blvd Off Ramp to Fremont Blvd On Ramp	1,400	69	68	67	68	68	68	68	68	66	44	20	19	18	27	48
SR-262 On Ramp to Fremont Blvd Off Ramp	1,500	68	65	63	65	65	65	66	64	60	48	29	27	26	33	53
SR-262 On Ramp to SR-262 On Ramp	1,500	69	68	66	67	68	68	68	67	64	35	19	15	17	26	44
SR-262 Off Ramp to SR-262 On Ramp	1,800	69	69	67	68	69	69	69	68	67	29	16	14	14	41	52
SR-262 Off Ramp to SR-262 Off Ramp	1,100	69	68	65	63	67	68	68	67	66	32	17	14	15	58	66
Dixon Landing On Ramp to SR-262 Off Ramp	6,900	73	72	72	71	72	72	72	72	69	48	17	18	21	72	72
Dixon Landing Rd Off Ramp to Dixon Landing On Ramp	4,300	69	69	68	68	69	69	69	68	68	67	29	13	24	68	69
CA-237 On Ramp to Dixon Landing Rd Off Ramp	5,700	69	69	68	68	69	69	69	69	68	67	67	67	68	69	69
CA-237 On Ramp to CA-237 On Ramp	2,500	68	68	67	67	68	68	68	68	68	66	66	67	68	68	69
CA-237 Off Ramp to CA-237 On Ramp	1,500	69	68	68	68	69	69	69	68	68	67	68	68	68	69	69

TRAVEL TIME (MIN) // I-880 Northbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Auto Mall Pkwy On Ramp to Stevenson Blvd Off Ramp	5,000	0.8	0.9	0.9	0.9	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.0	0.9
Auto Mall Pkwy On Ramp to Auto Mall Pkwy On Ramp	1,000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	0.6	0.6	0.6	0.6	0.3
Auto Mall Pkwy Off Ramp to Auto Mall Pkwy On Ramp	1,400	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.8	0.9	0.9	0.9	0.9	0.5
Fremont Blvd On Ramp to Auto Mall Pkwy Off Ramp	4,700	0.7	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.8	1.3	1.9	1.9	1.8	1.8	1.1
Fremont Blvd On Ramp to Fremont Blvd On Ramp	1,000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.6	0.6	0.6	0.5	0.3
Fremont Blvd Off Ramp to Fremont Blvd On Ramp	1,400	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.8	0.9	0.9	0.6	0.3
SR-262 On Ramp to Fremont Blvd Off Ramp	1,500	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	0.6	0.6	0.5	0.3
SR-262 On Ramp to SR-262 On Ramp	1,500	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.9	1.1	1.1	0.7	0.4
SR-262 Off Ramp to SR-262 On Ramp	1,800	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	1.3	1.5	1.4	0.5	0.4
SR-262 Off Ramp to SR-262 Off Ramp	1,100	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.8	0.9	0.9	0.2	0.2
Dixon Landing On Ramp to SR-262 Off Ramp	6,900	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6	4.7	4.3	3.7	1.1	1.1
Dixon Landing Rd Off Ramp to Dixon Landing On Ramp	4,300	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.7	3.9	2.0	0.7	0.7
CA-237 On Ramp to Dixon Landing Rd Off Ramp	5,700	0.9	0.9	1.0	1.0	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9
CA-237 On Ramp to CA-237 On Ramp	2,500	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CA-237 Off Ramp to CA-237 On Ramp	1,500	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total Travel Time (minutes)	**41,300**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**10**	**17**	**20**	**17**	**11**	**8**

Legend

0 - 35 mph

36 - 55 mph

+56 mph

APPENDIX A
I-880 SB VISSIM SPEEDS (MPH) AND TRAVEL TIME (MIN)

SPEED (MPH) // I-880 Southbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Stevenson Blvd On Ramp to Auto Mall Pkwy Off Ramp	5,400	66	52	46	46	57	62	63	67	67	67	67	67	67	69	69
Auto Mall Pkwy Off Ramp to On Ramp	1,400	68	67	66	61	66	67	68	69	69	69	69	69	68	69	70
Auto Mall Pkwy On Ramp to On Ramp	1,000	67	62	58	51	62	66	67	68	68	67	68	68	68	69	69
Auto Mall Pkwy On Ramp to Fremont Blvd / Cushing Pkwy Off Ramp	5,500	68	66	62	47	59	67	67	68	68	68	68	68	68	69	69
Fremont Blvd / Cushing Pkwy Off Ramp to On Ramp	1,300	68	66	37	24	38	67	68	68	68	68	68	68	68	69	69
Fremont Blvd / Cushing Pkwy On Ramp to On Ramp	1,500	67	62	44	38	48	62	66	67	66	65	66	65	66	69	69
Fremont Blvd / Cushing Pkwy On Ramp to SR-262 Off Ramp	1,400	68	65	59	58	61	65	66	67	67	65	66	57	66	68	69
SR-262 / Mission Blvd Off Ramp to On Ramp	2,600	69	67	65	65	67	68	68	69	68	68	69	68	68	69	70
SR-262 / Mission Blvd On Ramp to On Ramp	1,700	68	67	66	65	68	68	68	68	68	67	68	67	66	69	69
SR-262 / Mission Blvd On Ramp to Dixon Landing Rd Off Ramp	7,400	68	67	67	29	25	61	67	69	68	69	69	69	68	69	69
Dixon Landing Rd Off Ramp to On Ramp	2,000	68	67	56	18	20	67	68	68	68	68	68	68	68	69	69
Dixon Landing Rd On Ramp to On Ramp	1,000	67	64	44	24	18	64	66	68	67	68	68	68	68	68	69
Dixon Landing Rd On Ramp to CA-237 HOV Off Ramp	5,100	68	67	40	29	31	64	68	69	68	64	68	68	68	69	70
CA-237 HOV Off Ramp to CA-237 GP Off Ramp	1,100	66	63	43	42	43	61	62	69	68	66	68	68	68	69	70
CA-237 GP Off Ramp to Calaveras Off Ramp	1,300	69	67	66	65	67	67	65	68	68	67	68	67	67	69	69
Calaveras Off Ramp to CA-237 On Ramp	4,700	68	67	62	61	63	66	66	68	68	67	68	67	67	69	69

TRAVEL TIME (MIN) // I-880 Southbound

Segment Name	Segment Length (ft)	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Stevenson Blvd On Ramp to Auto Mall Pkwy Off Ramp	5,400	0.9	1.2	1.3	1.4	1.1	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Auto Mall Pkwy Off Ramp to On Ramp	1,400	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Auto Mall Pkwy On Ramp to On Ramp	1,000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Auto Mall Pkwy On Ramp to Fremont Blvd / Cushing Pkwy Off Ramp	5,500	0.9	1.0	1.0	1.3	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Fremont Blvd / Cushing Pkwy Off Ramp to On Ramp	1,300	0.2	0.2	0.4	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Fremont Blvd / Cushing Pkwy On Ramp to On Ramp	1,500	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2
Fremont Blvd / Cushing Pkwy On Ramp to SR-262 Off Ramp	1,400	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2
SR-262 / Mission Blvd Off Ramp to On Ramp	2,600	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
SR-262 / Mission Blvd On Ramp to On Ramp	1,700	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
SR-262 / Mission Blvd On Ramp to Dixon Landing Rd Off Ramp	7,400	1.2	1.3	1.3	3.0	3.4	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Dixon Landing Rd Off Ramp to On Ramp	2,000	0.3	0.3	0.4	1.2	1.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Dixon Landing Rd On Ramp to On Ramp	1,000	0.2	0.2	0.3	0.5	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Dixon Landing Rd On Ramp to CA-237 HOV Off Ramp	5,100	0.8	0.9	1.4	2.0	1.8	0.9	0.9	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8
CA-237 HOV Off Ramp to CA-237 GP Off Ramp	1,100	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CA-237 GP Off Ramp to Calaveras Off Ramp	1,300	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Calaveras Off Ramp to CA-237 On Ramp	4,700	0.8	0.8	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Total Travel Time (minutes)	**44,400**	**7**	**8**	**9**	**13**	**13**	**8**	**8**	**7**	**7**	**8**	**7**	**7**	**7**	**7**	**7**

Legend

- 0 - 35 mph
- 36 - 55 mph
- +56 mph

Appendix B:
Freeway Mainline Count Volume for I-680 and I-880

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM

Ramp Hourly Traffic Volumes

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM

Mainline Hourly Traffic Volumes

Figure B1

I-680 Southbound
AM Mainline and Ramp Count Volumes

SB I-680

361 | 368 | 371 | 458 | 731 | 563 | 269 | 146 — Mission Blvd Off-ramp *(North of Study Corridor)*

285 | 288 | 355 | 172 | 206 | 254 | 184 | 159 — Mission Blvd On-ramp *(North of Study Corridor)*

3674 | 3997 | 4083 | 4342 | 5012 | 3866 | 2621 | 1884

198 | 246 | 303 | 447 | 726 | 472 | 214 | 127 — Washington Blvd Off-ramp

237 | 277 | 301 | 275 | 296 | 255 | 217 | 159 — Washington Blvd On-ramp

551 | 574 | 509 | 773 | 731 | 486 | 352 | 223 — Auto Mall Pkwy Off-ramp

349 | 510 | 716 | 671 | 790 | 586 | 397 | 252 — Auto Mall Pkwy On-ramp

1292 | 1260 | 1151 | 1138 | 1008 | 1010 | 833 | 684 — Mission Blvd Off-ramp (262)

2219 | 2704 | 3137 | 2930 | 3633 | 2739 | 1836 | 1261

609 | 847 | 1155 | 1089 | 1084 | 1012 | 706 | 544 — Mission Blvd On-ramp (262)

263 | 247 | 248 | 271 | 362 | 270 | 201 | 125 — Scott Creek Rd Off-ramp

383 | 816 | 908 | 709 | 741 | 653 | 400 | 262 — Scott Creek Rd On-ramp

173 | 187 | 230 | 289 | 514 | 427 | 171 | 135 — Jacklin Rd Off-ramp

451 | 539 | 575 | 434 | 422 | 469 | 445 | 338 — Jacklin Rd On-ramp (680)

3226 | 4472 | 5297 | 4602 | 5004 | 4176 | 3015 | 2145

424 | 436 | 489 | 492 | 795 | 605 | 377 | 245 — E Calaveras Blvd Off-ramp

927 | 1211 | 1141 | 851 | 705 | 656 | 893 | 725 — E Calaveras Blvd On-ramp

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Ramp Hourly Traffic Volumes

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Mainline Hourly Traffic Volumes

Figure B2

I-680 Southbound
PM Mainline and Ramp Count Volumes

NB I-680

107 | 241 | 467 | 626 | 553 | 334 | 404 — Mission Blvd On-ramp (North of Study Corridor)

109 | 292 | 407 | 373 | 302 | 269 | 255 — Mission Blvd Off-ramp (North of Study Corridor)

2355 | 4333 | 5036 | 5139 | 4047 | 3512 | 3486

139 | 342 | 681 | 807 | 492 | 279 | 243 — Washington Blvd On-ramp

95 | 257 | 490 | 445 | 353 | 238 | 211 — Washington Blvd Off-ramp

297 | 610 | 555 | 448 | 404 | 400 | 446 — Auto Mall Pkwy On-ramp

173 | 275 | 460 | 573 | 268 | 93 | 130 — Auto Mall Pkwy Off-ramp

582 | 1011 | 1205 | 1173 | 1010 | 1021 | 1205 — Mission Blvd On-ramp (262)

868 | 1382 | 1530 | 1397 | 1400 | 732 | 554 — Mission Blvd Off-ramp (262)

2473 | 4284 | 5075 | 5126 | 4162 | 2875 | 2487

54 | 126 | 318 | 265 | 198 | 206 | 206 — Scott Creek Rd On-ramp

708 | 693 | 806 | 1021 | 648 | 254 | 182 — Scott Creek Rd Off-ramp

102 | 211 | 343 | 406 | 173 | 117 | 162 — Jacklin Rd On-ramp

133 | 212 | 555 | 431 | 391 | 325 | 331 — Jacklin Rd Off-ramp (680)

3158 | 4852 | 5775 | 5907 | 4830 | 3131 | 2632

189 | 294 | 542 | 514 | 382 | 208 | 373 — E Calaveras Blvd On-ramp

505 | 677 | 1044 | 1020 | 639 | 573 | 810 — E Calaveras Blvd Off-ramp

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM
Ramp Hourly Traffic Volumes

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM
Mainline Hourly Traffic Volumes

Figure B3

I-680 Northbound
AM Mainline and Ramp Count Volumes

NB I-680

555 | 1108 | 1143 | 1123 | 1078 | 838 | 584 | 411 — Mission Blvd On-ramp *(North of Study Corridor)*

233 | 107 | 65 | 49 | 56 | 152 | 232 | 202 — Mission Blvd Off-ramp *(North of Study Corridor)*

4671 | 4700 | 4900 | 4600 | 4600 | 4600 | 4900 | 4032

386 | 882 | 1109 | 970 | 801 | 497 | 305 | 214 — Washington Blvd On-ramp

435 | 67 | 28 | 23 | 32 | 131 | 225 | 223 — Washington Blvd Off-ramp

508 | 859 | 639 | 732 | 742 | 714 | 587 | 418 — Auto Mall Pkwy On-ramp

372 | 168 | 153 | 95 | 145 | 188 | 191 | 134 — Auto Mall Pkwy Off-ramp

1613 | 961 | 648 | 508 | 489 | 677 | 1005 | 1409 — Mission Blvd On-ramp

583 | 1008 | 1367 | 1816 | 2077 | 1281 | 1104 | 323 — Mission Blvd Off-ramp

3554 | 4145 | 3906 | 4179 | 4626 | 4570 | 3999 | 2540

385 | 466 | 464 | 426 | 531 | 694 | 539 | 259 — Scott Creek Rd On-ramp

321 | 425 | 352 | 356 | 491 | 445 | 231 | 135 — Scott Creek Rd Off-ramp

199 | 198 | 170 | 173 | 215 | 177 | 147 | 138 — Jacklin Rd On-ramp

385 | 515 | 552 | 507 | 812 | 849 | 495 | 325 — Jacklin Rd Off-ramp

3676 | 4421 | 4176 | 4443 | 5183 | 4993 | 4039 | 2603

613 | 582 | 850 | 768 | 983 | 744 | 593 | 450 — E Calaveras Blvd On-ramp

846 | 865 | 739 | 870 | 914 | 734 | 672 | 501 — E Calaveras Blvd Off-ramp

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Ramp Hourly Traffic Volumes

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Mainline Hourly Traffic Volumes

Figure B4

I-680 Northbound
PM Mainline and Ramp Count Volumes

SB I-880

356 | 374 | 369 | 452 | 449 | 466 | 694	Stevenson Blvd Off-ramp	
137 | 233 | 391 | 383 | 355 | 312 | 446	Stevenson Blvd On-ramp	
124 | 207 | 357 | 356 | 228 | 186 | 400	Stevenson Blvd On-ramp	
		5805 | 6997 | 7181 | 7224 | 7043 | 7014 | 6311
746 | 823 | 769 | 780 | 814 | 971 | 1410	Auto Mall Pkwy Off-ramp	
288 | 435 | 643 | 594 | 385 | 195 | 279	Auto Mall Pkwy On-ramp	
141 | 191 | 255 | 311 | 196 | 244 | 501	Auto Mall Pkwy On-ramp	
0 | 0 | 0 | 0 | 0 | 0 | 0	CHP Off-ramp	
0 | 0 | 0 | 0 | 0 | 0 | 0	CHP On-ramp	
629 | 427 | 332 | 417 | 365 | 233 | 312	Fremont Blvd Off-ramp	
202 | 369 | 449 | 472 | 255 | 152 | 213	Fremont Blvd On-ramp	
		5061 | 6742 | 7361 | 7399 | 6771 | 6401 | 5582
88 | 224 | 401 | 492 | 438 | 261 | 332	Fremont Blvd On-ramp	
621 | 729 | 883 | 1154 | 1499 | 1240 | 981	Mission Blvd/Warren Ave Off-ramp	
96 | 242 | 250 | 337 | 199 | 226 | 292	Warren Ave On-ramp	
1417 | 1380 | 1566 | 1689 | 1287 | 1511 | 1445	Mission Blvd On-ramp	
139 | 202 | 373 | 430 | 366 | 466 | 331	Dixon Landing Rd Off-ramp	
724 | 1084 | 1338 | 1313 | 1005 | 504 | 772	Dixon Landing Rd On-ramp	
60 | 82 | 132 | 359 | 322 | 164 | 170	Dixon Landing Rd On-ramp	
654 | 1108 | 1606 | 1619 | 1432 | 1275 | 704	Southbay Fwy/W Calaveras Blvd Off-ramp	
2527 | 2546 | 1894 | 1868 | 2212 | 1819 | 1746	Southbay Fwy/W Calaveras Blvd Off-ramp	
		3505 | 5169 | 6192 | 6250 | 4881 | 4267 | 4831
37 | 95 | 220 | 291 | 246 | 291 | 112	Southbay Fwy/W Calaveras Blvd Off-ramp	
391 | 470 | 535 | 480 | 408 | 422 | 319	Tasman/Great Mall Off-ramp	
386 | 742 | 1003 | 1044 | 833 | 864 | 829	Southbay Fwy/W Calaveras Blvd On-ramp	

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM
Ramp Hourly Traffic Volumes

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM
Mainline Hourly Traffic Volumes

Figure B5

I-880 Southbound
AM Mainline and Ramp Count Volumes

SB I-880

810 | 938 | 894 | 836 | 855 | 957 | 838 | 640 — Stevenson Blvd Off-ramp

436 | 411 | 490 | 417 | 420 | 339 | 229 | 241 — Stevenson Blvd On-ramp

404 | 380 | 465 | 403 | 431 | 340 | 221 | 224 — Stevenson Blvd On-ramp

6039 | 6498 | 5985 | 6071 | 6348 | 5581 | 4310 | 3348

1475 | 1289 | 1304 | 1183 | 1144 | 1296 | 1078 | 681 — Auto Mall Pkwy Off-ramp

244 | 259 | 274 | 205 | 174 | 125 | 132 | 103 — Auto Mall Pkwy On-ramp

664 | 671 | 512 | 555 | 544 | 443 | 361 | 290 — Auto Mall Pkwy On-ramp

0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP Off-ramp

0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP On-ramp

381 | 261 | 222 | 403 | 404 | 205 | 120 | 147 — Fremont Blvd Off-ramp

232 | 277 | 356 | 340 | 337 | 251 | 199 | 115 — Fremont Blvd On-ramp

356 | 391 | 578 | 584 | 781 | 660 | 341 | 188 — Fremont Blvd On-ramp

5679 | 6546 | 6179 | 6169 | 6636 | 5559 | 4145 | 3216

1126 | 1064 | 1246 | 1107 | 1042 | 920 | 745 | 718 — Mission Blvd/Warren Ave Off-ramp (880, 262)

340 | 441 | 423 | 518 | 615 | 617 | 278 | 130 — Warren Ave On-ramp

1302 | 1268 | 1065 | 1156 | 1184 | 1245 | 1095 | 890 — Mission Blvd On-ramp (262)

336 | 332 | 381 | 320 | 387 | 324 | 262 | 168 — Dixon Landing Rd Off-ramp

692 | 690 | 677 | 590 | 780 | 594 | 420 | 312 — Dixon Landing Rd On-ramp

215 | 276 | 299 | 365 | 412 | 310 | 186 | 75 — Dixon Landing Rd On-ramp

6766 | 7825 | 7016 | 7371 | 8198 | 7081 | 5117 | 3737

490 | 414 | 180 | 220 | 318 | 274 | 264 | 150 — Southbay Fwy/W Calaveras Blvd Off-ramp

1572 | 1600 | 1725 | 1778 | 1968 | 1865 | 1171 | 798 — Southbay Fwy/W Calaveras Blvd Off-ramp

78 | 19 | 80 | 177 | 88 | 145 | 43 | 18 — Southbay Fwy/W Calaveras Blvd Off-ramp

980 | 854 | 834 | 902 | 1443 | 978 | 733 | 323 — Tasman/Great Mall Off-ramp

1075 | 1231 | 923 | 752 | 550 | 503 | 733 | 618 — Southbay Fwy/W Calaveras Blvd On-ramp

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Ramp Hourly Traffic Volumes

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Mainline Hourly Traffic Volumes

Figure B6

I-880 Southbound
PM Mainline and Ramp Count Volumes

NB I-880

314 | 520 | 633 | 795 | 752 | 538 | 450	Stevenson Blvd On-ramp	
103 | 134 | 194 | 200 | 170 | 120 | 216	Stevenson Blvd On-ramp	
137 | 286 | 331 | 404 | 322 | 204 | 376	Stevenson Blvd Off-ramp	
		3223 | 5316 | 5833 | 5319 | 4614 | 4929 | 4990
491 | 739 | 926 | 915 | 665 | 505 | 730	Auto Mall Pkwy On-ramp	
58 | 98 | 107 | 126 | 153 | 247 | 521	Auto Mall Pkwy On-ramp	
403 | 476 | 812 | 657 | 600 | 581 | 855	Auto Mall Pkwy Off-ramp	
0 | 0 | 0 | 0 | 0 | 0 | 0	CHP On-ramp	
0 | 0 | 0 | 0 | 0 | 0 | 0	CHP Off-ramp	
199 | 367 | 196 | 154 | 165 | 217 | 179	Fremont Blvd On-ramp	
13 | 55 | 72 | 77 | 60 | 80 | 162	Fremont Blvd On-ramp	
626 | 877 | 1109 | 1105 | 1084 | 742 | 579	Fremont Blvd Off-ramp	
		3491 | 5410 | 6453 | 5809 | 5255 | 5203 | 4832
545 | 976 | 1158 | 982 | 1162 | 730 | 559	Mission Blvd On-ramp (262)	
90 | 260 | 412 | 363 | 306 | 276 | 423	Warren Ave On-ramp	
394 | 320 | 471 | 655 | 583 | 321 | 284	Warren Ave Off-ramp	
523 | 809 | 1123 | 1600 | 1111 | 802 | 1324	Mission Blvd Off-ramp (262)	
116 | 183 | 273 | 311 | 179 | 129 | 206	Dixon Landing Rd On-ramp	
415 | 593 | 873 | 1025 | 750 | 455 | 602	Dixon Landing Rd Off-ramp	
		4072 | 5713 | 7077 | 7433 | 6052 | 5646 | 5854
37 | 105 | 258 | 316 | 602 | 452 | 482	Southbay Fwy/W Calaveras Blvd On-ramp	
645 | 1202 | 1878 | 2223 | 1097 | 1046 | 1080	Southbay Fwy/W Calaveras Blvd On-ramp	
177 | 221 | 279 | 275 | 182 | 211 | 221	Southbay Fwy/W Calaveras Blvd On-ramp	
11 | 22 | 51 | 54 | 35 | 63 | 94	Southbay Fwy/W Calaveras Blvd On-ramp	
479 | 543 | 686 | 736 | 766 | 987 | 1123	Southbay Fwy/W Calaveras Blvd Off-ramp	

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM

Ramp Hourly Traffic Volumes

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM

Mainline Hourly Traffic Volumes

Figure B7

I-880 Northbound
AM Mainline and Ramp Count Volumes

NB I-880

424 | 418 | 348 | 339 | 416 | 282 | 303 | 421 — Stevenson Blvd On-ramp

255 | 338 | 427 | 416 | 499 | 460 | 293 | 198 — Stevenson Blvd On-ramp

409 | 370 | 326 | 266 | 206 | 272 | 310 | 275 — Stevenson Blvd Off-ramp

6296 | 6945 | 6794 | 6856 | 6919 | 6856 | 7130 | 6323

731 | 719 | 677 | 711 | 602 | 581 | 572 | 511 — Auto Mall Pkwy On-ramp

721 | 780 | 539 | 484 | 472 | 486 | 609 | 673 — Auto Mall Pkwy On-ramp

937 | 1270 | 954 | 797 | 609 | 613 | 692 | 588 — Auto Mall Pkwy Off-ramp

0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP On-ramp

0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP Off-ramp

311 | 431 | 292 | 266 | 301 | 404 | 215 | 100 — Fremont Blvd On-ramp

155 | 203 | 264 | 383 | 425 | 477 | 414 | 116 — Fremont Blvd On-ramp

942 | 1281 | 1237 | 991 | 785 | 760 | 862 | 390 — Fremont Blvd Off-ramp

6257 | 7363 | 7566 | 7013 | 6643 | 6173 | 6825 | 4841

654 | 769 | 669 | 710 | 857 | 697 | 653 | 354 — Mission Blvd On-ramp (262)

397 | 498 | 456 | 524 | 610 | 585 | 511 | 276 — Warren Ave On-ramp

372 | 361 | 268 | 168 | 144 | 121 | 203 | 281 — Warren Ave Off-ramp

1692 | 1652 | 1231 | 1108 | 1044 | 1111 | 1419 | 1501 — Mission Blvd Off-ramp (262)

248 | 231 | 182 | 133 | 135 | 151 | 135 | 133 — Dixon Landing Rd On-ramp

1081 | 1327 | 1044 | 1789 | 2339 | 2021 | 1505 | 784 — Dixon Landing Rd Off-ramp

8103 | 9205 | 9036 | 9336 | 8572 | 7832 | 8555 | 6561

1143 | 1411 | 1054 | 1225 | 1183 | 1036 | 1389 | 1010 — Southbay Fwy/W Calaveras Blvd On-ramp

1644 | 2136 | 1971 | 2065 | 2108 | 2056 | 2259 | 1564 — Southbay Fwy/W Calaveras Blvd On-ramp

301 | 289 | 246 | 221 | 172 | 134 | 158 | 207 — Southbay Fwy/W Calaveras Blvd On-ramp

179 | 165 | 187 | 237 | 170 | 107 | 209 | 184 — Southbay Fwy/W Calaveras Blvd On-ramp

1103 | 1019 | 882 | 925 | 1067 | 973 | 877 | 590 — Southbay Fwy/W Calaveras Blvd Off-ramp

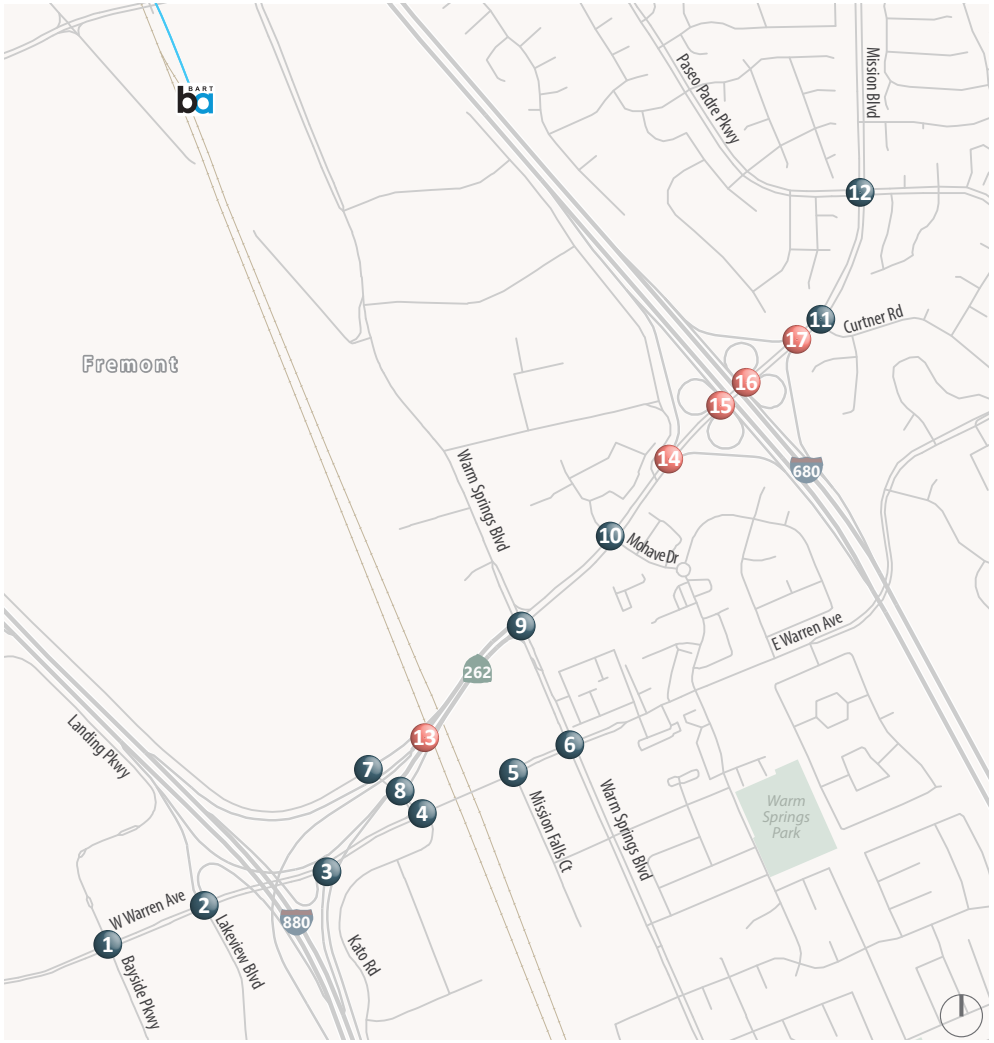
1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Ramp Hourly Traffic Volumes

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Mainline Hourly Traffic Volumes

Figure B8

I-880 Northbound
PM Mainline and Ramp Count Volumes

Appendix C:
Intersection Configuration



Lane Geometry Signalized Intersection STOP Stop Sign

\# Study Intersection

\# Ramp Study Location

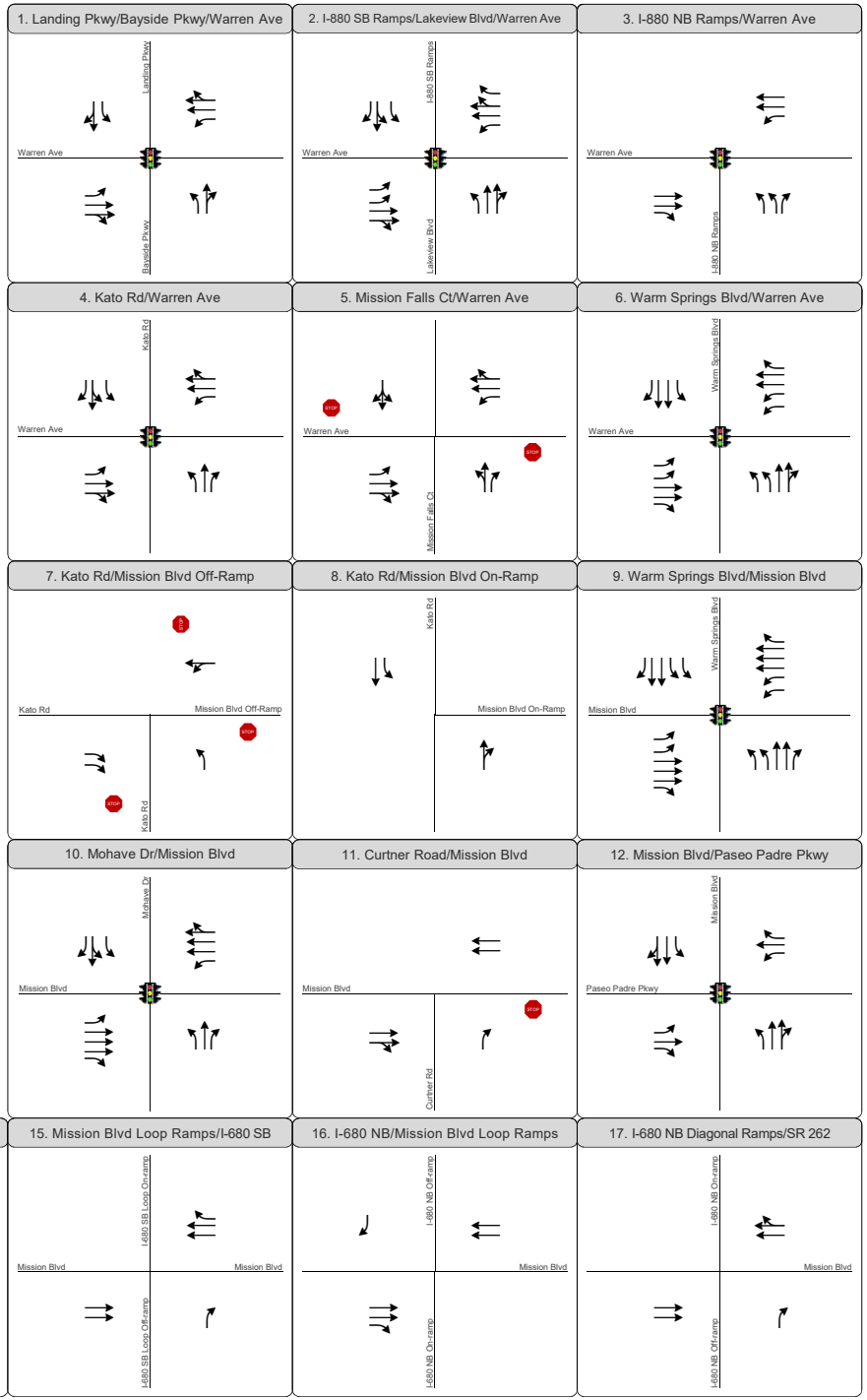


Figure C-1

OK18-0250_B_IntersectionGeo

Existing Conditions Intersection Lane Geometry and Traffic Control

Appendix D:
Intersection Counts and Demand Volumes

APPENDIX D

HOURLY INTERSECTION COUNT AND DEMAND VOLUMES

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 5:00 AM - 6:00 AM															
1	Landing Pkwy	Warren Ave	Count	4	4	4	4	4	4	5	24	4	98	108	67
			Demand	4	4	4	4	4	4	5	24	4	98	108	67
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	4	4	4	280	33	48	8	20	4	70	221	84
			Demand	4	4	4	280	33	48	8	20	4	70	221	84
3	I-880 NB	Warren Ave	Count	126	0	268	0	0	0	0	292	12	78	249	0
			Demand	126	0	268	0	0	0	0	292	12	78	249	0
4	Kato Road	Warren Ave	Count	68	86	10	25	61	86	252	111	197	27	173	70
			Demand	68	86	10	25	61	86	252	111	197	27	173	70
5	Mission Falls Ct	Warren Ave	Count	12	17	0	4	0	4	25	94	27	8	254	36
			Demand	12	17	0	4	0	4	25	94	27	8	254	36
6	Warm Springs Blvd	Warren Ave	Count	166	79	4	4	132	61	22	11	65	12	71	18
			Demand	166	79	4	4	132	61	22	11	65	12	71	18
7	Kato Road	Mission Blvd N	Count	395	0	0	0	0	0	0	0	232	50	243	0
			Demand	395	0	0	0	0	0	0	0	232	50	243	0
8	Kato Road	Mission Blvd S	Count	0	395	13	110	172	0	0	0	0	0	0	0
			Demand	0	395	13	110	172	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	47	54	18	24	55	140	148	660	98	44	2068	137
			Demand	47	54	18	24	55	140	148	660	98	44	2068	137
10	Mohave Drive	Mission Blvd	Count	47	4	25	18	4	25	8	671	23	54	2177	38
			Demand	47	4	25	18	4	25	8	671	23	54	2177	38
11	Curtner Road	Mission Blvd	Count	0	0	4	0	0	0	0	55	4	0	119	0
			Demand	0	0	4	0	0	0	0	55	4	0	119	0
12	Paseo Padre Pkwy	Mission Blvd	Count	16	39	4	9	109	4	0	4	10	0	4	5
			Demand	16	39	4	9	109	4	0	4	10	0	4	5

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 6:00 AM - 7:00 AM															
1	Landing Pkwy	Warren Ave	Count	4	4	22	28	4	5	4	87	7	78	204	54
			Demand	4	4	22	28	4	5	4	87	7	78	204	54
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	7	9	13	192	52	49	40	91	6	85	280	193
			Demand	7	9	13	192	52	49	40	91	6	85	280	193
3	I-880 NB	Warren Ave	Count	143	0	177	0	0	0	0	268	28	232	415	0
			Demand	143	0	177	0	0	0	0	268	28	232	415	0
4	Kato Road	Warren Ave	Count	147	68	56	45	90	210	97	165	183	31	290	26
			Demand	147	68	56	45	90	210	97	165	183	31	290	26
5	Mission Falls Ct	Warren Ave	Count	37	10	8	4	0	4	30	201	35	13	306	17
			Demand	37	10	8	4	0	4	30	201	35	13	306	17
6	Warm Springs Blvd	Warren Ave	Count	159	186	9	20	133	70	83	47	83	22	107	20
			Demand	159	186	9	20	133	70	83	47	83	22	107	20
7	Kato Road	Mission Blvd N	Count	162	0	0	0	0	0	0	0	546	72	123	0
			Demand	162	0	0	0	0	0	0	0	546	72	123	0
8	Kato Road	Mission Blvd S	Count	0	162	29	273	345	0	0	0	0	0	0	0
			Demand	0	162	29	273	345	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	69	167	53	75	85	230	254	1207	86	52	2252	290
			Demand	69	167	53	75	85	230	254	1207	86	52	2252	290
10	Mohave Drive	Mission Blvd	Count	55	15	76	21	13	30	18	1272	45	25	2509	33
			Demand	55	15	76	21	13	30	18	1272	45	25	2509	33
11	Curtner Road	Mission Blvd	Count	0	0	5	0	0	0	0	170	7	0	363	0
			Demand	0	0	5	0	0	0	0	170	7	0	363	0
12	Paseo Padre Pkwy	Mission Blvd	Count	61	110	4	23	304	4	4	4	43	16	4	5
			Demand	61	110	4	23	304	4	4	4	43	16	4	5

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 7:00 AM - 8:00 AM															
1	Landing Pkwy	Warren Ave	Count	4	4	5	39	7	19	8	147	22	99	348	99
			Demand	4	4	5	39	7	19	8	147	22	99	348	99
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	11	16	30	272	77	58	58	120	13	177	477	176
			Demand	11	16	30	272	81	58	58	120	13	177	477	176
3	I-880 NB	Warren Ave	Count	249	0	222	0	0	0	0	395	27	385	581	0
			Demand	249	0	222	0	0	0	0	395	27	385	581	0
4	Kato Road	Warren Ave	Count	158	53	25	16	72	125	115	238	264	51	683	30
			Demand	158	53	25	16	72	125	115	238	264	51	683	30
5	Mission Falls Ct	Warren Ave	Count	46	5	24	4	0	4	29	228	22	12	714	28
			Demand	46	5	24	4	0	4	29	228	22	12	714	28
6	Warm Springs Blvd	Warren Ave	Count	397	439	36	37	275	101	90	46	120	51	256	68
			Demand	397	439	36	37	286	101	90	46	120	51	256	68
7	Kato Road	Mission Blvd N	Count	177	0	0	0	0	0	0	0	153	105	100	0
			Demand	177	0	0	0	0	0	0	0	153	105	100	0
8	Kato Road	Mission Blvd S	Count	0	177	21	45	213	0	0	0	0	0	0	0
			Demand	0	177	21	45	213	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	181	314	102	109	195	318	302	1236	127	91	2430	327
			Demand	181	314	102	109	195	318	304	1238	128	101	2550	347
10	Mohave Drive	Mission Blvd	Count	79	23	105	20	41	47	15	1385	47	70	2722	44
			Demand	79	23	105	20	41	47	16	1385	48	80	2872	54
11	Curtner Road	Mission Blvd	Count	0	0	11	0	0	0	0	306	28	0	850	0
			Demand	0	0	11	0	0	0	0	306	28	0	850	0
12	Paseo Padre Pkwy	Mission Blvd	Count	100	211	6	62	672	8	4	44	138	40	61	36
			Demand	100	211	6	62	672	8	4	44	138	40	61	36

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 8:00 AM - 9:00 AM															
1	Landing Pkwy	Warren Ave	Count	7	4	18	65	77	80	10	147	48	236	616	119
			Demand	7	4	18	65	77	80	10	147	48	236	616	119
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	14	4	39	351	245	188	51	156	23	293	769	282
			Demand	14	4	39	351	245	188	51	156	23	293	769	282
3	I-880 NB	Warren Ave	Count	352	0	303	0	0	0	0	500	46	317	992	0
			Demand	352	0	303	0	0	0	0	500	46	317	992	0
4	Kato Road	Warren Ave	Count	181	75	54	27	122	171	175	315	316	104	960	53
			Demand	178	75	54	27	122	171	175	315	313	104	960	53
5	Mission Falls Ct	Warren Ave	Count	26	5	13	4	0	5	25	359	12	10	1086	21
			Demand	26	5	13	4	0	5	25	359	12	10	1086	21
6	Warm Springs Blvd	Warren Ave	Count	494	486	124	48	433	161	104	72	200	177	462	78
			Demand	494	486	124	48	443	161	104	72	200	177	462	78
7	Kato Road	Mission Blvd N	Count	269	0	0	0	0	0	0	0	164	186	141	0
			Demand	269	0	0	0	0	0	0	0	164	186	141	0
8	Kato Road	Mission Blvd S	Count	0	269	34	30	320	0	0	0	0	0	0	0
			Demand	0	269	34	30	320	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	178	411	79	122	389	496	388	1495	151	102	2324	283
			Demand	178	411	79	122	389	496	388	1495	151	112	2354	293
10	Mohave Drive	Mission Blvd	Count	88	55	141	35	65	59	22	1589	70	66	2547	58
			Demand	93	55	141	35	65	69	37	1589	70	76	2597	68
11	Curtner Road	Mission Blvd	Count	0	0	11	0	0	0	0	404	43	0	1222	0
			Demand	0	0	11	0	0	0	0	404	43	0	1222	0
12	Paseo Padre Pkwy	Mission Blvd	Count	141	263	11	119	921	17	10	109	248	53	98	66
			Demand	141	263	11	119	921	17	10	109	248	53	98	66

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 9:00 AM - 10:00 AM															
1	Landing Pkwy	Warren Ave	Count	15	5	25	42	40	43	14	159	44	266	617	116
			Demand	15	5	25	42	40	43	14	159	44	266	617	116
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	27	8	45	381	260	260	46	160	20	265	712	145
			Demand	27	8	45	381	256	260	46	160	20	265	712	145
3	I-880 NB	Warren Ave	Count	354	0	229	0	0	0	0	529	57	249	768	0
			Demand	354	0	229	0	0	0	0	529	57	249	768	0
4	Kato Road	Warren Ave	Count	152	53	34	18	122	181	139	251	368	100	684	33
			Demand	152	53	34	18	122	181	139	251	368	100	684	33
5	Mission Falls Ct	Warren Ave	Count	21	4	22	4	0	4	21	267	15	42	792	5
			Demand	21	4	22	4	0	4	21	267	15	42	792	5
6	Warm Springs Blvd	Warren Ave	Count	313	362	26	52	332	224	113	55	125	97	302	47
			Demand	313	362	26	52	331	224	113	55	125	97	302	47
7	Kato Road	Mission Blvd N	Count	188	0	0	0	0	0	0	0	144	208	94	0
			Demand	188	0	0	0	0	0	0	0	144	208	94	0
8	Kato Road	Mission Blvd S	Count	0	188	37	31	321	0	0	0	0	0	0	0
			Demand	0	188	37	31	321	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	154	265	103	106	273	355	206	1414	157	178	2242	212
			Demand	154	265	103	106	273	355	204	1412	156	178	2242	212
10	Mohave Drive	Mission Blvd	Count	84	24	94	39	27	46	30	1554	39	84	2502	46
			Demand	84	24	94	39	27	46	29	1554	38	84	2502	46
11	Curtner Road	Mission Blvd	Count	0	0	31	0	0	0	0	297	41	0	1094	0
			Demand	0	0	31	0	0	0	0	297	41	0	1094	0
12	Paseo Padre Pkwy	Mission Blvd	Count	93	229	6	89	785	14	4	76	244	65	40	54
			Demand	93	229	6	89	785	14	4	76	244	65	40	54

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 10:00 AM - 11:00 AM															
1	Landing Pkwy	Warren Ave	Count	10	7	39	64	5	14	11	198	30	108	298	62
			Demand	10	7	39	64	5	14	11	198	30	108	298	62
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	12	15	59	236	87	87	53	203	45	101	369	158
			Demand	12	15	59	236	87	87	53	203	45	101	369	158
3	I-880 NB	Warren Ave	Count	186	0	135	0	0	0	0	431	67	209	442	0
			Demand	186	0	135	0	0	0	0	431	67	209	442	0
4	Kato Road	Warren Ave	Count	132	68	64	23	90	110	80	296	190	68	409	13
			Demand	132	68	64	23	90	110	80	296	190	68	409	13
5	Mission Falls Ct	Warren Ave	Count	31	4	17	10	0	4	11	350	22	31	455	10
			Demand	31	4	17	10	0	4	11	350	22	31	455	10
6	Warm Springs Blvd	Warren Ave	Count	181	252	21	76	264	128	146	88	143	58	187	38
			Demand	181	252	21	76	254	128	146	88	143	58	187	38
7	Kato Road	Mission Blvd N	Count	120	0	0	0	0	0	0	0	167	107	58	0
			Demand	120	0	0	0	0	0	0	0	167	107	58	0
8	Kato Road	Mission Blvd S	Count	0	120	41	51	223	0	0	0	0	0	0	0
			Demand	0	120	41	51	223	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	132	219	85	112	200	303	232	1359	133	135	1971	161
			Demand	132	219	85	112	200	303	232	1359	133	125	1931	161
10	Mohave Drive	Mission Blvd	Count	79	28	83	32	29	49	45	1471	40	95	2139	46
			Demand	79	28	83	32	29	49	45	1471	40	85	2089	36
11	Curtner Road	Mission Blvd	Count	0	0	10	0	0	0	0	250	26	0	718	0
			Demand	0	0	10	0	0	0	0	250	26	0	718	0
12	Paseo Padre Pkwy	Mission Blvd	Count	60	195	5	34	537	4	6	24	132	49	28	35
			Demand	60	195	5	34	537	4	6	24	132	49	28	35

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 11:00 AM - 12:00 PM															
1	Landing Pkwy	Warren Ave	Count	30	29	96	65	6	14	24	248	25	89	328	55
			Demand	30	29	96	65	6	14	24	248	25	89	328	55
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	17	31	121	273	61	83	99	296	14	74	372	162
			Demand	17	31	121	273	61	83	99	296	14	74	372	162
3	I-880 NB	Warren Ave	Count	146	0	138	0	0	0	0	564	126	297	462	0
			Demand	146	0	138	0	0	0	0	564	126	297	462	0
4	Kato Road	Warren Ave	Count	230	70	121	26	80	107	64	462	176	73	422	17
			Demand	230	70	121	26	80	107	64	462	176	73	422	17
5	Mission Falls Ct	Warren Ave	Count	38	4	17	4	0	7	18	550	41	31	467	7
			Demand	38	4	17	4	0	7	18	550	41	31	467	7
6	Warm Springs Blvd	Warren Ave	Count	188	318	32	120	289	162	246	120	205	61	155	41
			Demand	188	318	32	120	279	162	246	120	205	61	155	41
7	Kato Road	Mission Blvd N	Count	102	0	0	0	0	0	0	0	190	73	74	0
			Demand	102	0	0	0	0	0	0	0	190	73	74	0
8	Kato Road	Mission Blvd S	Count	0	102	49	50	213	0	0	0	0	0	0	0
			Demand	0	102	49	50	213	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	183	338	84	160	247	301	273	1515	199	125	1667	164
			Demand	183	338	84	160	247	301	273	1515	199	115	1537	154
10	Mohave Drive	Mission Blvd	Count	86	55	105	42	33	55	62	1649	48	109	1815	58
			Demand	86	55	105	42	33	55	62	1649	48	99	1665	48
11	Curtner Road	Mission Blvd	Count	0	0	14	0	0	0	0	322	27	0	525	0
			Demand	0	0	14	0	0	0	0	322	27	0	525	0
12	Paseo Padre Pkwy	Mission Blvd	Count	79	242	15	42	399	5	6	30	85	41	47	39
			Demand	79	242	15	42	399	5	6	30	85	41	47	39

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 1:00 PM - 2:00 PM															
1	Landing Pkwy	Warren Ave	Count	16	18	58	112	11	26	12	275	28	125	274	87
			Demand	16	18	58	112	11	26	12	275	28	125	274	87
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	16	25	98	334	89	96	140	288	17	128	374	175
			Demand	16	25	98	334	89	96	140	288	17	128	374	175
3	I-880 NB	Warren Ave	Count	176	0	196	0	0	0	0	612	108	289	501	0
			Demand	176	0	196	0	0	0	0	612	108	289	501	0
4	Kato Road	Warren Ave	Count	171	71	91	52	123	139	80	471	257	95	480	22
			Demand	171	71	91	52	123	139	80	471	257	95	480	22
5	Mission Falls Ct	Warren Ave	Count	32	0	19	16	0	8	24	565	25	27	557	45
			Demand	32	0	19	16	0	8	24	565	25	27	557	45
6	Warm Springs Blvd	Warren Ave	Count	238	398	37	152	338	208	231	169	200	66	183	43
			Demand	238	398	37	152	348	208	231	169	200	66	183	43
7	Kato Road	Mission Blvd N	Count	133	0	0	0	0	0	0	0	257	107	79	0
			Demand	133	0	0	0	0	0	0	0	257	107	79	0
8	Kato Road	Mission Blvd S	Count	0	133	40	50	314	0	0	0	0	0	0	0
			Demand	0	133	40	50	314	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	199	377	96	152	387	345	274	1862	177	134	1598	157
			Demand	199	377	96	152	387	345	284	1918	187	134	1598	157
10	Mohave Drive	Mission Blvd	Count	68	32	124	63	40	58	45	2023	42	116	1763	54
			Demand	68	32	124	63	40	58	55	2059	52	116	1763	54
11	Curtner Road	Mission Blvd	Count	0	0	10	0	0	0	0	551	36	0	407	0
			Demand	0	0	10	0	0	0	0	717	36	0	407	0
12	Paseo Padre Pkwy	Mission Blvd	Count	136	410	15	26	310	7	4	29	59	38	33	68
			Demand	136	576	15	26	310	7	4	29	59	38	33	68

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 2:00 PM - 3:00 PM															
1	Landing Pkwy	Warren Ave	Count	11	12	121	106	7	13	4	265	14	65	258	45
			Demand	11	12	121	106	7	13	4	265	14	65	258	45
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	14	50	121	365	43	63	162	311	19	75	291	229
			Demand	14	50	121	365	43	63	162	311	19	75	291	229
3	I-880 NB	Warren Ave	Count	117	0	244	0	0	0	0	698	99	399	478	0
			Demand	117	0	244	0	0	0	0	698	99	399	478	0
4	Kato Road	Warren Ave	Count	229	74	103	88	122	194	57	654	231	60	454	23
			Demand	229	74	103	88	122	194	57	654	231	60	454	23
5	Mission Falls Ct	Warren Ave	Count	32	4	14	31	0	33	29	792	24	69	472	18
			Demand	32	4	14	31	0	33	29	792	24	69	472	18
6	Warm Springs Blvd	Warren Ave	Count	204	639	85	163	280	141	256	260	321	107	214	57
			Demand	204	639	85	163	300	141	256	260	321	107	214	57
7	Kato Road	Mission Blvd N	Count	120	0	0	0	0	0	0	0	438	52	66	0
			Demand	120	0	0	0	0	0	0	0	438	52	66	0
8	Kato Road	Mission Blvd S	Count	0	120	34	86	404	0	0	0	0	0	0	0
			Demand	0	120	34	86	404	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	249	562	141	206	308	333	405	1527	169	107	1573	181
			Demand	249	562	141	206	308	333	455	1721	189	107	1573	181
10	Mohave Drive	Mission Blvd	Count	96	56	133	84	64	36	60	1759	55	110	1729	57
			Demand	96	56	133	84	64	36	70	1933	65	110	1729	57
11	Curtner Road	Mission Blvd	Count	0	0	9	0	0	0	0	1092	43	0	385	0
			Demand	0	0	9	0	0	0	0	1186	43	0	385	0
12	Paseo Padre Pkwy	Mission Blvd	Count	245	816	40	43	284	19	6	43	66	35	166	83
			Demand	255	890	50	43	284	19	6	43	66	35	166	83

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 3:00 PM - 4:00 PM															
1	Landing Pkwy	Warren Ave	Count	23	28	90	83	9	8	12	251	7	26	268	51
			Demand	23	28	90	83	9	8	12	251	7	26	268	51
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	29	39	165	441	35	56	129	274	21	37	260	255
			Demand	29	39	165	441	35	56	129	274	21	37	260	255
3	I-880 NB	Warren Ave	Count	70	0	198	0	0	0	0	771	109	347	482	0
			Demand	70	0	198	0	0	0	0	771	109	347	482	0
4	Kato Road	Warren Ave	Count	291	97	143	103	118	187	51	679	239	49	351	17
			Demand	291	97	143	103	118	187	51	679	239	49	351	17
5	Mission Falls Ct	Warren Ave	Count	27	4	6	13	0	17	14	899	12	31	373	6
			Demand	27	4	6	13	0	17	14	899	12	31	373	6
6	Warm Springs Blvd	Warren Ave	Count	183	685	67	169	368	102	258	363	297	79	125	66
			Demand	183	685	67	169	368	102	258	363	297	79	125	66
7	Kato Road	Mission Blvd N	Count	130	0	0	0	0	0	0	0	435	64	70	0
			Demand	130	0	0	0	0	0	0	0	435	64	70	0
8	Kato Road	Mission Blvd S	Count	0	130	35	91	408	0	0	0	0	0	0	0
			Demand	0	130	35	91	408	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	209	686	114	283	360	282	404	1487	180	99	1377	229
			Demand	209	686	114	283	360	282	404	1487	180	99	1377	229
10	Mohave Drive	Mission Blvd	Count	94	61	152	117	56	41	60	1767	57	142	1570	60
			Demand	94	61	152	117	56	41	60	1767	57	142	1570	60
11	Curtner Road	Mission Blvd	Count	0	0	7	0	0	0	0	1408	57	0	500	0
			Demand	0	0	7	0	0	0	0	1408	57	0	500	0
12	Paseo Padre Pkwy	Mission Blvd	Count	243	1111	61	45	354	11	4	67	100	46	229	115
			Demand	243	1111	61	45	354	11	4	67	100	46	229	115

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 4:00 PM - 5:00 PM															
1	Landing Pkwy	Warren Ave	Count	17	109	166	75	8	6	48	366	9	29	255	95
			Demand	17	109	166	75	8	6	48	366	9	29	255	95
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	34	95	285	338	27	51	181	408	18	31	294	242
			Demand	34	95	285	338	27	51	181	408	18	31	294	242
3	I-880 NB	Warren Ave	Count	45	0	123	0	0	0	0	852	179	345	522	0
			Demand	45	0	123	0	0	0	0	852	179	345	522	0
4	Kato Road	Warren Ave	Count	350	232	229	69	103	185	101	675	199	47	332	71
			Demand	350	232	229	69	103	185	101	675	199	47	332	71
5	Mission Falls Ct	Warren Ave	Count	68	5	11	13	0	24	14	935	24	37	358	6
			Demand	68	5	11	13	0	24	14	935	24	37	358	6
6	Warm Springs Blvd	Warren Ave	Count	216	809	116	169	408	96	353	353	253	56	89	54
			Demand	216	809	116	169	408	96	353	353	253	56	89	54
7	Kato Road	Mission Blvd N	Count	349	0	0	0	0	0	0	0	359	68	185	0
			Demand	349	0	0	0	0	0	0	0	359	68	185	0
8	Kato Road	Mission Blvd S	Count	0	349	55	70	357	0	0	0	0	0	0	0
			Demand	0	349	55	70	357	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	274	818	124	323	387	364	313	1448	163	123	1481	233
			Demand	274	818	124	323	387	364	313	1448	163	123	1481	233
10	Mohave Drive	Mission Blvd	Count	105	72	167	98	42	46	80	1752	63	146	1686	59
			Demand	105	72	167	98	42	46	80	1752	63	146	1686	59
11	Curtner Road	Mission Blvd	Count	0	0	8	0	0	0	0	1418	50	0	430	0
			Demand	0	0	8	0	0	0	0	1418	50	0	430	0
12	Paseo Padre Pkwy	Mission Blvd	Count	255	1127	44	45	283	11	4	55	106	41	315	147
			Demand	255	1127	44	45	283	11	4	55	106	41	315	147

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 5:00 PM - 6:00 PM															
1	Landing Pkwy	Warren Ave	Count	17	364	247	129	6	17	164	410	7	23	326	202
			Demand	17	364	247	129	6	17	164	410	7	23	326	202
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	66	97	489	428	31	68	224	551	11	52	417	294
			Demand	66	97	489	428	31	68	224	551	11	52	417	294
3	I-880 NB	Warren Ave	Count	38	0	106	0	0	0	0	1145	323	287	725	0
			Demand	38	0	106	0	0	0	0	1145	323	287	725	0
4	Kato Road	Warren Ave	Count	420	322	379	91	99	276	163	897	191	49	316	67
			Demand	420	322	379	91	99	276	163	897	191	49	316	67
5	Mission Falls Ct	Warren Ave	Count	83	4	13	8	0	13	16	1319	32	25	336	4
			Demand	83	4	13	8	0	13	16	1319	32	25	336	4
6	Warm Springs Blvd	Warren Ave	Count	134	709	70	174	447	92	380	643	317	91	139	68
			Demand	134	709	70	174	447	92	380	643	317	91	139	68
7	Kato Road	Mission Blvd N	Count	446	0	0	0	0	0	0	0	503	58	148	0
			Demand	446	0	0	0	0	0	0	0	503	58	148	0
8	Kato Road	Mission Blvd S	Count	0	446	106	95	466	0	0	0	0	0	0	0
			Demand	0	446	106	95	466	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	225	781	151	357	446	491	234	1342	184	83	1531	202
			Demand	225	781	151	357	446	491	234	1342	184	83	1531	202
10	Mohave Drive	Mission Blvd	Count	167	144	174	107	75	40	143	1643	64	132	1609	75
			Demand	167	144	174	107	75	40	143	1643	64	132	1609	75
11	Curtner Road	Mission Blvd	Count	0	0	8	0	0	0	0	1462	160	0	420	0
			Demand	0	0	8	0	0	0	0	1462	160	0	420	0
12	Paseo Padre Pkwy	Mission Blvd	Count	260	1176	34	61	276	12	4	82	98	46	487	304
			Demand	260	1176	34	61	276	12	4	82	98	46	487	304

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 6:00 PM - 7:00 PM															
1	Landing Pkwy	Warren Ave	Count	18	352	221	114	6	20	103	396	7	17	306	195
			Demand	18	352	221	114	6	20	103	396	7	17	306	195
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	64	73	465	335	18	63	212	509	10	43	391	332
			Demand	64	73	465	335	18	63	212	509	10	43	391	332
3	I-880 NB	Warren Ave	Count	38	0	83	0	0	0	0	1033	276	309	728	0
			Demand	38	0	83	0	0	0	0	1033	276	309	728	0
4	Kato Road	Warren Ave	Count	365	196	350	155	117	349	85	887	144	25	323	30
			Demand	365	196	350	155	117	349	85	887	144	25	323	30
5	Mission Falls Ct	Warren Ave	Count	52	0	9	5	0	7	12	1346	34	13	319	4
			Demand	52	0	9	5	0	7	12	1346	34	13	319	4
6	Warm Springs Blvd	Warren Ave	Count	136	713	80	147	442	96	407	647	306	80	104	71
			Demand	136	713	80	147	442	96	407	647	306	80	104	71
7	Kato Road	Mission Blvd N	Count	216	0	0	0	0	0	0	0	753	32	93	0
			Demand	216	0	0	0	0	0	0	0	753	32	93	0
8	Kato Road	Mission Blvd S	Count	0	216	95	164	621	0	0	0	0	0	0	0
			Demand	0	216	95	164	621	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	189	824	178	389	384	415	281	1430	163	138	1463	318
			Demand	189	824	178	389	384	415	281	1430	163	138	1463	318
10	Mohave Drive	Mission Blvd	Count	127	141	198	100	83	26	157	1763	77	127	1766	57
			Demand	127	141	198	100	83	26	157	1763	77	127	1766	57
11	Curtner Road	Mission Blvd	Count	0	0	6	0	0	0	0	1347	134	0	401	0
			Demand	0	0	6	0	0	0	0	1347	134	0	401	0
12	Paseo Padre Pkwy	Mission Blvd	Count	267	1057	29	42	274	12	4	80	90	37	425	336
			Demand	267	1057	29	42	274	12	4	80	90	37	425	336

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 7:00 PM - 8:00 PM															
1	Landing Pkwy	Warren Ave	Count	7	91	73	68	5	8	38	299	2	7	266	78
			Demand	7	91	73	68	5	8	38	299	4	7	266	78
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	24	47	248	304	13	62	100	333	7	24	265	131
			Demand	24	47	248	304	13	62	100	333	7	24	265	131
3	I-880 NB	Warren Ave	Count	67	0	136	0	0	0	0	662	223	288	353	0
			Demand	67	0	136	0	0	0	0	662	223	288	353	0
4	Kato Road	Warren Ave	Count	196	74	130	21	46	103	43	683	72	20	342	18
			Demand	196	74	130	21	46	103	43	683	72	20	342	18
5	Mission Falls Ct	Warren Ave	Count	33	1	7	3	0	4	4	824	6	7	343	0
			Demand	33	4	6	4	0	4	4	824	6	7	343	0
6	Warm Springs Blvd	Warren Ave	Count	164	683	129	187	325	92	243	369	222	40	94	55
			Demand	164	683	129	187	305	92	243	369	222	40	94	55
7	Kato Road	Mission Blvd N	Count	87	0	0	0	0	0	0	0	167	36	41	0
			Demand	87	0	0	0	0	0	0	0	167	36	41	0
8	Kato Road	Mission Blvd S	Count	0	87	48	33	170	0	0	0	0	0	0	0
			Demand	0	87	48	33	170	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	170	628	183	274	307	336	308	1613	183	114	1319	167
			Demand	170	628	183	274	307	336	268	1435	163	114	1319	167
10	Mohave Drive	Mission Blvd	Count	68	63	118	77	60	24	96	1927	47	107	1508	42
			Demand	68	63	118	77	60	24	96	1749	47	107	1508	42
11	Curtner Road	Mission Blvd	Count	0	0	12	0	0	0	0	1326	50	0	315	0
			Demand	0	0	12	0	0	0	0	1228	50	0	315	0
12	Paseo Padre Pkwy	Mission Blvd	Count	234	1078	26	34	236	10	5	41	52	27	137	178
			Demand	214	1000	26	34	236	10	5	41	52	27	137	178

Intersection ID # and Name			Volume Type	Northbound			Southbound			Eastbound			Westbound		
ID	NB/SB Street	WB/EB/Ramp Street		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Counts and Demand Volume for 8:00 PM - 9:00 PM															
1	Landing Pkwy	Warren Ave	Count	5	6	26	60	2	8	6	204	3	7	190	33
			Demand	5	6	26	60	4	8	6	204	4	7	190	33
2	I-880 SB/Lakeview Blvd	Warren Ave	Count	4	11	51	198	7	49	53	228	9	23	177	66
			Demand	4	11	51	198	7	49	53	228	9	23	177	66
3	I-880 NB	Warren Ave	Count	97	0	184	0	0	0	0	392	85	191	169	0
			Demand	97	0	184	0	0	0	0	392	85	191	169	0
4	Kato Road	Warren Ave	Count	91	44	40	17	22	56	49	451	76	23	213	11
			Demand	91	44	40	17	22	56	49	451	76	23	213	11
5	Mission Falls Ct	Warren Ave	Count	9	0	0	3	0	2	3	499	6	9	236	0
			Demand	7	0	0	4	0	4	4	498	6	9	236	0
6	Warm Springs Blvd	Warren Ave	Count	90	255	38	129	220	101	150	176	176	27	54	28
			Demand	90	255	38	129	210	101	150	176	176	27	54	28
7	Kato Road	Mission Blvd N	Count	66	0	0	0	0	0	0	0	96	35	40	0
			Demand	66	0	0	0	0	0	0	0	96	35	40	0
8	Kato Road	Mission Blvd S	Count	0	66	38	36	95	0	0	0	0	0	0	0
			Demand	0	66	38	36	95	0	0	0	0	0	0	0
9	Warm Springs	Mission Blvd	Count	115	209	109	181	268	247	228	1811	102	80	957	61
			Demand	115	209	109	181	268	247	218	1729	92	80	957	61
10	Mohave Drive	Mission Blvd	Count	46	28	79	70	50	26	46	2002	53	93	1026	39
			Demand	46	28	79	70	50	26	46	1920	53	93	1026	39
11	Curtner Road	Mission Blvd	Count	0	0	6	0	0	0	0	754	36	0	253	0
			Demand	0	0	6	0	0	0	0	712	36	0	253	0
12	Paseo Padre Pkwy	Mission Blvd	Count	168	561	31	23	184	12	6	46	45	24	38	37
			Demand	158	529	31	23	184	12	6	46	45	24	38	37

Appendix E:
Intersection Pedestrian and Bicycle Counts

Appendix E

Pedestrian Counts

ID	Intersection Name	Hour	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
			EB	WB	EB	WB	NB	SB	NB	SB
1	Landing Pkwy/Bayside Pkwy/Warren Ave	5AM	1	0	0	0	0	0	0	1
		6AM	0	0	0	1	0	2	0	1
		7AM	0	2	0	2	0	3	0	1
		8AM	0	2	1	1	0	2	0	5
		9AM	0	1	0	0	0	2	0	0
		10AM	0	0	1	3	3	3	0	0
		11AM	0	0	1	0	1	0	0	0
		1PM	1	0	2	1	2	0	0	0
		2PM	1	0	0	1	0	0	0	0
		3PM	0	0	0	0	0	0	0	1
		4PM	0	0	1	0	1	0	1	0
		5PM	2	2	1	1	2	1	4	2
		6PM	1	0	1	0	1	0	2	0
		7PM	0	0	0	0	0	0	0	0
		8PM	0	0	1	0	0	0	1	0
2	I-880 SB Ramps/Lakeview Blvd/Warren Ave	5AM	0	0	0	0	0	0	0	0
		6AM	0	0	1	0	0	0	0	0
		7AM	0	0	0	0	0	0	0	1
		8AM	0	0	0	0	0	0	0	0
		9AM	0	0	0	0	0	0	0	0
		10AM	0	0	1	1	0	0	0	0
		11AM	0	0	0	0	0	0	0	0
		1PM	0	1	3	1	0	0	0	0
		2PM	1	0	0	0	0	0	0	0
		3PM	0	0	0	0	0	0	0	0
		4PM	0	0	2	0	0	0	0	1
		5PM	0	0	1	0	0	0	0	0
		6PM	0	0	1	1	0	0	0	1
		7PM	0	0	1	0	0	0	0	1
		8PM	0	0	0	0	0	0	0	0
3	I-880 NB Ramps/Warren Ave	5AM	0	0	0	0	0	0	0	0
		6AM	0	0	1	1	0	0	0	0
		7AM	0	0	2	2	0	0	0	0
		8AM	0	0	0	3	0	0	0	0
		9AM	0	0	0	1	0	0	0	0
		10AM	0	0	1	1	0	0	0	0
		11AM	0	0	1	0	0	0	0	0
		1PM	0	0	2	3	0	0	0	0
		2PM	0	0	1	0	0	0	0	0
		3PM	0	0	0	0	0	0	0	0
		4PM	0	0	2	0	0	0	0	0
		5PM	0	0	3	1	0	0	0	0
		6PM	0	0	2	1	0	0	0	0
		7PM	0	0	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0
4	Kato Rd/Warren Ave	5AM	0	0	0	0	1	0	1	0
		6AM	0	0	0	1	0	0	0	0
		7AM	0	0	2	2	0	0	0	0
		8AM	0	0	1	5	0	0	0	0
		9AM	0	0	0	0	0	0	0	0
		10AM	0	0	0	0	0	0	0	0
		11AM	0	0	0	0	0	0	0	0
		1PM	0	0	1	3	0	0	0	0
		2PM	1	0	1	0	0	0	0	0
		3PM	0	0	1	0	0	0	0	0
		4PM	0	0	3	2	0	0	2	1
		5PM	0	0	2	1	0	0	1	0
		6PM	0	0	9	1	0	0	0	0
		7PM	0	0	1	1	0	0	0	0
		8PM	0	0	0	0	0	0	0	0

Appendix D

Pedestrian Counts

ID	Intersection Name	Hour	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
			EB	WB	EB	WB	NB	SB	NB	SB
5	Mission Falls Ct/Warren Ave	5AM	0	0	0	1	0	0	0	1
		6AM	0	0	1	1	0	0	1	0
		7AM	0	0	0	4	0	0	0	1
		8AM	0	0	2	6	0	2	0	0
		9AM	0	0	2	5	1	0	0	0
		10AM	0	0	0	0	1	0	2	1
		11AM	0	0	2	1	0	0	0	2
		1PM	0	0	0	7	0	0	0	0
		2PM	1	0	1	0	0	0	0	0
		3PM	3	0	0	0	0	0	3	1
		4PM	1	0	4	5	0	3	1	0
		5PM	0	0	3	2	0	0	0	0
		6PM	0	0	7	3	0	0	1	0
		7PM	0	0	3	1	0	0	0	0
		8PM	0	0	0	0	0	0	0	0
6	Warm Springs Blvd/Warren Ave	5AM	0	0	1	1	0	0	0	1
		6AM	0	1	0	2	0	1	1	0
		7AM	1	0	1	2	4	10	2	5
		8AM	0	3	2	4	6	2	8	3
		9AM	4	5	3	1	2	4	3	3
		10AM	4	12	1	1	11	5	0	1
		11AM	11	12	1	1	7	4	5	3
		1PM	3	5	0	2	7	2	2	4
		2PM	5	2	2	2	9	7	4	7
		3PM	8	4	51	4	19	7	8	2
		4PM	4	1	6	3	6	3	5	0
		5PM	6	6	5	7	14	0	5	5
		6PM	4	3	10	0	4	4	3	4
		7PM	0	1	4	2	4	6	2	1
		8PM	1	0	0	0	0	0	3	0
7	Kato Rd/Kato Rd/Mission Blvd Off-Ramp	5AM	0	0	0	0	0	0	0	0
		6AM	0	0	0	0	0	0	0	0
		7AM	0	0	0	0	0	0	0	0
		8AM	0	0	0	0	0	0	0	0
		9AM	0	0	0	0	0	0	0	0
		10AM	0	0	0	0	0	0	0	0
		11AM	0	0	0	0	0	0	0	0
		1PM	0	0	0	0	0	0	0	0
		2PM	0	0	0	0	0	0	0	0
		3PM	0	0	0	0	0	0	0	0
		4PM	0	0	0	0	0	0	0	0
		5PM	0	0	0	0	0	0	0	0
		6PM	0	0	0	0	0	0	0	0
		7PM	0	0	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0
8	Kato Rd/Mission Blvd On-Ramp	5AM	0	0	0	0	0	0	0	0
		6AM	0	0	0	0	0	0	0	0
		7AM	0	0	0	0	0	0	0	0
		8AM	0	0	0	0	0	0	0	0
		9AM	0	0	0	0	0	0	0	0
		10AM	0	0	0	0	0	0	0	0
		11AM	0	0	0	0	0	0	0	0
		1PM	0	0	0	0	0	0	0	0
		2PM	0	0	0	0	0	0	0	0
		3PM	0	0	0	0	0	0	0	0
		4PM	0	0	0	0	0	0	0	0
		5PM	0	0	0	0	0	0	0	0
		6PM	0	0	0	0	0	0	0	0
		7PM	0	0	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0

Appendix D

Pedestrian Counts

ID	Intersection Name	Hour	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
			EB	WB	EB	WB	NB	SB	NB	SB
9	Warm Springs Blvd/Mission Blvd	5AM	0	0	0	0	2	3	0	0
		6AM	0	0	1	0	2	1	0	0
		7AM	0	1	1	0	5	3	0	2
		8AM	0	0	1	4	4	1	1	0
		9AM	0	1	13	3	6	8	4	5
		10AM	2	4	3	10	10	1	1	1
		11AM	2	5	4	1	2	0	1	10
		1PM	2	3	5	0	11	5	1	2
		2PM	2	0	5	1	4	6	1	1
		3PM	6	3	28	4	8	8	8	4
		4PM	0	0	15	6	7	5	4	2
		5PM	0	2	5	5	7	7	7	2
		6PM	1	0	8	4	5	4	0	1
		7PM	0	1	5	4	4	5	1	1
		8PM	2	0	2	0	2	4	4	0
10	Mohave Dr/Mission Blvd	5AM	0	0	0	0	0	0	0	0
		6AM	0	0	0	0	0	0	0	3
		7AM	0	0	0	1	0	0	4	15
		8AM	4	0	0	3	0	0	19	4
		9AM	1	1	1	1	0	0	8	8
		10AM	0	2	2	0	0	1	7	9
		11AM	0	2	8	7	0	0	26	18
		1PM	3	1	5	2	0	0	6	7
		2PM	2	5	6	3	0	0	21	25
		3PM	7	4	0	1	0	1	28	16
		4PM	1	2	4	0	0	0	28	14
		5PM	0	0	4	1	0	0	13	24
		6PM	0	0	0	4	0	0	20	9
		7PM	0	0	5	6	0	1	8	2
		8PM	2	0	7	1	1	0	4	13
11	Curtner Road/Mission Blvd	5AM	0	0	0	0	0	0	0	0
		6AM	0	0	0	0	0	0	0	0
		7AM	0	0	0	0	0	0	0	0
		8AM	0	0	0	0	0	0	0	0
		9AM	0	0	1	0	0	0	0	0
		10AM	0	0	0	0	0	0	0	0
		11AM	0	0	0	0	0	0	0	0
		1PM	0	0	0	1	0	0	0	0
		2PM	0	0	0	0	0	0	0	0
		3PM	0	0	0	0	0	0	0	0
		4PM	0	0	0	1	0	0	0	0
		5PM	0	0	1	0	0	0	0	0
		6PM	0	0	0	0	0	0	0	0
		7PM	0	0	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0
12	Mission Blvd/Paseo Padre Pkwy	5AM	0	0	0	0	0	0	0	0
		6AM	2	1	1	0	1	0	0	0
		7AM	0	3	0	3	1	1	2	1
		8AM	1	1	0	0	0	2	0	0
		9AM	1	0	0	0	2	0	0	0
		10AM	0	1	0	1	1	0	0	0
		11AM	1	3	0	0	0	0	0	0
		1PM	0	0	0	0	0	0	0	1
		2PM	1	4	6	0	0	0	1	2
		3PM	0	0	11	1	4	1	2	0
		4PM	2	3	1	1	0	0	3	1
		5PM	2	1	1	2	2	2	4	1
		6PM	0	1	2	0	3	0	3	2
		7PM	1	0	0	0	0	0	1	0
		8PM	0	0	0	0	0	0	1	0

APPENDIX D

Bicycle Counts

ID	Intersection Name	Hour	Northbound				Southbound				Eastbound				Westbound			
			NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU
1	Landing Pkwy/Bayside Pkwy/Warren Ave	5AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		6AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		7AM	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0
		8AM	0	0	0	0	0	0	0	0	0	0	0	0	1	4	1	0
		9AM	0	0	0	0	0	0	1	0	0	0	1	0	2	6	0	0
		10AM	0	0	0	0	0	2	0	0	0	0	0	0	2	1	0	0
		11AM	0	0	0	0	1	0	0	0	0	2	0	0	0	3	0	0
		1PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0
		2PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		3PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		4PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		5PM	1	2	1	0	0	0	0	0	0	2	0	0	0	2	0	0
		6PM	1	0	1	0	1	0	0	0	1	4	0	0	0	1	0	0
		7PM	1	0	2	0	0	0	1	0	0	2	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	I-880 SB Ramps/Lakeview Blvd/Warren Ave	5AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		6AM	0	0	0	0	0	0	0	0	0	0	0	0	15	2	0	0
		7AM	0	0	1	0	0	0	0	0	0	0	0	0	2	4	0	0
		8AM	0	0	0	0	0	0	0	0	0	0	0	0	6	5	0	0
		9AM	0	0	0	0	0	0	0	0	0	0	1	0	7	8	0	0
		10AM	0	0	2	0	0	0	0	0	0	0	0	0	1	3	0	0
		11AM	0	0	0	0	0	0	0	0	0	3	1	0	0	4	0	0
		1PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0
		2PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		3PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
		4PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5PM	0	0	4	0	0	0	0	0	0	3	0	0	0	2	0	0
		6PM	0	0	3	0	0	0	0	0	0	6	0	0	0	1	0	0
		7PM	0	0	1	0	0	0	0	0	0	4	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	I-880 NB Ramps/Warren Ave	5AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		6AM	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0
		7AM	0	0	0	0	0	0	0	0	0	1	0	0	0	6	0	0
		8AM	1	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0
		9AM	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0
		10AM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0
		11AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0
		1PM	0	0	1	0	0	0	0	0	0	1	0	0	0	3	0	0
		2PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		3PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
		4PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5PM	0	0	0	0	0	0	0	0	0	7	0	0	0	2	0	0
		6PM	0	0	0	0	0	0	0	0	0	9	0	0	0	1	0	0
		7PM	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Kato Rd/Warren Ave	5AM	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	0
		6AM	1	0	0	0	0	0	0	0	0	0	0	0	1	16	0	0
		7AM	0	0	0	0	0	1	0	0	0	1	0	0	2	6	2	0
		8AM	1	1	0	0	1	2	0	0	0	0	0	0	3	9	2	0
		9AM	0	0	0	0	0	1	0	0	0	0	0	0	2	16	1	0
		10AM	0	0	0	0	0	2	0	0	0	2	0	0	0	4	0	0
		11AM	0	1	0	0	0	1	0	0	0	2	1	0	3	4	0	0
		1PM	2	0	0	0	0	1	0	0	0	1	0	0	1	1	0	0
		2PM	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0
		3PM	0	1	1	0	0	0	0	0	0	2	0	0	1	0	0	0
		4PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0
		5PM	1	0	7	0	2	2	0	0	0	6	0	0	1	0	0	0
		6PM	1	1	3	0	2	1	0	0	0	8	1	0	0	1	0	0
		7PM	0	0	1	0	1	0	0	0	0	4	0	0	0	0	1	0
		8PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0

APPENDIX D

Bicycle Counts

ID	Intersection Name	Hour	Northbound				Southbound				Eastbound				Westbound			
			NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU
5	Mission Falls Ct/Warren Ave	5AM	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		6AM	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0
		7AM	1	0	0	0	0	0	0	0	0	1	0	0	0	10	0	0
		8AM	1	0	0	0	0	0	0	0	0	0	1	0	0	15	0	0
		9AM	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0
		10AM	0	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0
		11AM	0	0	0	0	0	0	0	0	0	0	2	0	0	7	0	0
		1PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
		2PM	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0
		3PM	0	0	1	0	0	0	0	0	0	2	1	0	0	1	0	0
		4PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
		5PM	1	0	0	0	0	0	0	0	0	13	2	0	0	0	0	0
		6PM	1	0	0	0	0	0	0	0	0	10	3	0	0	0	0	0
		7PM	0	0	0	0	0	0	0	0	0	6	0	0	0	1	0	0
		8PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
6	Warm Springs Blvd/Warren Ave	5AM	1	0	0	0	0	2	0	0	1	0	0	0	1	0	0	0
		6AM	0	1	0	0	0	4	4	0	0	0	0	0	0	12	0	0
		7AM	1	5	0	0	0	4	5	0	1	0	0	0	0	2	0	0
		8AM	3	2	0	0	0	5	4	0	0	0	0	1	0	5	1	0
		9AM	0	1	0	0	0	3	10	0	0	0	0	0	1	3	0	0
		10AM	3	1	1	0	0	1	1	0	0	1	0	1	2	2	0	0
		11AM	1	1	1	0	0	0	1	0	0	0	0	0	0	3	0	0
		1PM	0	1	0	0	0	1	2	0	1	0	0	0	1	0	0	0
		2PM	0	5	2	0	0	2	0	0	3	0	0	0	0	0	0	0
		3PM	0	5	1	0	0	5	0	0	1	0	1	0	0	1	0	0
		4PM	3	5	0	0	0	7	0	0	2	0	0	0	0	1	0	0
		5PM	2	8	3	0	1	1	0	0	5	5	1	0	0	0	0	0
		6PM	0	6	1	0	0	1	0	0	6	1	0	0	0	0	3	0
		7PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
7	Kato Rd/Kato Rd/Mission Blvd Off-Ramp	5AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		6AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		7AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		11AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		1PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		2PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		3PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		4PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		6PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		7PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Kato Rd/Mission Blvd On-Ramp	5AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		6AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		7AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		8AM	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0	0
		9AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		10AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
		11AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		1PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		2PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		3PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		4PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0
		5PM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
		6PM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0
		7PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX D

Bicycle Counts

ID	Intersection Name	Hour	Northbound				Southbound				Eastbound				Westbound			
			NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU
9	Warm Springs Blvd/Mission Blvd	5AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		6AM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0
		7AM	0	2	0	0	1	9	0	0	0	0	0	0	0	0	0	0
		8AM	0	3	0	0	0	13	2	0	0	0	0	0	0	0	0	0
		9AM	0	1	0	0	0	16	0	0	0	0	0	0	0	0	0	0
		10AM	0	1	1	0	0	3	1	0	0	0	0	0	0	0	0	0
		11AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		1PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
		2PM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		3PM	0	8	0	0	1	2	0	0	0	0	0	0	0	0	0	0
		4PM	1	4	0	0	1	2	0	0	0	0	0	0	1	0	0	0
		5PM	0	11	1	0	0	0	1	0	0	0	0	0	0	0	0	0
		6PM	0	12	0	0	0	1	0	0	0	0	1	0	0	0	0	0
		7PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8PM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
10	Mohave Dr/Mission Blvd	5AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		6AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		7AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9AM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
		10AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		11AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		1PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		2PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		3PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0
		4PM	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0
		5PM	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0
		6PM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0
		7PM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0
		8PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11	Curtner Road/Mission Blvd	5AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		6AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		7AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		10AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		11AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		1PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		2PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		3PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		4PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		6PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		7PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Mission Blvd/Paseo Padre Pkwy	5AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		6AM	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0
		7AM	0	0	0	0	5	0	0	0	0	0	0	0	0	1	1	0
		8AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
		9AM	0	0	0	0	2	1	0	0	0	1	0	0	0	0	1	0
		10AM	0	0	0	0	1	0	0	0	0	2	0	0	0	3	0	0
		11AM	0	0	0	0	2	0	0	0	0	2	0	0	0	1	0	0
		1PM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
		2PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	1
		3PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0
		4PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
		5PM	0	0	0	0	0	0	0	0	2	3	0	0	0	1	5	0
		6PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
		7PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix F:
Freeway Mainline Demand Volumes for I-680 and I-880

SB I-680

6083 | 6516 | 6861 | 6533 | 7191 | 5452 | 4131

320 | 422 | 589 | 601 | 539 | 445 | 376 — Mission Blvd O˜-ramp *(North of Study Corridor)*

5763 | 6094 | 6272 | 5932 | 6652 | 5007 | 3755

142 | 417 | 721 | 868 | 531 | 268 | 320 — Mission Blvd On-ramp *(North of Study Corridor)*

5905 | 6511 | 6993 | 6800 | 7183 | 5275 | 4075

251 | 309 | 551 | 562 | 337 | 221 | 208 — Washington Blvd O˜-ramp

5654 | 6202 | 6442 | 6238 | 6846 | 5054 | 3867

78 | 209 | 480 | 631 | 505 | 355 | 300 — Washington Blvd On-ramp

5732 | 6411 | 6922 | 6869 | 7351 | 5409 | 4167

1105 | 1104 | 974 | 870 | 953 | 814 | 699 — Auto Mall Pkwy O˜-ramp

4627 | 5307 | 5948 | 5999 | 6398 | 4595 | 3468

137 | 182 | 421 | 647 | 849 | 598 | 300 — Auto Mall Pkwy On-ramp

4764 | 5489 | 6369 | 6646 | 7247 | 5193 | 3768

1571 | 1332 | 1328 | 1125 | 1085 | 1286 | 1264 — Mission Blvd O˜-ramp (CA 262)

3193 | 4157 | 5041 | 5521 | 6162 | 3907 | 2504

194 | 503 | 523 | 712 | 1164 | 893 | 491 — Mission Blvd On-ramp (CA 262)

3387 | 4660 | 5564 | 6233 | 7326 | 4800 | 2995

655 | 785 | 1062 | 1310 | 1181 | 595 | 475 — Scott Creek Rd O˜-ramp

2732 | 3875 | 4502 | 4923 | 6145 | 4205 | 2520

67 | 206 | 370 | 420 | 324 | 283 | 254 — Scott Creek Rd On-ramp

2799 | 4081 | 4872 | 5343 | 6469 | 4488 | 2774

99 | 117 | 176 | 303 | 348 | 178 | 152 — Jacklin Rd O˜-ramp

2700 | 3964 | 4696 | 5040 | 6121 | 4310 | 2622

112 | 257 | 583 | 559 | 405 | 366 | 366 — Jacklin Rd On-ramp (I-680)

2812 | 4221 | 5279 | 5599 | 6526 | 4676 | 2988

734 | 982 | 1315 | 1211 | 1163 | 858 | 411 — E Calaveras Blvd O˜-ramp

2078 | 3239 | 3964 | 4388 | 5363 | 3818 | 2577

233 | 368 | 594 | 739 | 718 | 743 | 877 — E Calaveras Blvd On-ramp

2311 | 3607 | 4558 | 5127 | 6081 | 4561 | 3454

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM
Ramp Hourly Traffi Volumes

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM
Mainline Hourly Traffi Volumes

Figure F1

I-680 Southbound
AM Mainline and Ramp Demand Volumes

SB I-680

3750 | 4077 | 4099 | 4628 | 5537 | 4175 | 2706 | 1871

361 | 368 | 371 | 458 | 731 | 563 | 269 | 146 — Mission Blvd O˜-ramp *(North of Study Corridor)*

3389 | 3709 | 3728 | 4170 | 4806 | 3612 | 2437 | 1725

285 | 288 | 355 | 172 | 206 | 254 | 184 | 159 — Mission Blvd On-ramp *(North of Study Corridor)*

3674 | 3997 | 4083 | 4342 | 5012 | 3866 | 2621 | 1884

198 | 246 | 303 | 447 | 726 | 472 | 214 | 127 — Washington Blvd O˜-ramp

3476 | 3751 | 3780 | 3895 | 4286 | 3394 | 2407 | 1757

237 | 277 | 301 | 275 | 296 | 255 | 217 | 159 — Washington Blvd On-ramp

3713 | 4028 | 4081 | 4170 | 4582 | 3649 | 2624 | 1916

551 | 574 | 509 | 773 | 731 | 486 | 352 | 223 — Auto Mall Pkwy O˜-ramp

3162 | 3454 | 3572 | 3397 | 3851 | 3163 | 2272 | 1693

349 | 510 | 716 | 671 | 790 | 586 | 397 | 252 — Auto Mall Pkwy On-ramp

3511 | 3964 | 4288 | 4068 | 4641 | 3749 | 2669 | 1945

1292 | 1260 | 1151 | 1138 | 1008 | 1010 | 833 | 684 — Mission Blvd O˜-ramp (262)

2219 | 2704 | 3137 | 2930 | 3633 | 2739 | 1836 | 1261

609 | 847 | 1155 | 1089 | 1084 | 1012 | 706 | 544 — Mission Blvd On-ramp (262)

2828 | 3551 | 4292 | 4019 | 4717 | 3751 | 2542 | 1805

263 | 247 | 248 | 271 | 362 | 270 | 201 | 125 — Scott Creek Rd O˜-ramp

2565 | 3304 | 4044 | 3748 | 4355 | 3481 | 2341 | 1680

383 | 816 | 908 | 709 | 741 | 653 | 400 | 262 — Scott Creek Rd On-ramp

2948 | 4120 | 4952 | 4457 | 5096 | 4134 | 2741 | 1942

173 | 187 | 230 | 289 | 514 | 427 | 171 | 135 — Jacklin Rd O˜-ramp

2775 | 3933 | 4722 | 4168 | 4582 | 3707 | 2570 | 1807

451 | 539 | 575 | 434 | 422 | 469 | 445 | 338 — Jacklin Rd On-ramp (680)

3226 | 4472 | 5297 | 4602 | 5004 | 4176 | 3015 | 2145

424 | 436 | 489 | 492 | 795 | 605 | 377 | 245 — E Calaveras Blvd O˜-ramp

2802 | 4036 | 4808 | 4110 | 4209 | 3571 | 2638 | 1900

927 | 1211 | 1141 | 851 | 705 | 656 | 893 | 725 — E Calaveras Blvd On-ramp

3729 | 5247 | 5949 | 4961 | 4914 | 4227 | 3531 | 2625

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Ramp Hourly Traffi Volumes

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Mainline Hourly Traffi Volumes

Figure F2

I-680 Southbound
PM Mainline and Ramp Demand Volumes

NB I-680

2353 | 4282 | 5096 | 5392 | 4298 | 3577 | 3635

107 | 241 | 467 | 626 | 553 | 334 | 404 — Mission Blvd On-ramp *(North of Study Corridor)*

2246 | 4041 | 4629 | 4766 | 3745 | 3243 | 3231

109 | 292 | 407 | 373 | 302 | 269 | 255 — Mission Blvd O˜-ramp *(North of Study Corridor)*

2355 | 4333 | 5036 | 5139 | 4047 | 3512 | 3486

139 | 342 | 681 | 807 | 492 | 279 | 243 — Washington Blvd On-ramp

2216 | 3991 | 4355 | 4332 | 3555 | 3233 | 3243

95 | 257 | 490 | 445 | 353 | 238 | 211 — Washington Blvd O˜-ramp

2311 | 4248 | 4845 | 4777 | 3908 | 3471 | 3454

297 | 610 | 555 | 448 | 404 | 400 | 446 — Auto Mall Pkwy On-ramp

2014 | 3638 | 4290 | 4329 | 3504 | 3071 | 3008

173 | 275 | 460 | 573 | 268 | 93 | 130 — Auto Mall Pkwy O˜-ramp

2187 | 3913 | 4750 | 4902 | 3772 | 3164 | 3138

582 | 1011 | 1205 | 1173 | 1010 | 1021 | 1205 — Mission Blvd On-ramp (262)

1605 | 2902 | 3545 | 3729 | 2762 | 2143 | 1933

868 | 1382 | 1530 | 1397 | 1400 | 732 | 554 — Mission Blvd O˜-ramp (262)

2473 | 4284 | 5075 | 5126 | 4162 | 2875 | 2487

54 | 126 | 318 | 265 | 198 | 206 | 206 — Scott Creek Rd On-ramp

2419 | 4158 | 4757 | 4861 | 3964 | 2669 | 2281

708 | 693 | 806 | 1021 | 648 | 254 | 182 — Scott Creek Rd O˜-ramp

3127 | 4851 | 5563 | 5882 | 4612 | 2923 | 2463

102 | 211 | 343 | 406 | 173 | 117 | 162 — Jacklin Rd On-ramp

3025 | 4640 | 5220 | 5476 | 4439 | 2806 | 2301

133 | 212 | 555 | 431 | 391 | 325 | 331 — Jacklin Rd O˜-ramp (680)

3158 | 4852 | 5775 | 5907 | 4830 | 3131 | 2632

189 | 294 | 542 | 514 | 382 | 208 | 373 — E Calaveras Blvd On-ramp

2969 | 4558 | 5233 | 5393 | 4448 | 2923 | 2259

505 | 677 | 1044 | 1020 | 639 | 573 | 810 — E Calaveras Blvd O˜-ramp

3474 | 5235 | 6277 | 6413 | 5087 | 3496 | 3069

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM
Ramp Hourly Traffi Volumes

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM
Mainline Hourly Traffi Volumes

Figure F3

I-680 Northbound
AM Mainline and Ramp Demand Volumes

NB I-680

5013 | 6653 | 5832 | 5529 | 5426 | 5544 | 4648 | 4102

555 | 1108 | 1143 | 1123 | 1078 | 838 | 584 | 411 — Mission Blvd On-ramp *(North of Study Corridor)*

4458 | 5545 | 4689 | 4406 | 4348 | 4706 | 4064 | 3691

233 | 117 | 65 | 49 | 56 | 152 | 232 | 192 — Mission Blvd O˜-ramp *(North of Study Corridor)*

4691 | 5662 | 4754 | 4455 | 4404 | 4858 | 4296 | 3883

386 | 882 | 1109 | 970 | 801 | 497 | 305 | 214 — Washington Blvd On-ramp

4305 | 4780 | 3645 | 3485 | 3603 | 4361 | 3991 | 3669

435 | 73 | 28 | 23 | 32 | 131 | 225 | 217 — Washington Blvd O˜-ramp

4740 | 4853 | 3673 | 3508 | 3635 | 4492 | 4216 | 3886

508 | 859 | 639 | 732 | 742 | 714 | 587 | 418 — Auto Mall Pkwy On-ramp

4232 | 3994 | 3034 | 2776 | 2893 | 3778 | 3629 | 3468

372 | 184 | 153 | 95 | 145 | 188 | 191 | 118 — Auto Mall Pkwy O˜-ramp

4604 | 4178 | 3187 | 2871 | 3038 | 3966 | 3820 | 3586

1633 | 1041 | 648 | 508 | 489 | 677 | 925 | 1369 — Mission Blvd On-ramp (262)

2971 | 3137 | 2539 | 2363 | 2549 | 3289 | 2895 | 2217

583 | 1008 | 1367 | 1816 | 2077 | 1281 | 1104 | 323 — Mission Blvd O˜-ramp (262)

3554 | 4145 | 3906 | 4179 | 4626 | 4570 | 3999 | 2540

385 | 466 | 464 | 426 | 531 | 694 | 539 | 259 — Scott Creek Rd On-ramp

3169 | 3679 | 3442 | 3753 | 4095 | 3876 | 3460 | 2281

321 | 425 | 352 | 356 | 491 | 445 | 231 | 135 — Scott Creek Rd O˜-ramp

3490 | 4104 | 3794 | 4109 | 4586 | 4321 | 3691 | 2416

199 | 198 | 170 | 173 | 215 | 177 | 147 | 138 — Jacklin Rd On-ramp

3291 | 3906 | 3624 | 3936 | 4371 | 4144 | 3544 | 2278

385 | 515 | 552 | 507 | 812 | 849 | 495 | 325 — Jacklin Rd O˜-ramp (680)

3676 | 4421 | 4176 | 4443 | 5183 | 4993 | 4039 | 2603

613 | 582 | 850 | 768 | 983 | 744 | 593 | 450 — E Calaveras Blvd On-ramp

3063 | 3839 | 3326 | 3675 | 4200 | 4249 | 3446 | 2153

846 | 865 | 739 | 870 | 914 | 734 | 672 | 501 — E Calaveras Blvd O˜-ramp

3909 | 4704 | 4065 | 4545 | 5114 | 4983 | 4118 | 2654

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Ramp Hourly Traffi Volumes

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Mainline Hourly Traffi Volumes

Figure F4

I-680 Northbound
PM Mainline and Ramp Demand Volumes

SB I-880

5900 | 6931 | 6904 | 7002 | 6742 | 6982 | 6159

356 | 374 | 373 | 452 | 445 | 466 | 694 — Stevenson Blvd O¯-ramp

5544 | 6557 | 6531 | 6550 | 6297 | 6516 | 5465

137 | 233 | 391 | 383 | 355 | 312 | 446 — Stevenson Blvd On-ramp

5681 | 6790 | 6922 | 6933 | 6652 | 6828 | 5911

124 | 207 | 357 | 356 | 228 | 186 | 400 — Stevenson Blvd On-ramp

5805 | 6997 | 7279 | 7289 | 6880 | 7014 | 6311

746 | 823 | 777 | 780 | 806 | 971 | 1410 — Auto Mall Pkwy O¯-ramp

5059 | 6174 | 6502 | 6509 | 6074 | 6043 | 4901

288 | 435 | 643 | 594 | 385 | 195 | 279 — Auto Mall Pkwy On-ramp

5347 | 6609 | 7145 | 7103 | 6459 | 6238 | 5180

141 | 191 | 255 | 311 | 196 | 244 | 501 — Auto Mall Pkwy On-ramp

5488 | 6800 | 7400 | 7414 | 6655 | 6482 | 5681

0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP O¯-ramp

5488 | 6800 | 7400 | 7414 | 6655 | 6482 | 5681

0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP On-ramp

5488 | 6800 | 7400 | 7414 | 6655 | 6482 | 5681

629 | 427 | 335 | 417 | 362 | 233 | 312 — Fremont Blvd O¯-ramp

4859 | 6373 | 7065 | 6997 | 6293 | 6249 | 5369

202 | 369 | 449 | 472 | 255 | 152 | 213 — Fremont Blvd On-ramp

5061 | 6742 | 7514 | 7469 | 6548 | 6401 | 5582

88 | 224 | 401 | 492 | 438 | 261 | 332 — Fremont Blvd On-ramp

5149 | 6966 | 7915 | 7961 | 6986 | 6662 | 5914

621 | 729 | 892 | 1154 | 1490 | 1240 | 981 — Mission Blvd/Warren Ave O¯-ramp (880 / 262)

4528 | 6237 | 7023 | 6807 | 5496 | 5422 | 4933

96 | 242 | 250 | 337 | 199 | 226 | 292 — Warren Ave On-ramp

4624 | 6479 | 7273 | 7144 | 5695 | 5648 | 5225

1417 | 1380 | 1686 | 1719 | 1287 | 1471 | 1315 — Mission Blvd On-ramp (262)

6041 | 7859 | 8959 | 8863 | 6982 | 7119 | 6540

139 | 202 | 377 | 430 | 362 | 466 | 331 — Dixon Landing Rd O¯-ramp

5902 | 7657 | 8582 | 8433 | 6620 | 6653 | 6209

724 | 1084 | 1338 | 1313 | 1005 | 504 | 772 — Dixon Landing Rd On-ramp

6626 | 8741 | 9920 | 9746 | 7625 | 7157 | 6981

60 | 82 | 132 | 359 | 322 | 164 | 170 — Dixon Landing Rd On-ramp

6686 | 8823 | 10052 | 10105 | 7947 | 7321 | 7151

654 | 1108 | 1622 | 1619 | 1416 | 1275 | 704 — Southbay Fwy/W Calaveras Blvd O¯-ramp

6032 | 7715 | 8430 | 8486 | 6531 | 6046 | 6447

2527 | 2546 | 1913 | 1868 | 2193 | 1819 | 1746 — Southbay Fwy/W Calaveras Blvd O¯-ramp

3505 | 5169 | 6517 | 6618 | 4338 | 4227 | 4701

37 | 95 | 222 | 291 | 244 | 291 | 112 — Southbay Fwy/W Calaveras Blvd O¯-ramp

3468 | 5074 | 6295 | 6327 | 4094 | 3936 | 4589

391 | 470 | 540 | 480 | 403 | 422 | 319 — Tasman/Great Mall O¯-ramp

3077 | 4604 | 5755 | 5847 | 3691 | 3514 | 4270

386 | 742 | 1003 | 1044 | 833 | 864 | 829 — Southbay Fwy/W Calaveras Blvd On-ramp

3463 | 5346 | 6758 | 6891 | 4524 | 4378 | 5099

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM

Ramp Hourly Traffi Volumes

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM

Mainline Hourly Traffi Volumes

Figure F5

I-880 Southbound
AM Mainline and Ramp Demand Volumes

SB I-880

6009 | 6645 | 5924 | 6087 | 6352 | 5859 | 4698 | 3523

810 | 938 | 894 | 836 | 855 | 957 | 838 | 640 — Stevenson Blvd O¯-ramp

5199 | 5707 | 5030 | 5251 | 5497 | 4902 | 3860 | 2883

436 | 411 | 490 | 417 | 420 | 339 | 229 | 241 — Stevenson Blvd On-ramp

5635 | 6118 | 5520 | 5668 | 5917 | 5241 | 4089 | 3124

404 | 380 | 465 | 403 | 431 | 340 | 221 | 224 — Stevenson Blvd On-ramp

6039 | 6498 | 5985 | 6071 | 6348 | 5581 | 4310 | 3348

1475 | 1289 | 1304 | 1183 | 1144 | 1296 | 1078 | 681 — Auto Mall Pkwy O¯-ramp

4564 | 5209 | 4681 | 4888 | 5204 | 4285 | 3232 | 2667

244 | 259 | 274 | 205 | 174 | 125 | 132 | 103 — Auto Mall Pkwy On-ramp

4808 | 5468 | 4955 | 5093 | 5378 | 4410 | 3364 | 2770

664 | 671 | 512 | 555 | 544 | 443 | 361 | 290 — Auto Mall Pkwy On-ramp

5472 | 6139 | 5467 | 5648 | 5922 | 4853 | 3725 | 3060

0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP O¯-ramp

5472 | 6139 | 5467 | 5648 | 5922 | 4853 | 3725 | 3060

0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP On-ramp

5472 | 6139 | 5467 | 5648 | 5922 | 4853 | 3725 | 3060

381 | 261 | 222 | 403 | 404 | 205 | 120 | 147 — Fremont Blvd O¯-ramp

5091 | 5878 | 5245 | 5245 | 5518 | 4648 | 3605 | 2913

232 | 277 | 356 | 340 | 337 | 251 | 199 | 115 — Fremont Blvd On-ramp

5323 | 6155 | 5601 | 5585 | 5855 | 4899 | 3804 | 3028

356 | 391 | 578 | 584 | 781 | 660 | 341 | 188 — Fremont Blvd On-ramp

5679 | 6546 | 6179 | 6169 | 6636 | 5559 | 4145 | 3216

1126 | 1064 | 1246 | 1107 | 1042 | 920 | 745 | 718 — Mission Blvd/Warren Ave O¯-ramp (880, 262)

4553 | 5482 | 4933 | 5062 | 5594 | 4639 | 3400 | 2498

340 | 441 | 423 | 518 | 615 | 617 | 278 | 130 — Warren Ave On-ramp

4893 | 5923 | 5356 | 5580 | 6209 | 5256 | 3678 | 2628

1302 | 1268 | 1065 | 1156 | 1184 | 1245 | 1095 | 890 — Mission Blvd On-ramp (262)

6195 | 7191 | 6421 | 6736 | 7393 | 6501 | 4773 | 3518

336 | 332 | 381 | 320 | 387 | 324 | 262 | 168 — Dixon Landing Rd O¯-ramp

5859 | 6859 | 6040 | 6416 | 7006 | 6177 | 4511 | 3350

692 | 690 | 677 | 590 | 780 | 594 | 420 | 312 — Dixon Landing Rd On-ramp

6551 | 7549 | 6717 | 7006 | 7786 | 6771 | 4931 | 3662

215 | 276 | 299 | 365 | 412 | 310 | 186 | 75 — Dixon Landing Rd On-ramp

6766 | 7825 | 7016 | 7371 | 8198 | 7081 | 5117 | 3737

490 | 414 | 180 | 220 | 318 | 274 | 264 | 150 — Southbay Fwy/W Calaveras Blvd O¯-ramp

6276 | 7411 | 6836 | 7151 | 7880 | 6807 | 4853 | 3587

1572 | 1600 | 1725 | 1778 | 1968 | 1865 | 1171 | 798 — Southbay Fwy/W Calaveras Blvd O¯-ramp

4704 | 5811 | 5111 | 5373 | 5912 | 4942 | 3682 | 2789

78 | 19 | 80 | 177 | 88 | 145 | 43 | 18 — Southbay Fwy/W Calaveras Blvd O¯-ramp

4626 | 5792 | 5031 | 5196 | 5824 | 4797 | 3639 | 2771

980 | 854 | 834 | 902 | 1443 | 978 | 733 | 323 — Tasman/Great Mall O¯-ramp

3646 | 4938 | 4197 | 4294 | 4381 | 3819 | 2906 | 2448

1075 | 1231 | 923 | 752 | 550 | 503 | 733 | 618 — Southbay Fwy/W Calaveras Blvd On-ramp

4721 | 6169 | 5120 | 5046 | 4931 | 4322 | 3639 | 3066

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Ramp Hourly Traffi Volumes

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Mainline Hourly Traffi Volumes

Figure F6

I-880 Southbound
PM Mainline and Ramp Demand Volumes

NB I-880

3503 | 5684 | 6329 | 5910 | 5214 | 5383 | 5280

314 | 520 | 633 | 795 | 752 | 538 | 450 — Stevenson Blvd On-ramp

3189 | 5164 | 5696 | 5115 | 4462 | 4845 | 4830

103 | 134 | 194 | 200 | 170 | 120 | 216 — Stevenson Blvd On-ramp

3086 | 5030 | 5502 | 4915 | 4292 | 4725 | 4614

137 | 286 | 331 | 404 | 322 | 204 | 376 — Stevenson Blvd O¯-ramp

3223 | 5316 | 5833 | 5319 | 4614 | 4929 | 4990

491 | 739 | 926 | 915 | 665 | 505 | 730 — Auto Mall Pkwy On-ramp

2732 | 4577 | 4907 | 4404 | 3949 | 4424 | 4260

58 | 98 | 107 | 126 | 153 | 247 | 521 — Auto Mall Pkwy On-ramp

2674 | 4479 | 4800 | 4278 | 3796 | 4177 | 3739

403 | 476 | 812 | 657 | 600 | 581 | 855 — Auto Mall Pkwy O¯-ramp

3077 | 4955 | 5612 | 4935 | 4396 | 4758 | 4594

0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP On-ramp

3077 | 4955 | 5612 | 4935 | 4396 | 4758 | 4594

0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP O¯-ramp

3077 | 4955 | 5612 | 4935 | 4396 | 4758 | 4594

199 | 367 | 196 | 154 | 165 | 217 | 179 — Fremont Blvd On-ramp

2878 | 4588 | 5416 | 4781 | 4231 | 4541 | 4415

13 | 55 | 72 | 77 | 60 | 80 | 162 — Fremont Blvd On-ramp

2865 | 4533 | 5344 | 4704 | 4171 | 4461 | 4253

626 | 877 | 1109 | 1105 | 1084 | 742 | 579 — Fremont Blvd O¯-ramp

3491 | 5410 | 6453 | 5809 | 5255 | 5203 | 4832

545 | 976 | 1158 | 982 | 1162 | 730 | 559 — Mission Blvd On-ramp (CA 262)

2946 | 4434 | 5295 | 4827 | 4093 | 4473 | 4273

90 | 260 | 412 | 363 | 306 | 276 | 423 — Warren Ave On-ramp

2856 | 4174 | 4883 | 4464 | 3787 | 4197 | 3850

394 | 320 | 471 | 655 | 583 | 321 | 284 — Warren Ave O¯-ramp

3250 | 4494 | 5354 | 5119 | 4370 | 4518 | 4134

523 | 809 | 1123 | 1600 | 1111 | 802 | 1324 — Mission Blvd O¯-ramp (CA 262)

3773 | 5303 | 6477 | 6719 | 5481 | 5320 | 5458

116 | 183 | 273 | 311 | 179 | 129 | 206 — Dixon Landing Rd On-ramp

3657 | 5120 | 6204 | 6408 | 5302 | 5191 | 5252

415 | 593 | 873 | 1025 | 750 | 455 | 602 — Dixon Landing Rd O¯-ramp

4072 | 5713 | 7077 | 7433 | 6052 | 5646 | 5854

37 | 105 | 258 | 316 | 602 | 452 | 482 — Southbay Fwy/W Calaveras Blvd On-ramp

3390 | 5608 | 4941 | 4894 | 4353 | 4148 | 4292

645 | 1202 | 1878 | 2223 | 1097 | 1046 | 1080 — Southbay Fwy/W Calaveras Blvd On-ramp

3390 | 4406 | 4941 | 4894 | 4353 | 4148 | 4292

177 | 221 | 279 | 275 | 182 | 211 | 221 — Southbay Fwy/W Calaveras Blvd On-ramp

3213 | 4185 | 4662 | 4619 | 4171 | 3937 | 4071

11 | 22 | 51 | 54 | 35 | 63 | 94 — Southbay Fwy/W Calaveras Blvd On-ramp

3202 | 4163 | 4611 | 4565 | 4136 | 3874 | 3977

479 | 543 | 686 | 736 | 766 | 987 | 1123 — Southbay Fwy/W Calaveras Blvd O¯-ramp

3681 | 4706 | 5297 | 5301 | 4902 | 4861 | 5100

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM

Ramp Hourly Traffi Volumes

5-6 AM | 6-7 AM | 7-8 AM | 8-9 AM | 9-10 AM | 10-11 AM | 11AM-12PM

Mainline Hourly Traffi Volumes

Figure F7

I-880 Northbound
AM Mainline and Ramp Demand Volumes

NB I-880

6566 | 7631 | 7830 | 8183 | 7762 | 7057 | 7269 | 5524

424 | 418 | 348 | 339 | 416 | 282 | 303 | 421 — Stevenson Blvd On-ramp

6142 | 7213 | 7482 | 7844 | 7346 | 6775 | 6966 | 5103

255 | 338 | 427 | 416 | 499 | 460 | 293 | 198 — Stevenson Blvd On-ramp

5887 | 6875 | 7055 | 7428 | 6847 | 6315 | 6673 | 4905

409 | 370 | 326 | 266 | 206 | 272 | 310 | 275 — Stevenson Blvd O¯-ramp

6296 | 7245 | 7381 | 7694 | 7053 | 6587 | 6983 | 5180

731 | 719 | 677 | 711 | 602 | 581 | 572 | 511 — Auto Mall Pkwy On-ramp

5565 | 6526 | 6704 | 6983 | 6451 | 6006 | 6411 | 4669

721 | 780 | 539 | 484 | 472 | 486 | 609 | 673 — Auto Mall Pkwy On-ramp

4844 | 5746 | 6165 | 6499 | 5979 | 5520 | 5802 | 3996

937 | 1270 | 954 | 797 | 609 | 613 | 692 | 588 — Auto Mall Pkwy O¯-ramp

5781 | 7016 | 7119 | 7296 | 6588 | 6133 | 6494 | 4584

0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP On-ramp

5781 | 7016 | 7119 | 7296 | 6588 | 6133 | 6494 | 4584

0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 — CHP O¯-ramp

5781 | 7016 | 7119 | 7296 | 6588 | 6133 | 6494 | 4584

311 | 431 | 292 | 266 | 301 | 404 | 215 | 100 — Fremont Blvd On-ramp

5470 | 6585 | 6827 | 7030 | 6287 | 5729 | 6279 | 4484

155 | 203 | 264 | 383 | 425 | 477 | 414 | 116 — Fremont Blvd On-ramp

5315 | 6382 | 6563 | 6647 | 5862 | 5252 | 5865 | 4368

942 | 1281 | 1237 | 991 | 785 | 760 | 862 | 390 — Fremont Blvd O¯-ramp

6257 | 7663 | 7800 | 7638 | 6647 | 6012 | 6727 | 4758

654 | 769 | 669 | 710 | 857 | 697 | 653 | 354 — Mission Blvd On-ramp (CA 262)

5603 | 6894 | 7131 | 6928 | 5790 | 5315 | 6074 | 4404

397 | 498 | 456 | 524 | 610 | 585 | 511 | 276 — Warren Ave On-ramp

5206 | 6396 | 6675 | 6404 | 5180 | 4730 | 5563 | 4128

372 | 361 | 268 | 168 | 144 | 121 | 203 | 281 — Warren Ave O¯-ramp

5578 | 6757 | 6943 | 6572 | 5324 | 4851 | 5766 | 4409

1692 | 1652 | 1231 | 1108 | 1044 | 1111 | 1419 | 1501 — Mission Blvd O¯-ramp (CA 262)

7270 | 8409 | 8174 | 7680 | 6368 | 5962 | 7185 | 5910

248 | 231 | 182 | 133 | 135 | 151 | 135 | 133 — Dixon Landing Rd On-ramp

7022 | 8178 | 7992 | 7547 | 6233 | 5811 | 7050 | 5777

1081 | 1327 | 1044 | 1789 | 2339 | 2021 | 1505 | 784 — Dixon Landing Rd O¯-ramp

8103 | 9505 | 9036 | 9336 | 8572 | 7832 | 8555 | 6561

1143 | 1411 | 1054 | 1225 | 1183 | 1036 | 1389 | 1010 — Southbay Fwy/W Calaveras Blvd On-ramp

5316 | 5958 | 6011 | 6046 | 5281 | 4740 | 4907 | 3987

1644 | 2136 | 1971 | 2065 | 2108 | 2056 | 2259 | 1564 — Southbay Fwy/W Calaveras Blvd On-ramp

5316 | 5958 | 6011 | 6046 | 5281 | 4740 | 4907 | 3987

301 | 289 | 246 | 221 | 172 | 134 | 158 | 207 — Southbay Fwy/W Calaveras Blvd On-ramp

5015 | 5669 | 5765 | 5825 | 5109 | 4606 | 4749 | 3780

179 | 165 | 187 | 237 | 170 | 107 | 209 | 184 — Southbay Fwy/W Calaveras Blvd On-ramp

4836 | 5504 | 5578 | 5588 | 4939 | 4499 | 4540 | 3596

1103 | 1019 | 882 | 925 | 1067 | 973 | 877 | 590 — Southbay Fwy/W Calaveras Blvd O¯-ramp

5939 | 6523 | 6460 | 6513 | 6006 | 5472 | 5417 | 4186

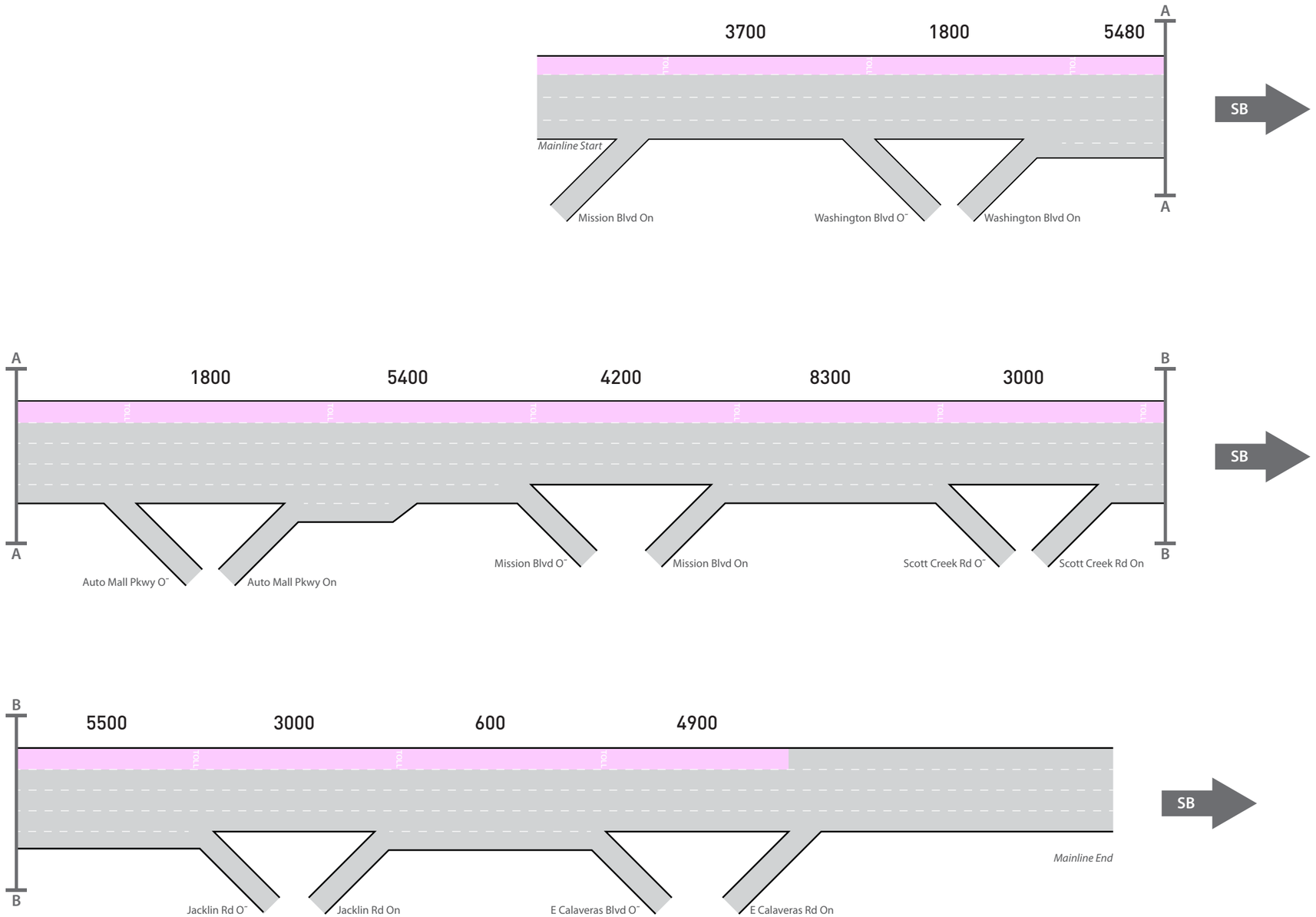
1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Ramp Hourly Traffi Volumes

1-2 PM | 2-3 PM | 3-4 PM | 4-5 PM | 5-6 PM | 6-7 PM | 7-8 PM | 8-9 PM
Mainline Hourly Traffi Volumes

Figure F8

I-880 Northbound
PM Mainline and Ramp Demand Volumes

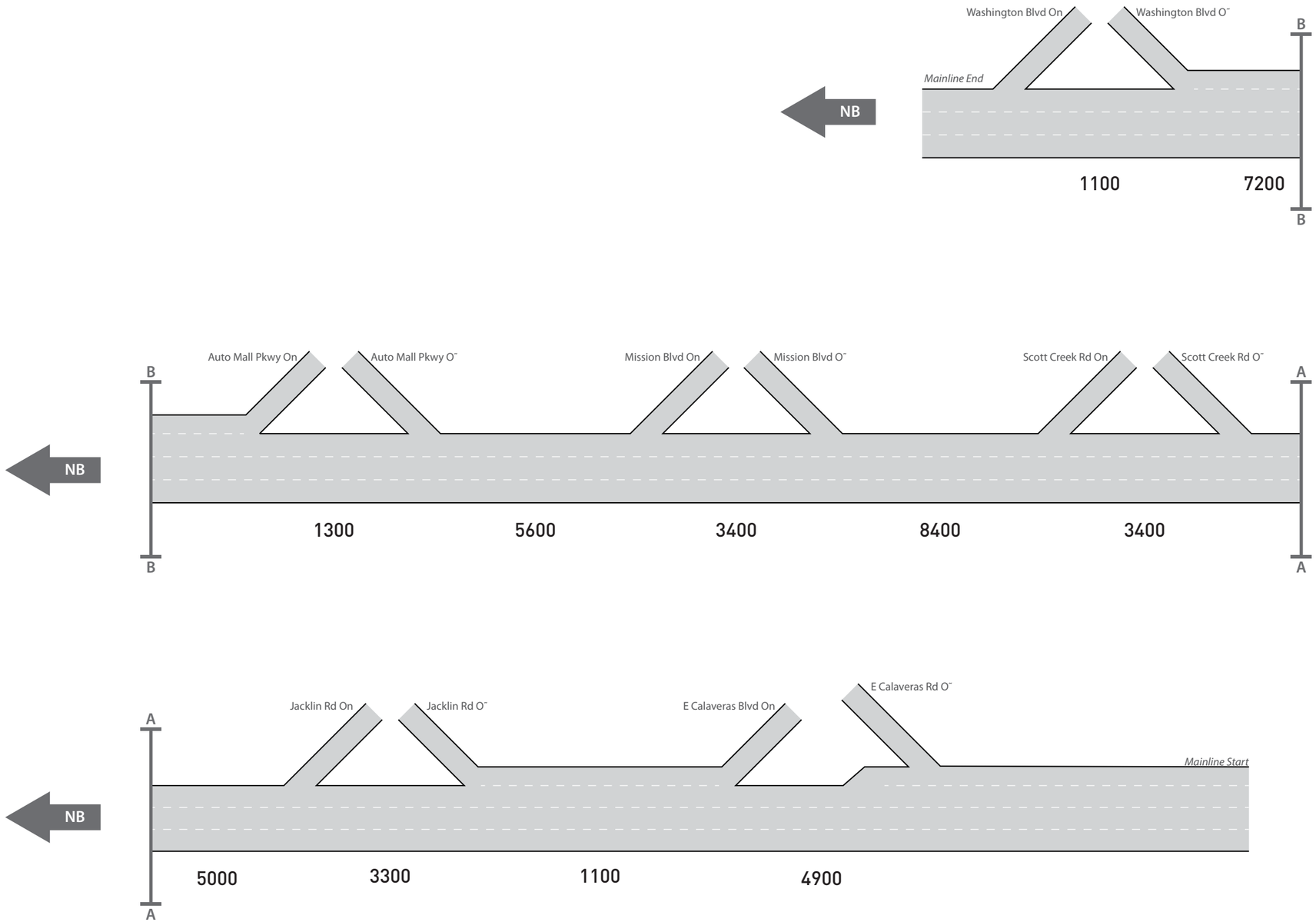
Appendix G:
I-680 and I-880 Lane Configuration and Gore Distances



Gore distance, in feet

Figure G-1

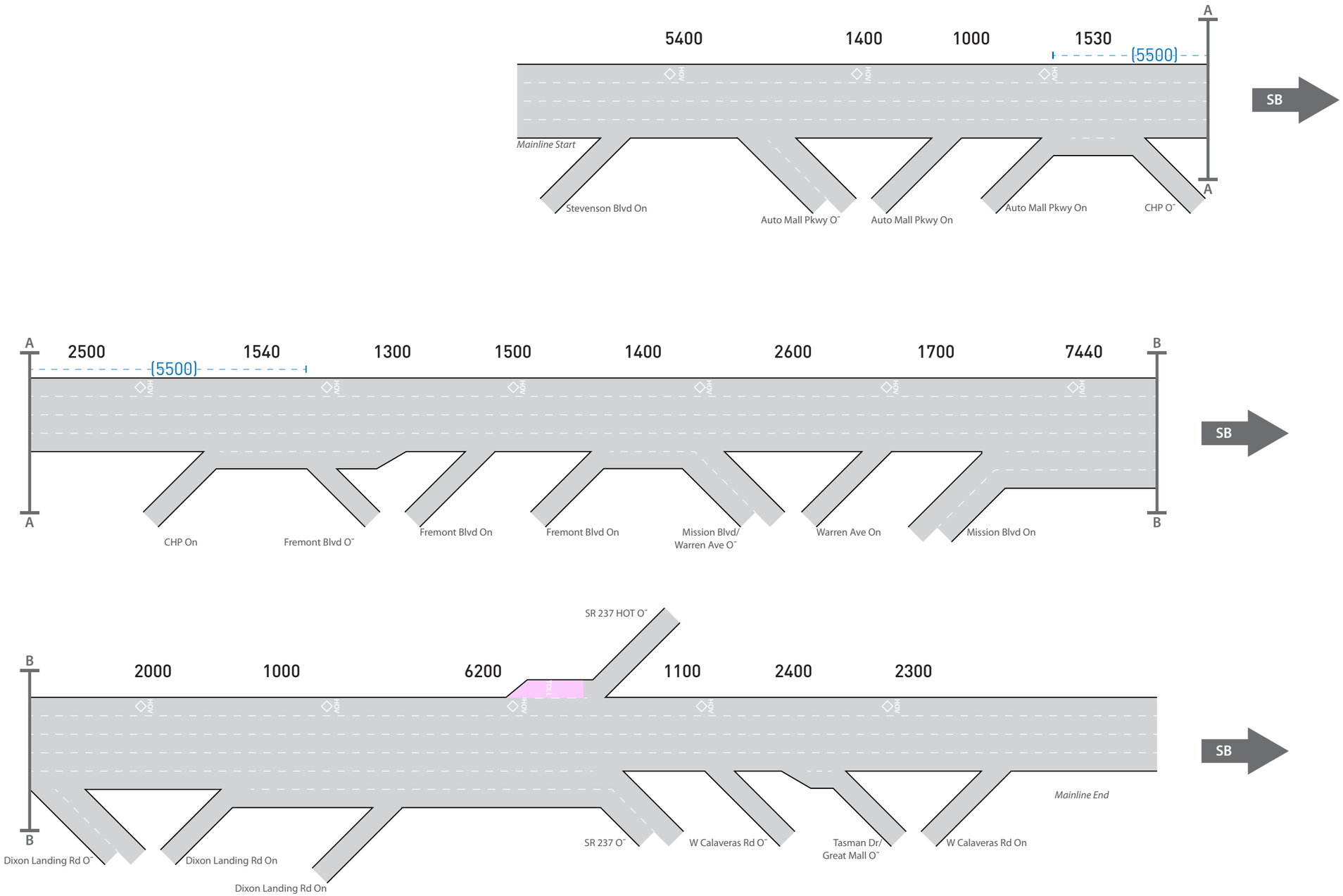
Existing Lane Configurations for I-680 SB



Gore distance, in feet

Figure G-2

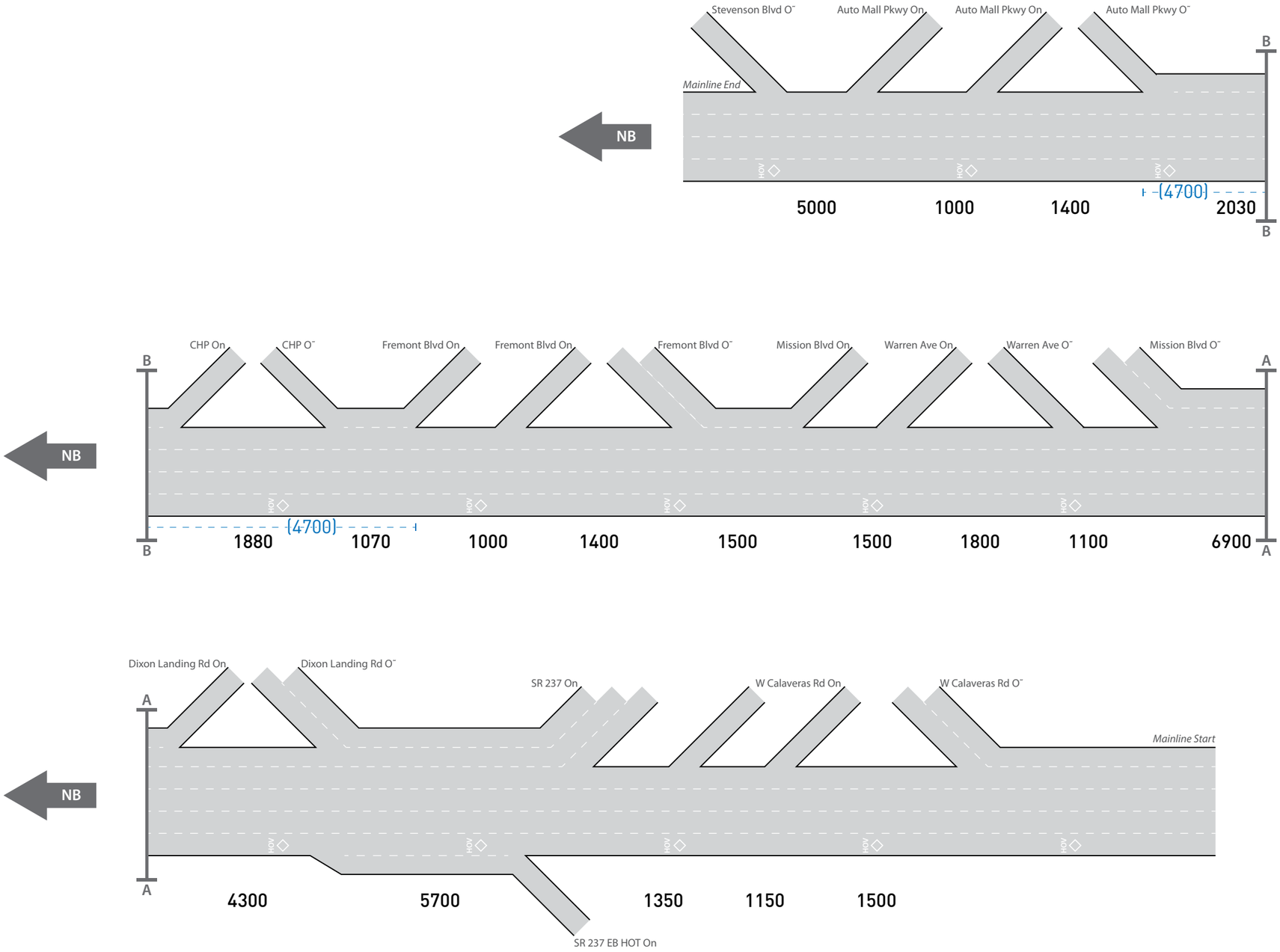
Existing Lane Configurations for I-680 NB



Gore distance, in feet

Figure G-3

Existing Lane Configurations for I-880 SB



Gore distance, in feet

Figure G-4

Existing Lane Configurations for I-880 NB

Appendix H:
I-680 and I-880 Existing LOS and Average Density

VISSIM Post-Processor **SR 262 Cross Connector**

Average Results from One Run **Existing Conditions**

Density & LOS by Interval **AM Peak Period (5:00 AM – 12:00 PM)**

Location on I-680 NB	Facility Type	5:00 AM		6:00 AM		7:00 AM		8:00 AM		9:00 AM		10:00 AM		11:00 AM	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
SR 237 Offramp	Diverge	14.7	B	21.6	C	27.1	C	27.1	C	20.9	C	14.4	B	14.3	B
SR 237 Offramp to Lane Drop	Basic	15.3	B	23.4	C	27.8	D	28.1	D	22.0	C	14.5	B	12.3	B
Lane Drop to SR 237 Onramp	Basic	15.3	B	23.5	C	27.7	D	27.9	D	22.3	C	14.7	B	12.6	B
SR 237 to Jacklin Rd	Weave	15.1	B	22.9	C	25.7	C	26.3	C	21.3	C	13.6	B	12.1	B
Jacklin Rd Offramp to Onramp	Basic	15.3	B	23.8	C	27.3	D	28.2	D	22.3	C	13.8	B	12.0	B
Jacklin Rd Onramp	Merge	16.1	B	24.5	C	28.2	D	30.3	D	23.0	C	14.6	B	13.4	B
Jacklin Rd to Scott Creek Rd	Basic	16.0	B	24.8	C	28.9	D	31.4	D	23.2	C	14.5	B	12.8	B
Scott Creek Rd Offramp	Basic	16.2	B	24.6	C	29.9	D	32.5	D	23.1	C	14.5	B	12.7	B
Scott Creek Rd Offramp to Onramp	Basic	12.5	B	21.2	C	24.8	C	25.3	C	20.0	C	13.3	B	11.8	B
Scott Creek Rd Onramp	Merge	12.8	B	21.6	C	25.5	C	25.5	C	20.8	C	14.5	B	13.1	B
Scott Creek Rd to SR 262	Basic	12.9	B	21.8	C	26.2	D	28.3	D	30.0	D	14.5	B	12.9	B
SR 262 Offramp	Diverge	13.6	B	20.7	C	24.2	C	**46.9**	**F**	**68.8**	**F**	14.3	B	12.5	B
SR 262 Offramp to Onramp	Basic	8.8	A	15.3	B	19.0	C	20.2	C	15.8	B	10.8	A	10.3	A
SR 262 Onramp	Merge	11.5	B	22.5	C	32.7	D	31.3	D	21.1	C	17.5	B	18.3	B
SR 262 to Durham Rd	Basic	11.4	B	19.5	C	24.8	C	24.6	C	20.0	C	16.0	B	16.2	B
Durham Rd Offramp	Diverge	11.6	B	19.1	B	24.0	C	24.4	C	19.4	B	15.5	B	15.6	B
Durham Rd Offramp to Onramp	Basic	10.5	A	17.9	B	22.2	C	21.7	C	18.2	C	15.4	B	15.3	B
Durham Rd Onramp	Merge	9.8	A	16.0	B	18.6	B	18.1	B	15.8	B	13.7	B	13.7	B
Durham Rd to Lane Drop	Basic	11.5	B	19.8	C	23.3	C	22.7	C	19.6	C	16.6	B	16.6	B
Lane Drop to Washington Blvd	Basic	12.1	B	21.0	C	24.9	C	23.9	C	20.4	C	17.4	B	17.6	B
Washington Blvd Offramp	Diverge	12.2	B	21.4	C	25.7	C	24.2	C	21.3	C	17.7	B	18.2	B
Washington Blvd Offramp to Onramp	Basic	11.6	B	19.6	C	22.7	C	21.2	C	18.8	C	16.2	B	16.5	B
Washington Blvd Onramp	Merge	12.1	B	21.1	C	26.1	C	25.0	C	20.7	C	17.5	B	17.7	B

VISSIM Post-Processor **SR 262 Cross Connector**

Results from One Run **Existing Conditions**

Density & LOS by Interval **AM Peak Period (5:00 AM – 12:00 PM)**

Location on I-680 SB	Facility Type	5:00 AM		6:00 AM		7:00 AM		8:00 AM		9:00 AM		10:00 AM		11:00 AM	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
Washington Blvd Onramp	Basic	17.7	B	19.8	C	21.7	C	21.3	C	**41.0**	**E**	17.2	B	13.9	B
Washington Blvd to Auto Mall Pkwy	Basic	18.3	C	19.8	C	21.2	C	23.7	C	**55.2**	**F**	32.4	D	13.9	B
Auto Mall Pkwy Offramp	Basic	19.0	C	20.6	C	22.4	C	**35.7**	**E**	**50.4**	**F**	32.8	D	14.8	B
Auto Mall Pkwy Offramp to Onramp	Basic	18.1	C	19.6	C	22.2	C	**36.5**	**E**	**42.5**	**E**	34.1	D	15.7	B
Auto Mall Pkwy Onramp	Basic	14.6	B	15.7	B	18.8	C	**42.8**	**E**	**43.5**	**E**	**40.1**	**E**	13.2	B
Auto Mall Pkwy to Mission Blvd	Basic	16.1	B	16.9	B	21.8	C	**40.3**	**E**	**39.8**	**E**	**36.1**	**E**	18.0	B
SR 262 Offramp	Basic	16.3	B	16.9	B	23.0	C	33.6	D	33.4	D	31.9	D	19.5	C
SR 262 Offramp to Onramp	Basic	11.9	B	15.7	B	19.3	C	20.4	C	22.7	C	16.0	B	9.8	A
SR 262 Onramp	Basic	11.0	B	14.9	B	18.1	C	19.1	C	22.3	C	16.2	B	9.9	A
SR 262 to Scott Creek Rd	Basic	10.2	A	13.9	B	17.0	B	18.1	C	21.4	C	15.5	B	9.6	A
Scott Creek Rd Offramp	Basic	10.0	A	13.8	B	17.2	B	18.4	C	21.8	C	16.2	B	9.9	A
Scott Creek Rd Offramp to Onramp	Basic	10.0	A	14.0	B	17.7	B	17.9	B	22.4	C	17.3	B	10.6	A
Scott Creek Rd Onramp	Basic	9.5	A	13.0	B	16.3	B	16.5	B	20.1	C	15.5	B	9.7	A
Scott Creek Rd to Jacklin Rd	Basic	9.1	A	12.5	B	15.4	B	15.8	B	19.0	C	14.7	B	9.3	A
Jacklin Rd Offramp	Basic	9.5	A	13.8	B	17.5	B	17.6	B	21.1	C	16.7	B	10.4	A
Jacklin Rd Offramp to Onramp	Basic	10.4	A	14.7	B	19.7	C	19.6	C	22.5	C	18.5	C	11.4	B
Jacklin Rd to SR 237	Weave	9.6	A	14.0	B	21.3	C	20.7	C	22.1	C	18.0	B	11.4	B
SR 237 Offramp to Onramp	Basic	7.4	A	11.9	B	15.6	B	15.9	B	19.4	C	15.7	B	10.8	A
SR 237 Onramp	Merge	8.6	A	13.6	B	18.0	B	19.6	B	22.6	C	20.1	C	15.8	B

VISSIM Post-Processor **SR 262 Cross Connector**

Results from One Run **Existing Conditions**

Density & LOS by Interval **AM Peak Period (5:00 AM – 12:00 PM)**

Location I-880 NB	Facility Type	5:00 AM		6:00 AM		7:00 AM		8:00 AM		9:00 AM		10:00 AM		11:00 AM	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
SR 237 Offramp	Basic	13.9	B	18.4	C	20.8	C	19.8	C	15.6	B	15.4	B	16.4	B
SR 237 Offramp to Onramp	Basic	13.3	B	18.1	C	20.5	C	19.3	C	15.0	B	14.1	B	15.4	B
McCarthy Blvd Onramp	Merge	14.2	B	19.2	B	21.7	C	20.3	C	14.4	B	13.7	B	14.8	B
SR 237 WB Onramp	Merge	14.2	B	19.4	B	22.6	C	20.8	C	14.4	B	13.3	B	14.5	B
SR 237 EB Onramp	Basic	8.8	A	13.1	B	17.3	B	17.9	B	10.9	A	9.8	A	10.5	A
SR 237 EB Onramp to HOT Onramp	Basic	11.3	B	15.2	B	18.6	C	18.5	C	13.7	B	13.3	B	14.2	B
SR 237 HOT Onramp	Basic	10.9	A	14.8	B	18.4	C	18.4	C	13.3	B	12.8	B	13.5	B
SR 237 to Dixon Landing Rd	Basic	10.2	A	14.0	B	17.6	B	17.8	B	12.8	B	12.0	B	12.7	B
Dixon Landing Rd Offramp	Basic	11.0	A	15.7	B	19.8	C	20.0	C	15.7	B	15.1	B	15.9	B
Dixon Landing Rd Offramp to Onramp	Basic	11.3	B	16.1	B	20.3	C	20.1	C	15.6	B	15.0	B	15.9	B
Dixon Landing Rd Onramp	Basic	11.1	B	15.3	B	19.0	C	19.1	C	15.0	B	14.3	B	15.2	B
Dixon Landing Rd to SR 262	Basic	10.7	A	14.5	B	18.2	C	18.3	C	14.9	B	13.9	B	14.5	B
SR 262 Offramp	Basic	11.2	B	15.7	B	20.3	C	19.2	C	15.6	B	14.9	B	14.7	B
Warren Ave Offramp	Diverge	14.4	B	20.1	C	26.0	C	24.1	C	19.5	B	18.7	B	17.9	B
Warren Ave Offramp to Onramp	Basic	12.4	B	17.0	B	22.0	C	21.1	C	17.1	B	15.9	B	15.7	B
Warren Ave Onramp	Merge	13.0	B	19.6	B	24.5	C	21.1	C	17.6	B	18.1	B	17.7	B
SR 262 to Fremont Blvd	Weave	11.7	B	18.6	B	23.6	C	20.0	C	16.4	B	16.5	B	16.3	B
Fremont Blvd Offramp to Onramp	Basic	10.8	A	17.6	B	21.8	C	18.2	C	15.6	B	15.9	B	16.0	B
Fremont Blvd Eastbound Onramp	Merge	11.9	B	19.0	B	23.6	C	19.5	B	16.3	B	16.8	B	17.2	B
Fremont Blvd to Weigh Station	Weave	12.5	B	20.6	C	24.9	C	20.6	C	17.0	B	17.4	B	17.9	B
Weigh Station Offramp to Onramp	Basic	11.9	B	19.2	C	23.0	C	19.2	C	16.6	B	17.3	B	17.7	B
Weigh Station to Auto Mall Pkwy	Weave	11.1	B	18.6	B	21.6	C	18.0	B	14.6	B	15.1	B	15.1	B
Auto Mall Pkwy Offramp to Onramp	Basic	10.1	A	17.5	B	19.6	C	16.7	B	14.1	B	14.8	B	14.1	B
Auto Mall Pkwy EB Onramp	Merge	11.4	B	19.1	B	21.2	C	18.2	B	14.0	B	15.5	B	16.3	B
Auto Mall Pkwy WB Onramp	Merge	13.9	B	23.2	C	26.3	C	23.6	C	17.4	B	18.2	B	20.0	B

VISSIM Post-Processor **SR 262 Cross Connector**

Results from One Run **Existing Conditions**

Density & LOS by Interval **AM Peak Period (5:00 AM – 12:00 PM)**

Location on I-880 SB	Facility Type	5:00 AM		6:00 AM		7:00 AM		8:00 AM		9:00 AM		10:00 AM		11:00 AM	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
Auto Mall Pkwy WB Onramp	Merge	21.2	C	26.5	C	30.2	D	33.2	D	22.8	C	20.5	C	17.3	B
Auto Mall Pkwy to Weigh Station	Weave	22.4	C	27.9	C	32.0	D	**35.2**	**E**	25.7	C	23.2	C	20.9	C
Weigh Station Offramp to Onramp	Basic	21.3	C	26.2	D	28.9	D	33.9	D	27.0	D	23.9	C	21.6	C
Weigh Station Onramp	Basic	17.7	B	22.2	C	23.7	C	**37.9**	**E**	23.5	C	19.9	C	17.6	B
Fremont Blvd Offramp	Basic	16.4	B	21.2	C	24.2	C	**46.3**	**F**	29.1	D	19.9	C	18.0	B
Fremont Blvd Offramp to Lane Drop	Basic	17.9	B	23.6	C	**37.3**	**E**	**52.2**	**F**	34.1	D	22.1	C	19.6	C
Lane Drop to Fremont Blvd Onramp	Basic	18.4	C	24.6	C	**39.3**	**E**	**50.0**	**F**	33.3	D	23.2	C	20.2	C
Fremont Blvd WB Onramp	Merge	21.0	C	28.4	D	**45.7**	**F**	**53.7**	**F**	**38.9**	**E**	28.2	D	23.5	C
Fremont Blvd to SR 262	Weave	18.8	B	25.6	C	30.3	D	29.8	D	23.8	C	22.0	C	19.7	B
SR 262 Offramp to Warren Ave Onramp	Basic	17.2	B	23.8	C	26.6	D	25.9	C	21.6	C	19.8	C	18.6	C
Warren Ave Onramp	Merge	19.4	B	26.1	C	27.4	C	26.1	C	19.9	B	20.8	C	19.7	B
Warren Ave Onramp to SR 262 Onramp	Basic	18.1	C	25.2	C	27.3	D	26.8	D	21.5	C	20.6	C	19.6	C
SR 262 Onramp	Basic	17.4	B	21.7	C	23.1	C	22.2	C	21.3	C	19.2	C	18.0	B
SR 262 to Dixon Landing Rd	Basic	15.4	B	19.7	C	21.9	C	**62.2**	**F**	**65.9**	**F**	19.7	C	16.6	B
Dixon Landing Rd Offramp	Basic	19.5	C	23.9	C	25.4	C	**67.2**	**F**	**63.4**	**F**	22.5	C	19.2	C
Dixon Landing Rd Offramp to Onramp	Basic	19.3	C	23.5	C	28.9	D	**71.9**	**F**	**65.2**	**F**	21.0	C	19.2	C
Dixon Landing Rd WB Onramp	Basic	20.1	C	25.7	C	**37.6**	**E**	**66.4**	**F**	**73.7**	**F**	21.0	C	20.2	C
Dixon Landing Rd EB Onramp	Merge	16.9	B	18.2	B	**42.4**	**E**	**68.5**	**F**	**100.3**	**F**	18.4	B	14.7	B
Dixon Landing Rd to SR 237	Basic	16.7	B	21.8	C	**38.8**	**E**	**57.4**	**F**	**49.9**	**F**	19.3	C	18.1	C
SR 237 HOT Offramp	Basic	16.1	B	20.9	C	**37.2**	**E**	**47.5**	**F**	**46.2**	**F**	19.5	C	18.6	C
SR 237 WB Offramp	Basic	13.4	B	19.4	C	23.2	C	23.8	C	17.5	B	14.6	B	16.5	B
SR 237 EB Offramp	Diverge	14.4	B	21.3	C	26.0	C	26.6	C	20.3	C	16.7	B	17.7	B
SR 237 Offramp to Great Mall Pkwy Offramp	Basic	13.4	B	19.4	B	23.2	C	23.8	C	17.5	B	14.6	B	16.5	B
Great Mall Pkwy Offramp	Diverge	12.7	B	18.1	B	21.5	C	21.6	C	16.0	B	13.0	B	14.4	B
Great Mall Pkwy Offramp to SR 237 Onramp	Basic	11.8	B	17.3	B	21.0	C	21.8	C	16.0	B	13.1	B	15.4	B
SR 237 Onramp	Merge	14.4	B	22.0	C	28.4	D	28.2	D	19.7	B	17.0	B	19.0	B

VISSIM Post-Processor **SR 262 Cross Connector**

Results from One Run **Existing Conditions**

Density & LOS by Interval **PM Peak Period (1:00 PM – 9:00 PM)**

Location I-680 NB	Facility Type	1:00 PM		2:00 PM		3:00 PM		4:00 PM		5:00 PM		6:00 PM		7:00 PM		8:00 PM	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
SR 237 Offramp	Diverge	16.8	B	19.3	B	18.2	B	18.7	B	21.6	C	19.7	B	16.7	B	11.1	B
SR 237 Offramp to Lane Drop	Basic	15.3	B	18.4	C	17.8	B	17.4	B	21.0	C	19.9	C	17.1	B	11.0	A
Lane Drop to SR 237 Onramp	Basic	15.5	B	18.7	C	18.1	C	17.7	B	21.5	C	20.4	C	17.3	B	11.3	B
SR 237 to Jacklin Rd	Weave	15.5	B	18.2	B	18.3	B	17.8	B	20.9	C	19.1	B	16.5	B	11.3	B
Jacklin Rd Offramp to Onramp	Basic	16.1	B	19.0	C	19.0	C	18.4	C	21.5	C	19.3	C	17.1	B	11.5	B
Jacklin Rd Onramp	Merge	17.4	B	20.3	C	19.9	B	19.7	B	22.5	C	20.3	C	18.1	B	12.8	B
Jacklin Rd to Scott Creek Rd	Basic	17.0	B	20.0	C	19.8	C	19.2	C	22.6	C	20.3	C	17.9	B	12.1	B
Scott Creek Rd Offramp	Basic	16.9	B	20.0	C	19.7	C	19.1	C	22.4	C	20.3	C	17.8	B	12.1	B
Scott Creek Rd Offramp to Onramp	Basic	15.4	B	17.9	B	18.1	C	17.6	B	20.2	C	18.1	C	16.8	B	11.3	B
Scott Creek Rd Onramp	Merge	17.2	B	20.1	C	20.2	C	19.2	B	22.5	C	21.0	C	19.2	B	12.9	B
Scott Creek Rd to SR 262	Basic	17.3	B	20.5	C	20.9	C	34.8	D	23.7	C	21.9	C	19.8	C	12.7	B
SR 262 Offramp	Diverge	16.5	B	18.8	B	33.0	D	**69.2**	**F**	23.5	C	20.1	C	18.1	B	12.3	B
SR 262 Offramp to Onramp	Basic	14.9	B	22.3	C	**57.9**	**F**	**98.5**	**F**	26.9	D	24.6	C	15.7	B	11.2	B
SR 262 Onramp	Merge	38.8	E	**59.4**	**F**	**88.4**	**F**	**95.6**	**F**	**87.6**	**F**	**77.7**	**F**	**36.2**	**E**	21.5	C
SR 262 to Durham Rd	Basic	23.2	C	**51.7**	**F**	**85.1**	**F**	**89.2**	**F**	**83.0**	**F**	**76.1**	**F**	34.8	D	17.5	B
Durham Rd Offramp	Diverge	22.1	C	**57.7**	**F**	**88.1**	**F**	**91.2**	**F**	**85.7**	**F**	**76.0**	**F**	**39.2**	**E**	17.5	B
Durham Rd Offramp to Onramp	Basic	20.7	C	**61.4**	**F**	**88.3**	**F**	**89.9**	**F**	**84.6**	**F**	**78.1**	**F**	**40.9**	**E**	16.8	B
Durham Rd Onramp	Merge	17.3	B	**69.7**	**F**	**94.4**	**F**	**95.1**	**F**	**91.0**	**F**	**86.9**	**F**	**49.2**	**F**	14.6	B
Durham Rd to Lane Drop	Basic	22.8	C	**63.0**	**F**	**80.9**	**F**	**81.0**	**F**	**75.9**	**F**	**70.7**	**F**	**45.4**	**F**	17.8	B
Lane Drop to Washington Blvd	Basic	24.4	C	**59.3**	**F**	**78.3**	**F**	**78.0**	**F**	**74.1**	**F**	**66.8**	**F**	**44.4**	**E**	19.1	C
Washington Blvd Offramp	Diverge	24.2	C	**64.6**	**F**	**83.8**	**F**	**83.4**	**F**	**79.0**	**F**	**68.8**	**F**	**47.4**	**F**	19.3	B
Washington Blvd Offramp to Onramp	Basic	21.3	C	**64.4**	**F**	**78.4**	**F**	**77.5**	**F**	**75.5**	**F**	**69.4**	**F**	**49.1**	**F**	18.0	B
Washington Blvd Onramp	Merge	22.5	C	**56.4**	**F**	**64.4**	**F**	**63.5**	**F**	**63.1**	**F**	**60.7**	**F**	**48.9**	**F**	18.4	B

VISSIM Post-Processor **SR 262 Cross Connector**

Results from One Run **Existing Conditions**

Density & LOS by Interval **PM Peak Period (1:00 PM – 9:00 PM)**

Location I-680 SB	Facility Type	1:00 PM		2:00 PM		3:00 PM		4:00 PM		5:00 PM		6:00 PM		7:00 PM		8:00 PM	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
Washington Blvd Onramp	Basic	13.7	B	14.4	B	14.5	B	14.4	B	15.5	B	13.1	B	10.0	A	7.5	A
Washington Blvd to Auto Mall Pkwy	Basic	12.5	B	13.3	B	13.3	B	13.1	B	13.9	B	12.1	B	9.2	A	7.1	A
Auto Mall Pkwy Offramp	Basic	13.1	B	13.8	B	14.0	B	13.2	B	14.2	B	12.7	B	9.4	A	7.4	A
Auto Mall Pkwy Offramp to Onramp	Basic	14.8	B	15.4	B	15.6	B	14.3	B	14.7	B	13.8	B	10.4	A	8.5	A
Auto Mall Pkwy Onramp	Basic	12.3	B	13.3	B	14.0	B	12.9	B	13.5	B	12.1	B	9.3	A	7.6	A
Auto Mall Pkwy to Mission Blvd	Basic	13.0	B	13.8	B	14.5	B	13.4	B	14.1	B	12.6	B	9.5	A	7.7	A
SR 262 Offramp	Basic	14.1	B	14.2	B	14.2	B	13.0	B	13.5	B	12.4	B	9.6	A	8.2	A
SR 262 Offramp to Onramp	Basic	9.6	A	11.1	B	12.2	B	11.4	B	13.3	B	11.0	B	7.8	A	6.1	A
SR 262 Onramp	Basic	9.5	A	11.6	B	13.0	B	12.7	B	14.4	B	12.6	B	8.7	A	6.5	A
SR 262 to Scott Creek Rd	Basic	9.4	A	11.3	B	12.6	B	12.4	B	14.0	B	12.3	B	8.6	A	6.4	A
Scott Creek Rd Offramp	Basic	10.2	A	12.7	B	14.4	B	14.2	B	15.4	B	13.9	B	9.7	A	7.5	A
Scott Creek Rd Offramp to Onramp	Basic	10.9	A	13.7	B	15.4	B	15.2	B	16.5	B	15.0	B	10.4	A	8.1	A
Scott Creek Rd Onramp	Basic	10.0	A	13.3	B	15.5	B	14.7	B	15.9	B	14.4	B	9.5	A	7.4	A
Scott Creek Rd to Jacklin Rd	Basic	9.7	A	13.1	B	15.0	B	14.2	B	15.2	B	13.8	B	9.4	A	7.2	A
Jacklin Rd Offramp	Basic	11.1	B	15.6	B	17.5	B	16.1	B	16.4	B	14.8	B	10.7	A	8.1	A
Jacklin Rd Offramp to Onramp	Basic	12.1	B	16.6	B	18.6	C	17.3	B	17.8	B	16.2	B	11.6	B	8.9	A
Jacklin Rd to SR 237	Weave	12.2	B	17.1	B	19.5	B	17.6	B	17.7	B	16.1	B	12.0	B	8.8	A
SR 237 Offramp to Onramp	Basic	11.9	B	16.7	B	19.0	C	31.7	D	**69.3**	**F**	20.7	C	11.8	B	9.1	A
SR 237 Onramp	Merge	16.8	B	22.5	C	23.8	C	**70.7**	**F**	**81.5**	**F**	28.8	D	16.7	B	13.1	B

VISSIM Post-Processor **SR 262 Cross Connector**

Results from One Run **Existing Conditions**

Density & LOS by Interval **PM Peak Period (1:00 PM – 9:00 PM)**

Location I-880 NB	Facility Type	1:00 PM		2:00 PM		3:00 PM		4:00 PM		5:00 PM		6:00 PM		7:00 PM		8:00 PM	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
SR 237 Offramp	Basic	19.0	C	20.3	C	24.5	C	23.9	C	21.8	C	18.0	C	18.9	C	14.1	B
SR 237 Offramp to Onramp	Basic	18.1	C	19.4	C	24.3	C	23.3	C	21.0	C	16.8	B	18.3	C	13.6	B
McCarthy Blvd Onramp	Merge	17.8	B	19.0	B	26.4	C	25.6	C	22.8	C	17.9	B	18.2	B	13.4	B
SR 237 WB Onramp	Merge	18.5	B	19.4	B	27.7	C	26.8	C	23.7	C	18.0	B	17.9	B	13.7	B
SR 237 EB Onramp	Basic	14.9	B	17.4	B	20.4	C	20.3	C	19.4	C	16.5	B	17.2	B	12.4	B
SR 237 EB Onramp to HOT Onramp	Basic	17.8	B	19.6	C	22.5	C	22.5	C	21.1	C	17.4	B	18.7	C	13.9	B
SR 237 HOT Onramp	Basic	17.5	B	19.6	C	22.2	C	22.2	C	21.1	C	17.5	B	19.0	C	14.0	B
SR 237 to Dixon Landing Rd	Basic	17.3	B	19.6	C	21.1	C	21.3	C	21.0	C	17.5	B	19.2	C	14.0	B
Dixon Landing Rd Offramp	Basic	21.1	C	23.9	C	24.1	C	26.9	D	29.6	D	19.8	C	23.0	C	17.4	B
Dixon Landing Rd Offramp to Onramp	Basic	20.8	C	23.6	C	25.3	C	**49.3**	**F**	**93.5**	**F**	**44.0**	**E**	21.9	C	17.5	B
Dixon Landing Rd Onramp	Basic	19.9	C	21.5	C	23.8	C	**92.7**	**F**	**123.6**	**F**	**87.2**	**F**	20.3	C	16.5	B
Dixon Landing Rd to SR 262	Basic	19.6	C	21.9	C	**38.5**	**E**	**101.8**	**F**	**105.7**	**F**	**89.0**	**F**	20.2	C	16.1	B
SR 262 Offramp	Basic	18.6	C	24.8	C	**53.9**	**F**	**79.7**	**F**	**78.3**	**F**	**76.1**	**F**	20.2	C	15.3	B
Warren Ave Offramp	Diverge	21.7	C	25.2	C	**53.9**	**F**	**86.2**	**F**	**94.1**	**F**	**92.5**	**F**	26.6	C	17.7	B
Warren Ave Offramp to Onramp	Basic	18.5	C	26.0	D	**59.7**	**F**	**91.4**	**F**	**86.3**	**F**	**81.0**	**F**	19.2	C	15.0	B
Warren Ave Onramp	Merge	22.5	C	27.8	C	**48.0**	**F**	**69.2**	**F**	**77.2**	**F**	**73.4**	**F**	**52.1**	**F**	24.9	C
SR 262 to Fremont Blvd	Weave	20.0	B	24.3	C	**35.1**	**E**	**62.2**	**F**	**67.0**	**F**	**67.9**	**F**	**54.8**	**F**	23.5	C
Fremont Blvd Offramp to Onramp	Basic	19.7	C	23.3	C	33.3	D	**66.3**	**F**	**68.0**	**F**	**68.6**	**F**	**60.1**	**F**	25.9	C
Fremont Blvd Eastbound Onramp	Merge	19.5	B	22.4	C	**40.8**	**E**	**75.2**	**F**	**77.2**	**F**	**77.5**	**F**	**65.3**	**F**	27.6	C
Fremont Blvd to Weigh Station	Weave	21.4	C	25.3	C	**40.8**	**E**	**67.9**	**F**	**69.3**	**F**	**67.7**	**F**	**66.2**	**F**	28.7	D
Weigh Station Offramp to Onramp	Basic	21.7	C	26.2	D	**38.9**	**E**	**59.2**	**F**	**61.1**	**F**	**59.2**	**F**	**66.9**	**F**	29.4	D
Weigh Station to Auto Mall Pkwy	Weave	18.1	B	21.4	C	**47.4**	**F**	**67.3**	**F**	**68.6**	**F**	**67.9**	**F**	**66.8**	**F**	29.2	D
Auto Mall Pkwy Offramp to Onramp	Basic	17.4	B	20.6	C	**57.3**	**F**	**65.5**	**F**	**65.0**	**F**	**65.7**	**F**	**77.4**	**F**	**36.2**	**E**
Auto Mall Pkwy EB Onramp	Merge	19.8	B	22.6	C	**72.3**	**F**	**77.1**	**F**	**75.6**	**F**	**75.3**	**F**	**73.4**	**F**	**37.5**	**E**
Auto Mall Pkwy WB Onramp	Merge	23.7	C	31.3	D	**51.9**	**F**	**53.1**	**F**	**53.5**	**F**	**53.1**	**F**	**52.0**	**F**	32.6	D

VISSIM Post-Processor
Results from One Run
Density & LOS by Interval

SR 262 Cross Connector
Existing Conditions
PM Peak Period (1:00 PM – 9:00 PM)

Location I-880 SB	Facility Type	1:00 PM		2:00 PM		3:00 PM		4:00 PM		5:00 PM		6:00 PM		7:00 PM		8:00 PM	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
Auto Mall Pkwy WB Onramp	Merge	16.2	B	18.1	B	18.3	B	18.0	B	19.1	B	17.3	B	11.5	B	9.3	A
Auto Mall Pkwy to Weigh Station	Weave	19.6	B	21.8	C	21.1	C	20.7	C	21.9	C	19.7	B	13.2	B	10.8	B
Weigh Station Offramp to Onramp	Basic	20.0	C	22.6	C	20.7	C	20.7	C	21.9	C	18.8	C	13.8	B	11.1	B
Weigh Station Onramp	Basic	16.8	B	19.2	C	18.1	C	17.4	B	18.5	C	17.0	B	12.4	B	10.1	A
Fremont Blvd Offramp	Basic	17.0	B	19.8	C	18.0	B	18.0	B	18.8	C	16.1	B	12.7	B	10.2	A
Fremont Blvd Offramp to Lane Drop	Basic	18.5	C	21.4	C	19.5	C	19.0	C	20.1	C	17.9	B	13.5	B	10.8	A
Lane Drop to Fremont Blvd Onramp	Basic	18.5	C	21.4	C	19.8	C	19.2	C	20.3	C	18.2	C	13.4	B	10.8	A
Fremont Blvd WB Onramp	Merge	22.6	C	24.9	C	25.4	C	23.3	C	24.7	C	22.5	C	16.6	B	13.5	B
Fremont Blvd to SR 262	Weave	17.7	B	20.4	C	20.3	C	19.4	B	21.9	C	19.5	B	13.6	B	10.5	B
SR 262 Offramp to Warren Ave Onramp	Basic	16.6	B	19.9	C	18.6	C	18.7	C	20.7	C	18.3	C	12.5	B	9.3	A
Warren Ave Onramp	Merge	16.5	B	20.0	B	20.0	C	19.8	B	22.2	C	21.9	C	13.3	B	9.6	A
Warren Ave Onramp to SR 262 Onramp	Basic	17.6	B	21.2	C	20.3	C	20.6	C	22.9	C	21.3	C	13.5	B	9.7	A
SR 262 Onramp	Basic	14.3	B	16.7	B	16.2	B	16.5	B	18.1	C	17.8	B	12.0	B	8.6	A
SR 262 to Dixon Landing Rd	Basic	15.4	B	17.8	B	16.6	B	17.0	B	18.5	C	17.3	B	12.1	B	8.9	A
Dixon Landing Rd Offramp	Basic	16.9	B	19.4	C	18.0	C	18.5	C	20.1	C	18.8	C	13.4	B	9.9	A
Dixon Landing Rd Offramp to Onramp	Basic	17.1	B	19.7	C	18.4	C	18.7	C	20.4	C	19.2	C	13.6	B	10.0	A
Dixon Landing Rd WB Onramp	Basic	17.7	B	19.9	C	19.0	C	19.0	C	21.0	C	19.6	C	14.2	B	10.4	A
Dixon Landing Rd EB Onramp	Merge	12.9	B	15.7	B	15.6	B	15.1	B	18.1	B	16.0	B	10.3	B	7.4	A
Dixon Landing Rd to SR 237	Basic	17.2	B	19.4	C	18.5	C	18.6	C	20.8	C	18.8	C	13.7	B	10.1	A
SR 237 HOT Offramp	Basic	17.2	B	19.7	C	26.8	D	19.4	C	21.6	C	19.6	C	13.9	B	10.5	A
SR 237 WB Offramp	Basic	18.4	C	21.4	C	21.4	C	20.6	C	24.1	C	21.3	C	14.3	B	10.4	A
SR 237 EB Offramp	Diverge	19.2	B	23.0	C	23.4	C	22.9	C	25.7	C	23.7	C	15.4	B	11.4	B
SR 237 Offramp to Great Mall Pkwy Offramp	Basic	18.4	B	21.4	C	21.4	C	20.6	C	24.1	C	21.3	C	14.3	B	10.4	B
Great Mall Pkwy Offramp	Diverge	17.5	B	20.2	C	20.0	C	19.5	B	23.3	C	20.0	B	13.8	B	9.8	A
Great Mall Pkwy Offramp to SR 237 Onramp	Basic	13.4	B	17.3	B	17.3	B	16.2	B	16.7	B	15.6	B	10.7	B	8.8	A
SR 237 Onramp	Merge	18.6	B	23.2	C	22.7	C	20.8	C	19.7	B	19.0	B	14.6	B	12.3	B

Appendix I:

Intersection Operation Results

VISSIM Post-Processor
Results from 1 Run
Delay & LOS by Interval

SR 262 Cross Connector
Existing Conditions
AM (5:00 AM - 12:00 PM)

	Location	Facility Type	5:00 AM		6:00 AM		7:00 AM		8:00 AM		9:00 AM		10:00 AM		11:00 AM	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Landing Boulevard/West Warren Avenue	Signal	3.9	A	4.4	A	5.2	A	9.1	A	8.4	A	6.3	A	7.6	A
2	Lakeview Boulevard/southbound I-880 ramps/Warren Avenue	Signal	7.8	A	8.7	A	13.5	B	19.4	B	19.3	B	12.4	B	14.6	B
3	Northbound I-880 ramps/Warren Avenue	Signal	8.1	A	9.5	A	14.5	B	15.6	B	13.4	B	9.9	A	12.6	B
4	Kato Road/Warren Avenue	Signal	18.0	B	18.7	B	22.0	C	29.2	C	26.1	C	20.8	C	26.1	C
5	Mission Falls Court/Warren Avenue	Side-street Stop	0.7	A	1.0	A	0.9	A	1.0	A	0.6	A	0.7	A	1.3	A
6	Warm Springs Blvd/Warren Avenue	Signal	10.4	B	19.7	B	26.2	C	35.0	D	26.5	C	25.7	C	28.3	C
7	Kato Road/Mission Boulevard off-ramp	All-way Stop	16.3	C	12.2	B	10.2	B	13.4	B	12.7	B	9.8	A	10.6	B
8	Kato Road/Mission Boulevard On-ramp	Uncontrolled	1.1	A	0.5	A	0.3	A	0.5	A	0.4	A	0.4	A	0.3	A
9	Warm Springs Blvd/Mission Blvd	Signal	43.6	D	28.9	C	38.4	D	**126.7**	**F**	**93.3**	**F**	34.7	C	32.9	C
10	Mohave Drive/Mission Blvd	Signal	33.6	C	39.4	D	**68.5**	**E**	**178.6**	**F**	**143.2**	**F**	**83.7**	**F**	50.2	D
11	Curtner Rd/Mission Blvd	Side-street Stop	0.2	A	0.4	A	0.4	A	18.3	C	28.6	D	3.7	A	0.2	A
12	Mission Blvd/Paseo Padre Pkwy	Signal	3.4	A	9.7	A	18.1	B	37.6	D	41.9	D	16.5	B	13.1	B
13	I-880 Ramps/Mission Boulevard	Uncontrolled	3.7	A	2.9	A	4.4	A	21.0	C	11.1	B	2.6	A	1.2	A
14	Southbound I-680 Diagonal Ramps/Mission Boulevard	Uncontrolled	10.6	B	9.3	A	20.0	C	**75.2**	**F**	**51.3**	**F**	30.4	D	13.5	B
15	Southbound I-680 Loop Ramps/Mission Boulevard	Uncontrolled	0.5	A	2.5	A	6.1	A	**48.5**	**E**	28.9	D	6.1	A	4.9	A
16	Northbound I-680 Loop Ramps/Mission Boulevard	Uncontrolled	3.4	A	14.5	B	13.4	B	**61.7**	**F**	**44.9**	**E**	13.6	B	12.4	B
17	Northbound I-680 Diagonal Ramps/Mission Boulevard	Uncontrolled	0.1	A	0.3	A	0.2	A	9.4	A	16.9	C	1.8	A	0.1	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	4	2	50.0%	15.2	B
	Through	4	3	75.0%	18.8	B
	Right Turn	4	4	100.0%	4.9	A
	Subtotal	12	9	75.0%	11.9	B
SB	Left Turn	4	3	75.0%	11.8	B
	Through	4	3	75.0%	16.7	B
	Right Turn	4	2	50.0%	6.8	A
	Subtotal	12	8	66.7%	12.4	B
EB	Left Turn	5	7	140.0%	8.7	A
	Through	24	22	91.7%	1.6	A
	Right Turn	4	3	75.0%	2.5	A
	Subtotal	33	32	97.0%	3.2	A
WB	Left Turn	98	93	94.9%	7.5	A
	Through	108	105	97.2%	1.2	A
	Right Turn	67	58	86.6%	0.9	A
	Subtotal	273	256	93.8%	3.4	A
Total		330	305	92.4%	3.9	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	4	4	100.0%	19.2	B
	Through	4	3	75.0%	11.8	B
	Right Turn	4	1	25.0%	8.6	A
	Subtotal	12	8	66.7%	15.1	B
SB	Left Turn	280	284	101.4%	8.8	A
	Through	33	34	103.0%	10.8	B
	Right Turn	48	46	95.8%	6.5	A
	Subtotal	361	364	100.8%	8.7	A
EB	Left Turn	8	8	100.0%	16.5	B
	Through	20	18	90.0%	8.8	A
	Right Turn	4	3	75.0%	2.1	A
	Subtotal	32	29	90.6%	10.2	B
WB	Left Turn	70	78	111.4%	11.9	B
	Through	221	208	94.1%	5.9	A
	Right Turn	84	83	98.8%	3.3	A
	Subtotal	375	369	98.4%	6.6	A
Total		780	770	98.7%	7.8	A

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	126	137	108.7%	8.6	A
	Through					
	Right Turn	268	232	86.6%	5.0	A
	Subtotal	394	369	93.7%	6.3	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	292	294	100.7%	10.2	B
	Right Turn	12	9	75.0%	2.3	A
	Subtotal	304	303	99.7%	10.0	A
WB	Left Turn	78	66	84.6%	15.1	B
	Through	249	230	92.4%	6.5	A
	Right Turn					
	Subtotal	327	296	90.5%	8.4	A
Total		1,025	968	94.4%	8.1	A

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	68	57	83.8%	18.8	B
	Through	86	86	100.0%	26.5	C
	Right Turn	10	8	80.0%	4.9	A
	Subtotal	164	151	92.1%	22.5	C
SB	Left Turn	25	18	72.0%	28.7	C
	Through	61	57	93.4%	28.2	C
	Right Turn	86	75	87.2%	0.7	A
	Subtotal	172	150	87.2%	14.5	B
EB	Left Turn	252	237	94.0%	25.2	C
	Through	111	93	83.8%	13.4	B
	Right Turn	197	195	99.0%	10.7	B
	Subtotal	560	525	93.8%	17.7	B
WB	Left Turn	27	16	59.3%	32.7	C
	Through	173	167	96.5%	20.6	C
	Right Turn	70	65	92.9%	8.3	A
	Subtotal	270	248	91.9%	18.1	B
Total		1,166	1,074	92.1%	18.0	B

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	12	8	66.7%	8.7	A
	Through	17	17	100.0%	9.0	A
	Right Turn					
	Subtotal	29	25	86.2%	8.9	A
SB	Left Turn	4	5	125.0%	0.0	A
	Through					
	Right Turn	4	3	75.0%	0.0	A
	Subtotal	8	8	100.0%	0.0	A
EB	Left Turn	25	22	88.0%	1.3	A
	Through	94	79	84.0%	0.2	A
	Right Turn	27	18	66.7%	0.9	A
	Subtotal	146	119	81.5%	0.5	A
WB	Left Turn	8	13	162.5%	1.1	A
	Through	254	234	92.1%	0.0	A
	Right Turn	36	34	94.4%	0.7	A
	Subtotal	298	281	94.3%	0.1	A
Total		481	433	90.0%	0.7	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	166	157	94.6%	13.7	B
	Through	79	75	94.9%	6.6	A
	Right Turn	4	7	175.0%	5.3	A
	Subtotal	249	239	96.0%	11.2	B
SB	Left Turn	4	4	100.0%	27.6	C
	Through	132	122	92.4%	13.1	B
	Right Turn	61	69	113.1%	0.9	A
	Subtotal	197	195	99.0%	9.1	A
EB	Left Turn	22	22	100.0%	14.6	B
	Through	11	12	109.1%	20.1	C
	Right Turn	65	55	84.6%	1.3	A
	Subtotal	98	89	90.8%	7.1	A
WB	Left Turn	12	15	125.0%	16.5	B
	Through	71	54	76.1%	18.9	B
	Right Turn	18	18	100.0%	1.1	A
	Subtotal	101	87	86.1%	14.8	B
Total		645	610	94.6%	10.4	B

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	395	378	95.7%	17.3	C
	Through					
	Right Turn					
	Subtotal	395	378	95.7%	17.3	C
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	232	217	93.5%	6.4	A
	Subtotal	232	217	93.5%	6.4	A
WB	Left Turn	50	37	74.0%	16.3	C
	Through	243	226	93.0%	24.1	C
	Right Turn					
	Subtotal	293	263	89.8%	23.0	C
Total		920	858	93.3%	16.3	C

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	395	383	97.0%	1.1	A
	Right Turn	13	5	38.5%	0.5	A
	Subtotal	408	388	95.1%	1.1	A
SB	Left Turn	110	104	94.5%	2.4	A
	Through	172	149	86.6%	0.1	A
	Right Turn					
	Subtotal	282	253	89.7%	1.0	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		690	641	92.9%	1.1	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	47	47	100.0%	37.4	D
	Through	54	52	96.3%	35.4	D
	Right Turn	18	16	88.9%	3.5	A
	Subtotal	119	115	96.6%	31.8	C
SB	Left Turn	24	18	75.0%	46.5	D
	Through	55	63	114.5%	34.4	C
	Right Turn	140	134	95.7%	13.6	B
	Subtotal	219	215	98.2%	22.4	C
EB	Left Turn	148	167	112.8%	36.4	D
	Through	660	623	94.4%	19.0	B
	Right Turn	98	110	112.2%	1.8	A
	Subtotal	906	900	99.3%	20.1	C
WB	Left Turn	44	48	109.1%	50.0	D
	Through	2,068	2,032	98.3%	58.1	E
	Right Turn	137	121	88.3%	22.9	C
	Subtotal	2,249	2,201	97.9%	55.9	E
Total		3,493	3,431	98.2%	43.6	D

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	47	42	89.4%	42.1	D
	Through	4	7	175.0%	39.9	D
	Right Turn	25	15	60.0%	8.5	A
	Subtotal	76	64	84.2%	34.0	C
SB	Left Turn	18	8	44.4%	41.2	D
	Through	4	3	75.0%	31.8	C
	Right Turn	25	29	116.0%	13.3	B
	Subtotal	47	40	85.1%	20.3	C
EB	Left Turn	8	7	87.5%	45.7	D
	Through	671	620	92.4%	13.9	B
	Right Turn	23	16	69.6%	3.6	A
	Subtotal	702	643	91.6%	14.0	B
WB	Left Turn	54	52	96.3%	57.1	E
	Through	2,177	2,118	97.3%	39.1	D
	Right Turn	38	44	115.8%	37.2	D
	Subtotal	2,269	2,214	97.6%	39.5	D
Total		3,094	2,961	95.7%	33.6	C

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	4	4	100.0%	0.0	A
	Subtotal	4	4	100.0%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	55	37	67.3%	0.9	A
	Right Turn	4	9	225.0%	0.2	A
	Subtotal	59	46	78.0%	0.8	A
WB	Left Turn					
	Through	119	106	89.1%	0.0	A
	Right Turn					
	Subtotal	119	106	89.1%	0.0	A
Total		182	156	85.7%	0.2	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	16	13	81.3%	5.3	A
	Through	39	24	61.5%	2.6	A
	Right Turn	4	4	100.0%	0.5	A
	Subtotal	59	41	69.5%	3.3	A
SB	Left Turn	9	10	111.1%	9.4	A
	Through	109	98	89.9%	2.0	A
	Right Turn	4	4	100.0%	3.5	A
	Subtotal	122	112	91.8%	2.7	A
EB	Left Turn					
	Through	4	3	75.0%	10.6	B
	Right Turn	10	8	80.0%	5.0	A
	Subtotal	14	11	78.6%	6.5	A
WB	Left Turn					
	Through	4	5	125.0%	11.4	B
	Right Turn	5	3	60.0%	5.2	A
	Subtotal	9	8	88.9%	9.1	A
Total		204	172	84.3%	3.4	A

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	523	520	99.4%	0.1	A
	Subtotal	523	520	99.4%	0.1	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	260	265	101.9%	0.1	A
	Right Turn					
	Subtotal	260	265	101.9%	0.1	A
WB	Left Turn					
	Through	1,417	1,417	100.0%	4.9	A
	Right Turn	545	540	99.1%	5.6	A
	Subtotal	1,962	1,957	99.7%	5.1	A
Total		2,745	2,742	99.9%	3.7	A

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,566	1,536	98.1%	21.0	C
	Subtotal	1,566	1,536	98.1%	21.0	C
EB	Left Turn					
	Through	598	546	91.3%	0.5	A
	Right Turn	177	150	84.7%	0.5	A
	Subtotal	775	696	89.8%	0.5	A
WB	Left Turn					
	Through	932	891	95.6%	0.6	A
	Right Turn					
	Subtotal	932	891	95.6%	0.6	A
Total		3,273	3,123	95.4%	10.6	B

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	5	3	60.0%	0.0	A
	Subtotal	5	3	60.0%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	598	548	91.6%	0.8	A
	Right Turn					
	Subtotal	598	548	91.6%	0.8	A
WB	Left Turn					
	Through	932	896	96.1%	0.3	A
	Right Turn	17	20	117.6%	1.4	A
	Subtotal	949	916	96.5%	0.3	A
Total		1,552	1,467	94.5%	0.5	A

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	834	814	97.6%	3.7	A
	Subtotal	834	814	97.6%	3.7	A
EB	Left Turn					
	Through	25	24	96.0%	0.1	A
	Right Turn	578	527	91.2%	3.6	A
	Subtotal	603	551	91.4%	3.5	A
WB	Left Turn					
	Through	115	102	88.7%	0.0	A
	Right Turn					
	Subtotal	115	102	88.7%	0.0	A
Total		1,552	1,467	94.5%	3.4	A

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	34	22	64.7%	0.6	A
	Subtotal	34	22	64.7%	0.6	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	25	24	96.0%	0.2	A
	Right Turn					
	Subtotal	25	24	96.0%	0.2	A
WB	Left Turn					
	Through	115	102	88.7%	0.0	A
	Right Turn	4	4	100.0%	0.0	A
	Subtotal	119	106	89.1%	0.0	A
Total		178	152	85.4%	0.1	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	4	6	150.0%	14.1	B
	Through	4	3	75.0%	8.2	A
	Right Turn	22	19	86.4%	5.0	A
	Subtotal	30	28	93.3%	7.3	A
SB	Left Turn	28	22	78.6%	13.9	B
	Through	4	7	175.0%	12.4	B
	Right Turn	5	7	140.0%	5.5	A
	Subtotal	37	36	97.3%	12.0	B
EB	Left Turn	4	4	100.0%	7.2	A
	Through	87	83	95.4%	2.7	A
	Right Turn	7	9	128.6%	3.2	A
	Subtotal	98	96	98.0%	2.9	A
WB	Left Turn	78	74	94.9%	8.6	A
	Through	204	170	83.3%	2.1	A
	Right Turn	54	63	116.7%	1.9	A
	Subtotal	336	307	91.4%	3.6	A
Total		483	467	96.7%	4.4	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	7	9	128.6%	20.9	C
	Through	9	4	44.4%	19.3	B
	Right Turn	13	14	107.7%	5.1	A
	Subtotal	29	27	93.1%	12.5	B
SB	Left Turn	192	208	108.3%	11.2	B
	Through	52	44	84.6%	14.1	B
	Right Turn	49	39	79.6%	6.7	A
	Subtotal	293	291	99.3%	11.0	B
EB	Left Turn	40	38	95.0%	14.2	B
	Through	91	82	90.1%	7.5	A
	Right Turn	6	3	50.0%	4.3	A
	Subtotal	137	123	89.8%	9.5	A
WB	Left Turn	85	74	87.1%	12.4	B
	Through	280	258	92.1%	6.8	A
	Right Turn	193	200	103.6%	5.6	A
	Subtotal	558	532	95.3%	7.1	A
Total		1,017	973	95.7%	8.7	A

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	143	136	95.1%	13.6	B
	Through					
	Right Turn	177	183	103.4%	5.4	A
	Subtotal	320	319	99.7%	8.9	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	268	274	102.2%	12.9	B
	Right Turn	28	28	100.0%	4.5	A
	Subtotal	296	302	102.0%	12.1	B
WB	Left Turn	232	211	90.9%	16.7	B
	Through	415	401	96.6%	4.1	A
	Right Turn					
	Subtotal	647	612	94.6%	8.5	A
Total		1,263	1,233	97.6%	9.5	A

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	147	137	93.2%	27.0	C
	Through	68	63	92.6%	23.0	C
	Right Turn	56	60	107.1%	5.5	A
	Subtotal	271	260	95.9%	21.0	C
SB	Left Turn	45	38	84.4%	30.6	C
	Through	90	96	106.7%	29.1	C
	Right Turn	210	207	98.6%	0.7	A
	Subtotal	345	341	98.8%	12.0	B
EB	Left Turn	97	96	99.0%	33.2	C
	Through	165	153	92.7%	17.2	B
	Right Turn	183	209	114.2%	13.8	B
	Subtotal	445	458	102.9%	19.0	B
WB	Left Turn	31	27	87.1%	35.8	D
	Through	290	266	91.7%	23.7	C
	Right Turn	26	32	123.1%	10.4	B
	Subtotal	347	325	93.7%	23.4	C
Total		1,408	1,384	98.3%	18.7	B

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	37	35	94.6%	9.8	A
	Through	10	10	100.0%	10.9	B
	Right Turn	8	3	37.5%	5.1	A
	Subtotal	55	48	87.3%	9.7	A
SB	Left Turn	4	0	0.0%	0.0	A
	Through					
	Right Turn	4	8	200.0%	0.0	A
	Subtotal	8	8	100.0%	0.0	A
EB	Left Turn	30	32	106.7%	2.0	A
	Through	201	182	90.5%	0.2	A
	Right Turn	35	36	102.9%	0.9	A
	Subtotal	266	250	94.0%	0.6	A
WB	Left Turn	13	6	46.2%	1.7	A
	Through	306	293	95.8%	0.0	A
	Right Turn	17	17	100.0%	0.7	A
	Subtotal	336	316	94.0%	0.1	A
Total		665	622	93.5%	1.0	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	159	155	97.5%	35.9	D
	Through	186	172	92.5%	11.8	B
	Right Turn	9	10	111.1%	2.1	A
	Subtotal	354	337	95.2%	22.6	C
SB	Left Turn	20	21	105.0%	31.4	C
	Through	133	125	94.0%	13.5	B
	Right Turn	70	71	101.4%	2.5	A
	Subtotal	223	217	97.3%	11.7	B
EB	Left Turn	83	74	89.2%	32.2	C
	Through	47	39	83.0%	31.8	C
	Right Turn	83	72	86.7%	1.2	A
	Subtotal	213	185	86.9%	20.1	C
WB	Left Turn	22	23	104.5%	28.4	C
	Through	107	88	82.2%	30.0	C
	Right Turn	20	24	120.0%	1.0	A
	Subtotal	149	135	90.6%	24.6	C
Total		939	874	93.1%	19.7	B

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	162	176	108.6%	11.7	B
	Through					
	Right Turn					
	Subtotal	162	176	108.6%	11.7	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	546	536	98.2%	9.4	A
	Subtotal	546	536	98.2%	9.4	A
WB	Left Turn	72	74	102.8%	15.4	C
	Through	123	152	123.6%	21.0	C
	Right Turn					
	Subtotal	195	226	115.9%	19.2	C
Total		903	938	103.9%	12.2	B

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	162	166	102.5%	0.6	A
	Right Turn	29	25	86.2%	0.4	A
	Subtotal	191	191	100.0%	0.5	A
SB	Left Turn	273	267	97.8%	1.0	A
	Through	345	343	99.4%	0.1	A
	Right Turn					
	Subtotal	618	610	98.7%	0.5	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		809	801	99.0%	0.5	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	69	80	115.9%	101.6	F
	Through	167	160	95.8%	80.4	F
	Right Turn	53	59	111.3%	5.7	A
	Subtotal	289	299	103.5%	71.3	E
SB	Left Turn	75	68	90.7%	106.4	F
	Through	85	91	107.1%	66.4	E
	Right Turn	230	228	99.1%	22.7	C
	Subtotal	390	387	99.2%	47.7	D
EB	Left Turn	254	205	80.7%	111.2	F
	Through	1,207	1,122	93.0%	26.9	C
	Right Turn	86	78	90.7%	2.3	A
	Subtotal	1,547	1,405	90.8%	37.8	D
WB	Left Turn	52	52	100.0%	81.9	F
	Through	2,252	2,271	100.8%	15.7	B
	Right Turn	290	282	97.2%	10.6	B
	Subtotal	2,594	2,605	100.4%	16.5	B
Total		4,820	4,696	97.4%	28.9	C

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	55	44	80.0%	108.2	F
	Through	15	9	60.0%	106.2	F
	Right Turn	76	76	100.0%	10.7	B
	Subtotal	146	129	88.4%	50.6	D
SB	Left Turn	21	14	66.7%	108.3	F
	Through	13	11	84.6%	73.4	E
	Right Turn	30	35	116.7%	15.4	B
	Subtotal	64	60	93.8%	47.7	D
EB	Left Turn	18	12	66.7%	95.0	F
	Through	1,272	1,201	94.4%	10.4	B
	Right Turn	45	46	102.2%	4.5	A
	Subtotal	1,335	1,259	94.3%	11.0	B
WB	Left Turn	25	31	124.0%	169.7	F
	Through	2,509	2,494	99.4%	51.4	D
	Right Turn	33	30	90.9%	40.5	D
	Subtotal	2,567	2,555	99.5%	52.7	D
Total		4,112	4,003	97.3%	39.4	D

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	5	4	80.0%	0.0	A
	Subtotal	5	4	80.0%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	170	175	102.9%	1.2	A
	Right Turn	7	6	85.7%	0.2	A
	Subtotal	177	181	102.3%	1.1	A
WB	Left Turn					
	Through	363	339	93.4%	0.1	A
	Right Turn					
	Subtotal	363	339	93.4%	0.1	A
Total		545	524	96.1%	0.4	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	61	62	101.6%	12.8	B
	Through	110	114	103.6%	6.2	A
	Right Turn	4	2	50.0%	0.4	A
	Subtotal	175	178	101.7%	8.4	A
SB	Left Turn	23	36	156.5%	15.9	B
	Through	304	286	94.1%	9.3	A
	Right Turn	4	4	100.0%	15.2	B
	Subtotal	331	326	98.5%	10.1	B
EB	Left Turn	4	3	75.0%	15.8	B
	Through	4	3	75.0%	15.0	B
	Right Turn	43	39	90.7%	6.7	A
	Subtotal	51	45	88.2%	7.8	A
WB	Left Turn	16	14	87.5%	18.7	B
	Through	4	7	175.0%	18.8	B
	Right Turn	5	2	40.0%	5.1	A
	Subtotal	25	23	92.0%	17.5	B
Total		582	572	98.3%	9.7	A

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	809	767	94.8%	0.4	A
	Subtotal	809	767	94.8%	0.4	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	436	382	87.6%	0.2	A
	Right Turn					
	Subtotal	436	382	87.6%	0.2	A
WB	Left Turn					
	Through	1,380	1,407	102.0%	4.8	A
	Right Turn	976	960	98.4%	3.4	A
	Subtotal	2,356	2,367	100.5%	4.2	A
Total		3,601	3,516	97.6%	2.9	A

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,328	1,377	103.7%	20.8	C
	Subtotal	1,328	1,377	103.7%	20.8	C
EB	Left Turn					
	Through	1,062	1,036	97.6%	3.5	A
	Right Turn	451	406	90.0%	3.6	A
	Subtotal	1,513	1,442	95.3%	3.5	A
WB	Left Turn					
	Through	1,571	1,503	95.7%	4.5	A
	Right Turn					
	Subtotal	1,571	1,503	95.7%	4.5	A
Total		4,412	4,322	98.0%	9.3	A

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	4	5	125.0%	0.0	A
	Subtotal	4	5	125.0%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,062	1,035	97.5%	4.5	A
	Right Turn					
	Subtotal	1,062	1,035	97.5%	4.5	A
WB	Left Turn					
	Through	1,571	1,498	95.4%	1.1	A
	Right Turn	52	46	88.5%	2.9	A
	Subtotal	1,623	1,544	95.1%	1.2	A
Total		2,689	2,584	96.1%	2.5	A

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,269	1,213	95.6%	16.5	C
	Subtotal	1,269	1,213	95.6%	16.5	C
EB	Left Turn					
	Through	64	71	110.9%	0.5	A
	Right Turn	1,002	964	96.2%	18.0	C
	Subtotal	1,066	1,035	97.1%	16.8	C
WB	Left Turn					
	Through	354	332	93.8%	0.1	A
	Right Turn					
	Subtotal	354	332	93.8%	0.1	A
Total		2,689	2,580	95.9%	14.5	B

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	113	112	99.1%	1.1	A
	Subtotal	113	112	99.1%	1.1	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	64	71	110.9%	0.1	A
	Right Turn					
	Subtotal	64	71	110.9%	0.1	A
WB	Left Turn					
	Through	354	332	93.8%	0.0	A
	Right Turn	9	7	77.8%	0.0	A
	Subtotal	363	339	93.4%	0.0	A
Total		540	522	96.7%	0.3	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	4	6	150.0%	12.0	B
	Through	4	3	75.0%	13.3	B
	Right Turn	5	3	60.0%	5.1	A
	Subtotal	13	12	92.3%	10.6	B
SB	Left Turn	39	35	89.7%	16.0	B
	Through	7	6	85.7%	21.6	C
	Right Turn	19	19	100.0%	7.2	A
	Subtotal	65	60	92.3%	13.8	B
EB	Left Turn	8	8	100.0%	10.7	B
	Through	147	159	108.2%	4.4	A
	Right Turn	22	20	90.9%	2.0	A
	Subtotal	177	187	105.6%	4.4	A
WB	Left Turn	99	111	112.1%	12.0	B
	Through	348	352	101.1%	2.5	A
	Right Turn	99	94	94.9%	3.2	A
	Subtotal	546	557	102.0%	4.5	A
Total		801	816	101.9%	5.2	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	11	16	145.5%	17.7	B
	Through	16	8	50.0%	28.7	C
	Right Turn	30	24	80.0%	6.8	A
	Subtotal	57	48	84.2%	14.1	B
SB	Left Turn	272	265	97.4%	17.7	B
	Through	77	82	106.5%	18.0	B
	Right Turn	58	43	74.1%	9.9	A
	Subtotal	407	390	95.8%	16.9	B
EB	Left Turn	58	55	94.8%	20.8	C
	Through	120	131	109.2%	13.9	B
	Right Turn	13	10	76.9%	5.1	A
	Subtotal	191	196	102.6%	15.4	B
WB	Left Turn	177	182	102.8%	19.4	B
	Through	477	497	104.2%	10.4	B
	Right Turn	176	154	87.5%	5.3	A
	Subtotal	830	833	100.4%	11.4	B
Total		1,485	1,467	98.8%	13.5	B

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	249	223	89.6%	20.2	C
	Through					
	Right Turn	222	219	98.6%	8.2	A
	Subtotal	471	442	93.8%	14.3	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	395	383	97.0%	16.8	B
	Right Turn	27	30	111.1%	5.4	A
	Subtotal	422	413	97.9%	16.0	B
WB	Left Turn	385	347	90.1%	26.0	C
	Through	581	609	104.8%	7.0	A
	Right Turn					
	Subtotal	966	956	99.0%	13.9	B
Total		1,859	1,811	97.4%	14.5	B

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	158	170	107.6%	33.9	C
	Through	53	48	90.6%	31.6	C
	Right Turn	25	35	140.0%	7.3	A
	Subtotal	236	253	107.2%	29.8	C
SB	Left Turn	16	10	62.5%	31.3	C
	Through	72	69	95.8%	34.3	C
	Right Turn	125	123	98.4%	0.7	A
	Subtotal	213	202	94.8%	13.6	B
EB	Left Turn	115	105	91.3%	31.5	C
	Through	238	240	100.8%	19.8	B
	Right Turn	264	250	94.7%	17.9	B
	Subtotal	617	595	96.4%	21.0	C
WB	Left Turn	51	63	123.5%	49.7	D
	Through	683	664	97.2%	20.1	C
	Right Turn	30	38	126.7%	15.6	B
	Subtotal	764	765	100.1%	22.3	C
Total		1,830	1,815	99.2%	22.0	C

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	46	47	102.2%	10.4	B
	Through	5	5	100.0%	10.2	B
	Right Turn	24	24	100.0%	6.3	A
	Subtotal	75	76	101.3%	9.1	A
SB	Left Turn	4	3	75.0%	0.0	A
	Through					
	Right Turn	4	5	125.0%	0.0	A
	Subtotal	8	8	100.0%	0.0	A
EB	Left Turn	29	23	79.3%	6.5	A
	Through	228	240	105.3%	0.3	A
	Right Turn	22	19	86.4%	1.0	A
	Subtotal	279	282	101.1%	0.8	A
WB	Left Turn	12	12	100.0%	1.1	A
	Through	714	724	101.4%	0.1	A
	Right Turn	28	32	114.3%	1.1	A
	Subtotal	754	768	101.9%	0.2	A
Total		1,116	1,134	101.6%	0.9	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	397	350	88.2%	52.4	D
	Through	439	441	100.5%	12.3	B
	Right Turn	36	27	75.0%	8.8	A
	Subtotal	872	818	93.8%	29.3	C
SB	Left Turn	37	29	78.4%	16.0	B
	Through	275	243	88.4%	8.4	A
	Right Turn	101	123	121.8%	3.0	A
	Subtotal	413	395	95.6%	7.3	A
EB	Left Turn	90	89	98.9%	48.3	D
	Through	46	44	95.7%	33.9	C
	Right Turn	120	135	112.5%	2.0	A
	Subtotal	256	268	104.7%	22.6	C
WB	Left Turn	51	46	90.2%	57.9	E
	Through	256	262	102.3%	49.4	D
	Right Turn	68	68	100.0%	2.0	A
	Subtotal	375	376	100.3%	41.9	D
Total		1,916	1,857	96.9%	26.2	C

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	177	172	97.2%	9.5	A
	Through					
	Right Turn					
	Subtotal	177	172	97.2%	9.5	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	153	160	104.6%	6.1	A
	Subtotal	153	160	104.6%	6.1	A
WB	Left Turn	105	81	77.1%	11.1	B
	Through	100	118	118.0%	16.3	C
	Right Turn					
	Subtotal	205	199	97.1%	14.2	B
Total		535	531	99.3%	10.2	B

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	177	174	98.3%	0.5	A
	Right Turn	21	17	81.0%	0.4	A
	Subtotal	198	191	96.5%	0.5	A
SB	Left Turn	45	40	88.9%	0.7	A
	Through	213	201	94.4%	0.1	A
	Right Turn					
	Subtotal	258	241	93.4%	0.2	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		456	432	94.7%	0.3	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	181	189	104.4%	107.4	F
	Through	314	300	95.5%	74.2	E
	Right Turn	102	118	115.7%	8.2	A
	Subtotal	597	607	101.7%	71.7	E
SB	Left Turn	109	109	100.0%	115.7	F
	Through	195	185	94.9%	77.9	E
	Right Turn	318	297	93.4%	26.6	C
	Subtotal	622	591	95.0%	59.1	E
EB	Left Turn	302	295	97.7%	123.3	F
	Through	1,236	1,278	103.4%	35.4	D
	Right Turn	127	115	90.6%	3.7	A
	Subtotal	1,665	1,688	101.4%	48.6	D
WB	Left Turn	91	74	81.3%	67.3	E
	Through	2,430	2,388	98.3%	20.6	C
	Right Turn	327	322	98.5%	10.1	B
	Subtotal	2,848	2,784	97.8%	20.7	C
Total		5,732	5,670	98.9%	38.4	D

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	79	76	96.2%	111.3	F
	Through	23	21	91.3%	129.1	F
	Right Turn	105	96	91.4%	10.9	B
	Subtotal	207	193	93.2%	63.3	E
SB	Left Turn	20	15	75.0%	76.1	E
	Through	41	35	85.4%	71.0	E
	Right Turn	47	43	91.5%	14.0	B
	Subtotal	108	93	86.1%	45.5	D
EB	Left Turn	15	9	60.0%	86.1	F
	Through	1,385	1,447	104.5%	15.9	B
	Right Turn	47	47	100.0%	8.4	A
	Subtotal	1,447	1,503	103.9%	16.1	B
WB	Left Turn	70	59	84.3%	213.3	F
	Through	2,722	2,702	99.3%	95.0	F
	Right Turn	44	63	143.2%	92.4	F
	Subtotal	2,836	2,824	99.6%	97.4	F
Total		4,598	4,613	100.3%	68.5	E

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	11	8	72.7%	0.0	A
	Subtotal	11	8	72.7%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	306	291	95.1%	1.0	A
	Right Turn	28	32	114.3%	0.3	A
	Subtotal	334	323	96.7%	0.9	A
WB	Left Turn					
	Through	850	846	99.5%	0.3	A
	Right Turn					
	Subtotal	850	846	99.5%	0.3	A
Total		1,195	1,177	98.5%	0.4	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	100	101	101.0%	33.0	C
	Through	211	190	90.0%	12.6	B
	Right Turn	6	6	100.0%	2.8	A
	Subtotal	317	297	93.7%	19.3	B
SB	Left Turn	62	65	104.8%	36.2	D
	Through	672	670	99.7%	17.2	B
	Right Turn	8	7	87.5%	14.6	B
	Subtotal	742	742	100.0%	18.8	B
EB	Left Turn	4	3	75.0%	60.8	E
	Through	44	41	93.2%	24.9	C
	Right Turn	138	135	97.8%	8.2	A
	Subtotal	186	179	96.2%	12.9	B
WB	Left Turn	40	40	100.0%	26.9	C
	Through	61	55	90.2%	20.9	C
	Right Turn	36	34	94.4%	4.5	A
	Subtotal	137	129	94.2%	18.4	B
Total		1,382	1,347	97.5%	18.1	B

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,123	1,118	99.6%	0.5	A
	Subtotal	1,123	1,118	99.6%	0.5	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	476	489	102.7%	0.6	A
	Right Turn					
	Subtotal	476	489	102.7%	0.6	A
WB	Left Turn					
	Through	1,566	1,525	97.4%	7.7	A
	Right Turn	1,158	1,116	96.4%	5.6	A
	Subtotal	2,724	2,641	97.0%	6.8	A
Total		4,323	4,248	98.3%	4.4	A

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,135	1,206	106.3%	54.4	F
	Subtotal	1,135	1,206	106.3%	54.4	F
EB	Left Turn					
	Through	1,284	1,257	97.9%	5.4	A
	Right Turn	356	407	114.3%	3.7	A
	Subtotal	1,640	1,664	101.5%	5.0	A
WB	Left Turn					
	Through	1,971	1,878	95.3%	11.3	B
	Right Turn					
	Subtotal	1,971	1,878	95.3%	11.3	B
Total		4,746	4,748	100.0%	20.0	C

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	13	13	100.0%	0.3	A
	Subtotal	13	13	100.0%	0.3	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,284	1,254	97.7%	8.7	A
	Right Turn					
	Subtotal	1,284	1,254	97.7%	8.7	A
WB	Left Turn					
	Through	1,971	1,886	95.7%	4.3	A
	Right Turn	167	183	109.6%	7.4	A
	Subtotal	2,138	2,069	96.8%	4.6	A
Total		3,435	3,336	97.1%	6.1	A

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,329	1,271	95.6%	13.3	B
	Subtotal	1,329	1,271	95.6%	13.3	B
EB	Left Turn					
	Through	133	136	102.3%	2.7	A
	Right Turn	1,164	1,127	96.8%	24.0	C
	Subtotal	1,297	1,263	97.4%	21.7	C
WB	Left Turn					
	Through	809	800	98.9%	0.3	A
	Right Turn					
	Subtotal	809	800	98.9%	0.3	A
Total		3,435	3,334	97.1%	13.4	B

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	201	185	92.0%	0.7	A
	Subtotal	201	185	92.0%	0.7	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	133	136	102.3%	0.1	A
	Right Turn					
	Subtotal	133	136	102.3%	0.1	A
WB	Left Turn					
	Through	809	801	99.0%	0.1	A
	Right Turn	41	44	107.3%	0.2	A
	Subtotal	850	845	99.4%	0.1	A
Total		1,184	1,166	98.5%	0.2	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	7	8	114.3%	18.5	B
	Through	4	4	100.0%	23.6	C
	Right Turn	18	16	88.9%	4.2	A
	Subtotal	29	28	96.6%	11.0	B
SB	Left Turn	65	54	83.1%	21.7	C
	Through	77	61	79.2%	21.9	C
	Right Turn	80	100	125.0%	10.0	A
	Subtotal	222	215	96.8%	16.3	B
EB	Left Turn	10	10	100.0%	23.0	C
	Through	147	164	111.6%	9.3	A
	Right Turn	48	41	85.4%	6.1	A
	Subtotal	205	215	104.9%	9.4	A
WB	Left Turn	236	215	91.1%	21.9	C
	Through	616	678	110.1%	3.6	A
	Right Turn	119	128	107.6%	3.7	A
	Subtotal	971	1,021	105.1%	7.5	A
Total		1,427	1,479	103.6%	9.1	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	14	16	114.3%	30.7	C
	Through	4	7	175.0%	41.7	D
	Right Turn	39	34	87.2%	7.3	A
	Subtotal	57	57	100.0%	18.1	B
SB	Left Turn	351	335	95.4%	23.4	C
	Through	245	250	102.0%	25.2	C
	Right Turn	188	177	94.1%	13.8	B
	Subtotal	784	762	97.2%	21.8	C
EB	Left Turn	51	51	100.0%	31.8	C
	Through	156	159	101.9%	17.9	B
	Right Turn	23	25	108.7%	9.7	A
	Subtotal	230	235	102.2%	20.0	C
WB	Left Turn	293	261	89.1%	35.0	C
	Through	769	830	107.9%	15.5	B
	Right Turn	282	234	83.0%	7.8	A
	Subtotal	1,344	1,325	98.6%	18.0	B
Total		2,415	2,379	98.5%	19.4	B

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	352	326	92.6%	23.8	C
	Through					
	Right Turn	303	319	105.3%	9.3	A
	Subtotal	655	645	98.5%	16.6	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	500	495	99.0%	16.4	B
	Right Turn	46	36	78.3%	4.4	A
	Subtotal	546	531	97.3%	15.6	B
WB	Left Turn	317	274	86.4%	26.8	C
	Through	992	999	100.7%	12.0	B
	Right Turn					
	Subtotal	1,309	1,273	97.2%	15.2	B
Total		2,510	2,449	97.6%	15.6	B

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	181	195	107.7%	38.5	D
	Through	75	60	80.0%	37.8	D
	Right Turn	54	57	105.6%	8.0	A
	Subtotal	310	312	100.6%	32.8	C
SB	Left Turn	27	18	66.7%	49.6	D
	Through	122	111	91.0%	42.6	D
	Right Turn	171	151	88.3%	0.7	A
	Subtotal	320	280	87.5%	20.4	C
EB	Left Turn	175	172	98.3%	46.3	D
	Through	315	323	102.5%	22.5	C
	Right Turn	316	316	100.0%	19.8	B
	Subtotal	806	811	100.6%	26.5	C
WB	Left Turn	104	115	110.6%	58.1	E
	Through	960	940	97.9%	29.8	C
	Right Turn	53	71	134.0%	23.3	C
	Subtotal	1,117	1,126	100.8%	32.2	C
Total		2,553	2,529	99.1%	29.2	C

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	26	18	69.2%	12.6	B
	Through	5	4	80.0%	13.6	B
	Right Turn	13	17	130.8%	6.9	A
	Subtotal	44	39	88.6%	10.2	B
SB	Left Turn	4	5	125.0%	0.0	A
	Through					
	Right Turn	5	3	60.0%	7.5	A
	Subtotal	9	8	88.9%	2.8	A
EB	Left Turn	25	26	104.0%	4.4	A
	Through	359	365	101.7%	0.6	A
	Right Turn	12	11	91.7%	1.1	A
	Subtotal	396	402	101.5%	0.9	A
WB	Left Turn	10	10	100.0%	2.0	A
	Through	1,086	1,104	101.7%	0.7	A
	Right Turn	21	20	95.2%	0.8	A
	Subtotal	1,117	1,134	101.5%	0.7	A
Total		1,566	1,583	101.1%	1.0	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	494	506	102.4%	53.9	D
	Through	486	429	88.3%	19.1	B
	Right Turn	124	121	97.6%	13.2	B
	Subtotal	1,104	1,056	95.7%	35.1	D
SB	Left Turn	48	39	81.3%	27.7	C
	Through	433	383	88.5%	10.6	B
	Right Turn	161	158	98.1%	7.2	A
	Subtotal	642	580	90.3%	10.8	B
EB	Left Turn	104	111	106.7%	36.6	D
	Through	72	80	111.1%	37.6	D
	Right Turn	200	190	95.0%	4.3	A
	Subtotal	376	381	101.3%	20.7	C
WB	Left Turn	177	164	92.7%	51.6	D
	Through	462	470	101.7%	73.3	E
	Right Turn	78	74	94.9%	18.2	B
	Subtotal	717	708	98.7%	62.5	E
Total		2,839	2,725	96.0%	35.0	D

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	269	277	103.0%	13.6	B
	Through					
	Right Turn					
	Subtotal	269	277	103.0%	13.6	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	164	174	106.1%	6.5	A
	Subtotal	164	174	106.1%	6.5	A
WB	Left Turn	186	140	75.3%	15.5	C
	Through	141	123	87.2%	20.4	C
	Right Turn					
	Subtotal	327	263	80.4%	17.8	C
Total		760	714	93.9%	13.4	B

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	269	277	103.0%	0.7	A
	Right Turn	34	26	76.5%	0.4	A
	Subtotal	303	303	100.0%	0.7	A
SB	Left Turn	30	33	110.0%	3.4	A
	Through	320	282	88.1%	0.1	A
	Right Turn					
	Subtotal	350	315	90.0%	0.4	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		653	618	94.6%	0.5	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	178	182	102.2%	104.4	F
	Through	411	401	97.6%	77.4	E
	Right Turn	79	64	81.0%	29.1	C
	Subtotal	668	647	96.9%	80.2	F
SB	Left Turn	122	101	82.8%	140.5	F
	Through	389	341	87.7%	163.2	F
	Right Turn	496	450	90.7%	191.1	F
	Subtotal	1,007	892	88.6%	174.7	F
EB	Left Turn	388	370	95.4%	386.1	F
	Through	1,495	1,344	89.9%	242.6	F
	Right Turn	151	143	94.7%	177.0	F
	Subtotal	2,034	1,857	91.3%	266.2	F
WB	Left Turn	102	89	87.3%	66.4	E
	Through	2,324	2,199	94.6%	20.0	B
	Right Turn	283	269	95.1%	8.5	A
	Subtotal	2,709	2,557	94.4%	20.4	C
Total		6,418	5,953	92.8%	126.7	F

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	88	93	105.7%	119.5	F
	Through	55	50	90.9%	114.9	F
	Right Turn	141	148	105.0%	15.2	B
	Subtotal	284	291	102.5%	65.7	E
SB	Left Turn	35	27	77.1%	77.7	E
	Through	65	68	104.6%	85.6	F
	Right Turn	59	62	105.1%	11.9	B
	Subtotal	159	157	98.7%	55.1	E
EB	Left Turn	22	28	127.3%	99.3	F
	Through	1,589	1,368	86.1%	61.3	E
	Right Turn	70	61	87.1%	25.3	C
	Subtotal	1,681	1,457	86.7%	60.5	E
WB	Left Turn	66	61	92.4%	359.2	F
	Through	2,547	2,415	94.8%	265.0	F
	Right Turn	58	55	94.8%	261.9	F
	Subtotal	2,671	2,531	94.8%	267.2	F
Total		4,795	4,436	92.5%	178.6	F

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	11	8	72.7%	0.0	A
	Subtotal	11	8	72.7%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	404	359	88.9%	81.1	F
	Right Turn	43	29	67.4%	0.3	A
	Subtotal	447	388	86.8%	75.1	F
WB	Left Turn					
	Through	1,222	1,226	100.3%	0.4	A
	Right Turn					
	Subtotal	1,222	1,226	100.3%	0.4	A
Total		1,680	1,622	96.5%	18.3	C

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	141	121	85.8%	39.8	D
	Through	263	233	88.6%	13.5	B
	Right Turn	11	15	136.4%	5.9	A
	Subtotal	415	369	88.9%	21.8	C
SB	Left Turn	119	105	88.2%	34.9	C
	Through	921	924	100.3%	23.9	C
	Right Turn	17	16	94.1%	21.8	C
	Subtotal	1,057	1,045	98.9%	25.0	C
EB	Left Turn	10	5	50.0%	134.9	F
	Through	109	103	94.5%	111.7	F
	Right Turn	248	246	99.2%	92.2	F
	Subtotal	367	354	96.5%	98.5	F
WB	Left Turn	53	60	113.2%	41.2	D
	Through	98	86	87.8%	26.8	C
	Right Turn	66	58	87.9%	4.6	A
	Subtotal	217	204	94.0%	24.7	C
Total		2,056	1,972	95.9%	37.6	D

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,600	1,582	98.9%	42.9	E
	Subtotal	1,600	1,582	98.9%	42.9	E
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	370	358	96.8%	38.6	E
	Right Turn					
	Subtotal	370	358	96.8%	38.6	E
WB	Left Turn					
	Through	1,689	1,653	97.9%	6.1	A
	Right Turn	982	947	96.4%	3.7	A
	Subtotal	2,671	2,600	97.3%	5.2	A
Total		4,641	4,540	97.8%	21.0	C

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,031	1,048	101.6%	157.3	F
	Subtotal	1,031	1,048	101.6%	157.3	F
EB	Left Turn					
	Through	1,347	1,196	88.8%	30.5	D
	Right Turn	436	362	83.0%	15.3	C
	Subtotal	1,783	1,558	87.4%	26.9	D
WB	Left Turn					
	Through	2,084	1,946	93.4%	69.6	F
	Right Turn					
	Subtotal	2,084	1,946	93.4%	69.6	F
Total		4,898	4,552	92.9%	75.2	F

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	14	10	71.4%	9.7	A
	Subtotal	14	10	71.4%	9.7	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,347	1,190	88.3%	51.7	F
	Right Turn					
	Subtotal	1,347	1,190	88.3%	51.7	F
WB	Left Turn					
	Through	2,084	1,951	93.6%	48.7	E
	Right Turn	276	275	99.6%	34.0	D
	Subtotal	2,360	2,226	94.3%	46.9	E
Total		3,721	3,426	92.1%	48.5	E

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,183	1,075	90.9%	83.9	F
	Subtotal	1,183	1,075	90.9%	83.9	F
EB	Left Turn					
	Through	233	205	88.0%	11.5	B
	Right Turn	1,128	973	86.3%	110.4	F
	Subtotal	1,361	1,178	86.6%	93.2	F
WB	Left Turn					
	Through	1,177	1,173	99.7%	9.6	A
	Right Turn					
	Subtotal	1,177	1,173	99.7%	9.6	A
Total		3,721	3,426	92.1%	61.7	F

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	214	184	86.0%	80.8	F
	Subtotal	214	184	86.0%	80.8	F
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	233	204	87.6%	0.2	A
	Right Turn					
	Subtotal	233	204	87.6%	0.2	A
WB	Left Turn					
	Through	1,177	1,181	100.3%	0.2	A
	Right Turn	45	46	102.2%	0.2	A
	Subtotal	1,222	1,227	100.4%	0.2	A
Total		1,669	1,615	96.8%	9.4	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	15	14	93.3%	23.3	C
	Through	5	5	100.0%	21.2	C
	Right Turn	25	25	100.0%	5.9	A
	Subtotal	45	44	97.8%	13.2	B
SB	Left Turn	42	31	73.8%	24.6	C
	Through	40	38	95.0%	28.8	C
	Right Turn	43	48	111.6%	10.1	B
	Subtotal	125	117	93.6%	20.0	C
EB	Left Turn	14	21	150.0%	21.6	C
	Through	159	148	93.1%	8.5	A
	Right Turn	44	39	88.6%	6.5	A
	Subtotal	217	208	95.9%	9.4	A
WB	Left Turn	266	265	99.6%	17.8	B
	Through	617	632	102.4%	2.8	A
	Right Turn	116	120	103.4%	2.5	A
	Subtotal	999	1,017	101.8%	6.6	A
Total		1,386	1,386	100.0%	8.4	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	27	34	125.9%	28.5	C
	Through	8	2	25.0%	43.9	D
	Right Turn	45	39	86.7%	6.6	A
	Subtotal	80	75	93.8%	17.5	B
SB	Left Turn	381	364	95.5%	23.2	C
	Through	260	254	97.7%	25.1	C
	Right Turn	260	252	96.9%	12.8	B
	Subtotal	901	870	96.6%	20.7	C
EB	Left Turn	46	43	93.5%	31.9	C
	Through	160	141	88.1%	21.4	C
	Right Turn	20	21	105.0%	13.7	B
	Subtotal	226	205	90.7%	22.8	C
WB	Left Turn	265	246	92.8%	29.4	C
	Through	712	733	102.9%	15.9	B
	Right Turn	145	134	92.4%	5.1	A
	Subtotal	1,122	1,113	99.2%	17.6	B
Total		2,329	2,263	97.2%	19.3	B

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	354	353	99.7%	20.5	C
	Through					
	Right Turn	229	225	98.3%	7.6	A
	Subtotal	583	578	99.1%	15.5	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	529	502	94.9%	14.4	B
	Right Turn	57	42	73.7%	4.8	A
	Subtotal	586	544	92.8%	13.7	B
WB	Left Turn	249	231	92.8%	26.2	C
	Through	768	756	98.4%	7.7	A
	Right Turn					
	Subtotal	1,017	987	97.1%	12.1	B
Total		2,186	2,109	96.5%	13.4	B

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	152	143	94.1%	41.3	D
	Through	53	60	113.2%	39.1	D
	Right Turn	34	32	94.1%	6.5	A
	Subtotal	239	235	98.3%	36.0	D
SB	Left Turn	18	21	116.7%	38.1	D
	Through	122	134	109.8%	39.9	D
	Right Turn	181	154	85.1%	0.7	A
	Subtotal	321	309	96.3%	20.2	C
EB	Left Turn	139	120	86.3%	37.4	D
	Through	251	264	105.2%	24.7	C
	Right Turn	368	348	94.6%	22.2	C
	Subtotal	758	732	96.6%	25.6	C
WB	Left Turn	100	96	96.0%	51.4	D
	Through	684	674	98.5%	22.9	C
	Right Turn	33	39	118.2%	16.6	B
	Subtotal	817	809	99.0%	25.9	C
Total		2,135	2,085	97.7%	26.1	C

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	21	21	100.0%	10.4	B
	Through	4	4	100.0%	9.0	A
	Right Turn	22	20	90.9%	6.6	A
	Subtotal	47	45	95.7%	8.6	A
SB	Left Turn	4	5	125.0%	0.0	A
	Through					
	Right Turn	4	3	75.0%	0.0	A
	Subtotal	8	8	100.0%	0.0	A
EB	Left Turn	21	16	76.2%	2.5	A
	Through	267	277	103.7%	0.5	A
	Right Turn	15	19	126.7%	0.8	A
	Subtotal	303	312	103.0%	0.6	A
WB	Left Turn	42	42	100.0%	4.7	A
	Through	792	779	98.4%	0.0	A
	Right Turn	5	1	20.0%	0.7	A
	Subtotal	839	822	98.0%	0.2	A
Total		1,197	1,187	99.2%	0.6	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	313	317	101.3%	48.6	D
	Through	362	366	101.1%	14.6	B
	Right Turn	26	31	119.2%	9.5	A
	Subtotal	701	714	101.9%	29.5	C
SB	Left Turn	52	56	107.7%	30.0	C
	Through	332	337	101.5%	8.7	A
	Right Turn	224	223	99.6%	4.3	A
	Subtotal	608	616	101.3%	9.0	A
EB	Left Turn	113	109	96.5%	42.6	D
	Through	55	75	136.4%	45.6	D
	Right Turn	125	123	98.4%	2.5	A
	Subtotal	293	307	104.8%	27.3	C
WB	Left Turn	97	114	117.5%	41.4	D
	Through	302	308	102.0%	51.5	D
	Right Turn	47	49	104.3%	4.7	A
	Subtotal	446	471	105.6%	44.2	D
Total		2,048	2,108	102.9%	26.5	C

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	188	185	98.4%	9.7	A
	Through					
	Right Turn					
	Subtotal	188	185	98.4%	9.7	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	144	142	98.6%	6.5	A
	Subtotal	144	142	98.6%	6.5	A
WB	Left Turn	208	199	95.7%	16.2	C
	Through	94	92	97.9%	20.4	C
	Right Turn					
	Subtotal	302	291	96.4%	17.5	C
Total		634	618	97.5%	12.7	B

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	188	184	97.9%	0.7	A
	Right Turn	37	35	94.6%	0.4	A
	Subtotal	225	219	97.3%	0.6	A
SB	Left Turn	31	33	106.5%	1.4	A
	Through	321	308	96.0%	0.1	A
	Right Turn					
	Subtotal	352	341	96.9%	0.2	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		577	560	97.1%	0.4	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	154	142	92.2%	98.5	F
	Through	265	269	101.5%	87.0	F
	Right Turn	103	105	101.9%	30.3	C
	Subtotal	522	516	98.9%	78.6	E
SB	Left Turn	106	103	97.2%	158.6	F
	Through	273	293	107.3%	164.1	F
	Right Turn	355	425	119.7%	207.5	F
	Subtotal	734	821	111.9%	185.9	F
EB	Left Turn	206	240	116.5%	256.5	F
	Through	1,414	1,399	98.9%	169.4	F
	Right Turn	157	164	104.5%	90.0	F
	Subtotal	1,777	1,803	101.5%	173.7	F
WB	Left Turn	178	175	98.3%	68.0	E
	Through	2,242	2,334	104.1%	12.5	B
	Right Turn	212	239	112.7%	7.7	A
	Subtotal	2,632	2,748	104.4%	15.6	B
Total		5,665	5,888	103.9%	93.3	F

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	84	64	76.2%	92.9	F
	Through	24	18	75.0%	87.9	F
	Right Turn	94	105	111.7%	27.4	C
	Subtotal	202	187	92.6%	55.6	E
SB	Left Turn	39	32	82.1%	91.5	F
	Through	27	29	107.4%	104.1	F
	Right Turn	46	36	78.3%	9.7	A
	Subtotal	112	97	86.6%	64.9	E
EB	Left Turn	30	32	106.7%	120.9	F
	Through	1,554	1,589	102.3%	56.2	E
	Right Turn	39	43	110.3%	34.0	C
	Subtotal	1,623	1,664	102.5%	56.9	E
WB	Left Turn	84	77	91.7%	317.9	F
	Through	2,502	2,626	105.0%	200.8	F
	Right Turn	46	43	93.5%	208.4	F
	Subtotal	2,632	2,746	104.3%	204.2	F
Total		4,569	4,694	102.7%	143.2	F

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	31	28	90.3%	0.0	A
	Subtotal	31	28	90.3%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	297	362	121.9%	117.6	F
	Right Turn	41	43	104.9%	0.3	A
	Subtotal	338	405	119.8%	105.2	F
WB	Left Turn					
	Through	1,094	1,071	97.9%	0.3	A
	Right Turn					
	Subtotal	1,094	1,071	97.9%	0.3	A
Total		1,463	1,504	102.8%	28.6	D

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	93	106	114.0%	35.2	D
	Through	229	272	118.8%	15.2	B
	Right Turn	6	8	133.3%	6.2	A
	Subtotal	328	386	117.7%	20.5	C
SB	Left Turn	89	85	95.5%	35.9	D
	Through	785	777	99.0%	21.0	C
	Right Turn	14	16	114.3%	15.2	B
	Subtotal	888	878	98.9%	22.3	C
EB	Left Turn	4	2	50.0%	157.8	F
	Through	76	82	107.9%	152.2	F
	Right Turn	244	230	94.3%	126.8	F
	Subtotal	324	314	96.9%	133.6	F
WB	Left Turn	65	61	93.8%	31.3	C
	Through	40	42	105.0%	22.6	C
	Right Turn	54	52	96.3%	4.3	A
	Subtotal	159	155	97.5%	19.9	B
Total		1,699	1,733	102.0%	41.9	D

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,111	1,048	94.3%	24.6	C
	Subtotal	1,111	1,048	94.3%	24.6	C
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	598	569	95.2%	18.0	C
	Right Turn					
	Subtotal	598	569	95.2%	18.0	C
WB	Left Turn					
	Through	1,287	1,446	112.4%	4.9	A
	Right Turn	1,162	1,150	99.0%	3.3	A
	Subtotal	2,449	2,596	106.0%	4.2	A
Total		4,158	4,213	101.3%	11.1	B

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,067	1,151	107.9%	126.4	F
	Subtotal	1,067	1,151	107.9%	126.4	F
EB	Left Turn					
	Through	1,118	1,172	104.8%	19.5	C
	Right Turn	795	786	98.9%	10.4	B
	Subtotal	1,913	1,958	102.4%	15.9	C
WB	Left Turn					
	Through	1,913	1,987	103.9%	42.6	E
	Right Turn					
	Subtotal	1,913	1,987	103.9%	42.6	E
Total		4,893	5,096	104.1%	51.3	F

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	18	27	150.0%	3.4	A
	Subtotal	18	27	150.0%	3.4	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,118	1,173	104.9%	32.5	D
	Right Turn					
	Subtotal	1,118	1,173	104.9%	32.5	D
WB	Left Turn					
	Through	1,913	1,976	103.3%	27.4	D
	Right Turn	369	364	98.6%	27.1	D
	Subtotal	2,282	2,340	102.5%	27.3	D
Total		3,418	3,540	103.6%	28.9	D

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,207	1,273	105.5%	63.1	F
	Subtotal	1,207	1,273	105.5%	63.1	F
EB	Left Turn					
	Through	145	193	133.1%	5.4	A
	Right Turn	991	1,017	102.6%	73.9	F
	Subtotal	1,136	1,210	106.5%	62.9	F
WB	Left Turn					
	Through	1,075	1,059	98.5%	2.6	A
	Right Turn					
	Subtotal	1,075	1,059	98.5%	2.6	A
Total		3,418	3,542	103.6%	44.9	E

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	193	212	109.8%	117.2	F
	Subtotal	193	212	109.8%	117.2	F
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	145	194	133.8%	0.2	A
	Right Turn					
	Subtotal	145	194	133.8%	0.2	A
WB	Left Turn					
	Through	1,075	1,051	97.8%	0.1	A
	Right Turn	19	20	105.3%	0.3	A
	Subtotal	1,094	1,071	97.9%	0.1	A
Total		1,432	1,477	103.1%	16.9	C

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	10	7	70.0%	10.6	B
	Through	7	8	114.3%	12.8	B
	Right Turn	39	37	94.9%	4.8	A
	Subtotal	56	52	92.9%	6.8	A
SB	Left Turn	64	57	89.1%	14.8	B
	Through	5	4	80.0%	18.7	B
	Right Turn	14	11	78.6%	6.9	A
	Subtotal	83	72	86.7%	13.8	B
EB	Left Turn	11	12	109.1%	10.5	B
	Through	198	181	91.4%	5.6	A
	Right Turn	30	37	123.3%	4.1	A
	Subtotal	239	230	96.2%	5.6	A
WB	Left Turn	108	130	120.4%	12.3	B
	Through	298	306	102.7%	3.2	A
	Right Turn	62	57	91.9%	1.8	A
	Subtotal	468	493	105.3%	5.5	A
Total		846	847	100.1%	6.3	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	12	16	133.3%	25.1	C
	Through	15	13	86.7%	24.8	C
	Right Turn	59	51	86.4%	7.0	A
	Subtotal	86	80	93.0%	13.5	B
SB	Left Turn	236	234	99.2%	16.7	B
	Through	87	106	121.8%	17.2	B
	Right Turn	87	92	105.7%	8.8	A
	Subtotal	410	432	105.4%	15.1	B
EB	Left Turn	53	51	96.2%	20.4	C
	Through	203	186	91.6%	11.4	B
	Right Turn	45	36	80.0%	6.4	A
	Subtotal	301	273	90.7%	12.4	B
WB	Left Turn	101	105	104.0%	21.5	C
	Through	369	384	104.1%	10.0	A
	Right Turn	158	150	94.9%	4.1	A
	Subtotal	628	639	101.8%	10.5	B
Total		1,425	1,424	99.9%	12.4	B

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	186	180	96.8%	17.3	B
	Through					
	Right Turn	135	145	107.4%	4.7	A
	Subtotal	321	325	101.2%	11.7	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	431	410	95.1%	11.3	B
	Right Turn	67	62	92.5%	4.6	A
	Subtotal	498	472	94.8%	10.4	B
WB	Left Turn	209	186	89.0%	19.0	B
	Through	442	461	104.3%	4.5	A
	Right Turn					
	Subtotal	651	647	99.4%	8.6	A
Total		1,470	1,444	98.2%	9.9	A

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	132	112	84.8%	26.8	C
	Through	68	76	111.8%	30.6	C
	Right Turn	64	63	98.4%	5.4	A
	Subtotal	264	251	95.1%	22.6	C
SB	Left Turn	23	19	82.6%	31.7	C
	Through	90	90	100.0%	31.7	C
	Right Turn	110	123	111.8%	0.7	A
	Subtotal	223	232	104.0%	15.2	B
EB	Left Turn	80	72	90.0%	38.6	D
	Through	296	281	94.9%	21.9	C
	Right Turn	190	204	107.4%	19.3	B
	Subtotal	566	557	98.4%	23.1	C
WB	Left Turn	68	74	108.8%	34.3	C
	Through	409	415	101.5%	17.7	B
	Right Turn	13	15	115.4%	10.3	B
	Subtotal	490	504	102.9%	19.9	B
Total		1,543	1,544	100.1%	20.8	C

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	31	26	83.9%	9.4	A
	Through	4	5	125.0%	9.0	A
	Right Turn	17	16	94.1%	7.0	A
	Subtotal	52	47	90.4%	8.5	A
SB	Left Turn	10	8	80.0%	0.0	A
	Through					
	Right Turn	4	4	100.0%	0.0	A
	Subtotal	14	12	85.7%	0.0	A
EB	Left Turn	11	9	81.8%	2.1	A
	Through	350	340	97.1%	0.6	A
	Right Turn	22	18	81.8%	0.9	A
	Subtotal	383	367	95.8%	0.6	A
WB	Left Turn	31	25	80.6%	2.4	A
	Through	455	462	101.5%	0.0	A
	Right Turn	10	10	100.0%	0.6	A
	Subtotal	496	497	100.2%	0.1	A
Total		945	923	97.7%	0.7	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	181	190	105.0%	39.0	D
	Through	252	235	93.3%	25.5	C
	Right Turn	21	24	114.3%	13.7	B
	Subtotal	454	449	98.9%	30.6	C
SB	Left Turn	76	70	92.1%	52.1	D
	Through	264	273	103.4%	29.9	C
	Right Turn	128	128	100.0%	3.5	A
	Subtotal	468	471	100.6%	26.0	C
EB	Left Turn	146	120	82.2%	39.1	D
	Through	88	87	98.9%	25.1	C
	Right Turn	143	157	109.8%	2.5	A
	Subtotal	377	364	96.6%	20.0	B
WB	Left Turn	58	54	93.1%	32.6	C
	Through	187	172	92.0%	28.2	C
	Right Turn	38	42	110.5%	1.5	A
	Subtotal	283	268	94.7%	24.9	C
Total		1,582	1,552	98.1%	25.7	C

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	120	125	104.2%	9.7	A
	Through					
	Right Turn					
	Subtotal	120	125	104.2%	9.7	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	167	163	97.6%	6.4	A
	Subtotal	167	163	97.6%	6.4	A
WB	Left Turn	107	114	106.5%	11.6	B
	Through	58	63	108.6%	15.3	C
	Right Turn					
	Subtotal	165	177	107.3%	12.9	B
Total		452	465	102.9%	9.8	A

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	120	124	103.3%	0.7	A
	Right Turn	41	39	95.1%	0.5	A
	Subtotal	161	163	101.2%	0.7	A
SB	Left Turn	51	42	82.4%	1.1	A
	Through	223	233	104.5%	0.1	A
	Right Turn					
	Subtotal	274	275	100.4%	0.2	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		435	438	100.7%	0.4	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	132	164	124.2%	114.2	F
	Through	219	204	93.2%	89.5	F
	Right Turn	85	76	89.4%	9.3	A
	Subtotal	436	444	101.8%	84.9	F
SB	Left Turn	112	91	81.3%	98.1	F
	Through	200	216	108.0%	83.8	F
	Right Turn	303	307	101.3%	29.7	C
	Subtotal	615	614	99.8%	58.8	E
EB	Left Turn	232	225	97.0%	136.7	F
	Through	1,359	1,365	100.4%	35.4	D
	Right Turn	133	132	99.2%	3.3	A
	Subtotal	1,724	1,722	99.9%	46.1	D
WB	Left Turn	135	115	85.2%	61.9	E
	Through	1,971	2,062	104.6%	8.2	A
	Right Turn	161	195	121.1%	6.6	A
	Subtotal	2,267	2,372	104.6%	10.7	B
Total		5,042	5,152	102.2%	34.7	C

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	79	73	92.4%	114.6	F
	Through	28	29	103.6%	110.4	F
	Right Turn	83	83	100.0%	14.6	B
	Subtotal	190	185	97.4%	69.1	E
SB	Left Turn	32	32	100.0%	87.0	F
	Through	29	25	86.2%	80.2	F
	Right Turn	49	47	95.9%	9.5	A
	Subtotal	110	104	94.5%	50.4	D
EB	Left Turn	45	44	97.8%	99.9	F
	Through	1,471	1,439	97.8%	16.0	B
	Right Turn	40	33	82.5%	7.1	A
	Subtotal	1,556	1,516	97.4%	18.2	B
WB	Left Turn	95	104	109.5%	241.0	F
	Through	2,139	2,242	104.8%	123.0	F
	Right Turn	46	34	73.9%	118.9	F
	Subtotal	2,280	2,380	104.4%	128.1	F
Total		4,136	4,185	101.2%	83.7	F

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	10	8	80.0%	0.0	A
	Subtotal	10	8	80.0%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	250	261	104.4%	13.3	B
	Right Turn	26	24	92.3%	0.2	A
	Subtotal	276	285	103.3%	12.2	B
WB	Left Turn					
	Through	718	698	97.2%	0.2	A
	Right Turn					
	Subtotal	718	698	97.2%	0.2	A
Total		1,004	991	98.7%	3.7	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	60	59	98.3%	22.3	C
	Through	195	205	105.1%	9.0	A
	Right Turn	5	8	160.0%	2.4	A
	Subtotal	260	272	104.6%	11.7	B
SB	Left Turn	34	46	135.3%	23.5	C
	Through	537	530	98.7%	16.7	B
	Right Turn	4	3	75.0%	3.5	A
	Subtotal	575	579	100.7%	17.1	B
EB	Left Turn	6	7	116.7%	55.2	E
	Through	24	21	87.5%	33.3	C
	Right Turn	132	121	91.7%	20.2	C
	Subtotal	162	149	92.0%	23.7	C
WB	Left Turn	49	47	95.9%	21.3	C
	Through	28	25	89.3%	16.9	B
	Right Turn	35	28	80.0%	3.7	A
	Subtotal	112	100	89.3%	15.3	B
Total		1,109	1,100	99.2%	16.5	B

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	802	823	102.6%	0.4	A
	Subtotal	802	823	102.6%	0.4	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	830	803	96.7%	0.7	A
	Right Turn					
	Subtotal	830	803	96.7%	0.7	A
WB	Left Turn					
	Through	1,511	1,530	101.3%	4.0	A
	Right Turn	730	816	111.8%	4.3	A
	Subtotal	2,241	2,346	104.7%	4.1	A
Total		3,873	3,972	102.6%	2.6	A

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,347	1,352	100.4%	77.5	F
	Subtotal	1,347	1,352	100.4%	77.5	F
EB	Left Turn					
	Through	1,141	1,093	95.8%	6.1	A
	Right Turn	685	666	97.2%	5.8	A
	Subtotal	1,826	1,759	96.3%	6.0	A
WB	Left Turn					
	Through	1,105	1,199	108.5%	13.2	B
	Right Turn					
	Subtotal	1,105	1,199	108.5%	13.2	B
Total		4,278	4,310	100.7%	30.4	D

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	19	20	105.3%	1.6	A
	Subtotal	19	20	105.3%	1.6	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,141	1,098	96.2%	7.5	A
	Right Turn					
	Subtotal	1,141	1,098	96.2%	7.5	A
WB	Left Turn					
	Through	1,105	1,198	108.4%	4.9	A
	Right Turn	208	217	104.3%	5.8	A
	Subtotal	1,313	1,415	107.8%	5.0	A
Total		2,473	2,533	102.4%	6.1	A

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	618	735	118.9%	17.3	C
	Subtotal	618	735	118.9%	17.3	C
EB	Left Turn					
	Through	162	153	94.4%	0.4	A
	Right Turn	998	982	98.4%	21.9	C
	Subtotal	1,160	1,135	97.8%	19.0	C
WB	Left Turn					
	Through	695	668	96.1%	0.3	A
	Right Turn					
	Subtotal	695	668	96.1%	0.3	A
Total		2,473	2,538	102.6%	13.6	B

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	114	131	114.9%	13.1	B
	Subtotal	114	131	114.9%	13.1	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	162	153	94.4%	0.1	A
	Right Turn					
	Subtotal	162	153	94.4%	0.1	A
WB	Left Turn					
	Through	695	672	96.7%	0.1	A
	Right Turn	23	21	91.3%	0.5	A
	Subtotal	718	693	96.5%	0.1	A
Total		994	977	98.3%	1.8	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	30	14	46.7%	17.0	B
	Through	29	29	100.0%	13.7	B
	Right Turn	96	93	96.9%	5.9	A
	Subtotal	155	136	87.7%	8.7	A
SB	Left Turn	65	66	101.5%	16.2	B
	Through	6	1	16.7%	12.1	B
	Right Turn	14	9	64.3%	6.6	A
	Subtotal	85	76	89.4%	15.0	B
EB	Left Turn	24	20	83.3%	15.9	B
	Through	248	248	100.0%	7.0	A
	Right Turn	25	20	80.0%	5.3	A
	Subtotal	297	288	97.0%	7.5	A
WB	Left Turn	89	92	103.4%	12.9	B
	Through	328	302	92.1%	4.9	A
	Right Turn	55	70	127.3%	3.1	A
	Subtotal	472	464	98.3%	6.2	A
Total		1,009	964	95.5%	7.6	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	17	15	88.2%	26.6	C
	Through	31	23	74.2%	29.7	C
	Right Turn	121	116	95.9%	9.2	A
	Subtotal	169	154	91.1%	14.0	B
SB	Left Turn	273	306	112.1%	17.5	B
	Through	61	71	116.4%	18.2	B
	Right Turn	83	75	90.4%	8.3	A
	Subtotal	417	452	108.4%	16.1	B
EB	Left Turn	99	93	93.9%	25.3	C
	Through	296	299	101.0%	14.7	B
	Right Turn	14	13	92.9%	7.1	A
	Subtotal	409	405	99.0%	16.9	B
WB	Left Turn	74	91	123.0%	24.8	C
	Through	372	370	99.5%	11.9	B
	Right Turn	162	155	95.7%	5.3	A
	Subtotal	608	616	101.3%	12.1	B
Total		1,603	1,627	101.5%	14.6	B

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	146	154	105.5%	23.0	C
	Through					
	Right Turn	138	155	112.3%	7.0	A
	Subtotal	284	309	108.8%	15.0	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	564	588	104.3%	14.2	B
	Right Turn	126	129	102.4%	7.1	A
	Subtotal	690	717	103.9%	12.9	B
WB	Left Turn	297	284	95.6%	21.7	C
	Through	462	469	101.5%	5.0	A
	Right Turn					
	Subtotal	759	753	99.2%	11.3	B
Total		1,733	1,779	102.7%	12.6	B

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	230	218	94.8%	35.5	D
	Through	70	74	105.7%	37.4	D
	Right Turn	121	112	92.6%	7.4	A
	Subtotal	421	404	96.0%	28.0	C
SB	Left Turn	26	34	130.8%	37.5	D
	Through	80	87	108.8%	38.9	D
	Right Turn	107	107	100.0%	0.6	A
	Subtotal	213	228	107.0%	20.7	C
EB	Left Turn	64	57	89.1%	38.8	D
	Through	462	486	105.2%	29.3	C
	Right Turn	176	190	108.0%	25.4	C
	Subtotal	702	733	104.4%	29.0	C
WB	Left Turn	73	66	90.4%	36.3	D
	Through	422	429	101.7%	21.5	C
	Right Turn	17	19	111.8%	10.0	A
	Subtotal	512	514	100.4%	23.0	C
Total		1,848	1,879	101.7%	26.1	C

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	38	41	107.9%	10.6	B
	Through	4	5	125.0%	11.4	B
	Right Turn	17	18	105.9%	7.6	A
	Subtotal	59	64	108.5%	9.8	A
SB	Left Turn	4	5	125.0%	0.0	A
	Through					
	Right Turn	7	3	42.9%	0.0	A
	Subtotal	11	8	72.7%	0.0	A
EB	Left Turn	18	19	105.6%	2.4	A
	Through	550	558	101.5%	1.2	A
	Right Turn	41	46	112.2%	1.2	A
	Subtotal	609	623	102.3%	1.2	A
WB	Left Turn	31	33	106.5%	4.7	A
	Through	467	467	100.0%	0.0	A
	Right Turn	7	7	100.0%	0.8	A
	Subtotal	505	507	100.4%	0.3	A
Total		1,184	1,202	101.5%	1.3	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	188	174	92.6%	44.0	D
	Through	318	314	98.7%	28.1	C
	Right Turn	32	39	121.9%	23.1	C
	Subtotal	538	527	98.0%	33.0	C
SB	Left Turn	120	119	99.2%	50.4	D
	Through	289	275	95.2%	33.1	C
	Right Turn	162	168	103.7%	3.4	A
	Subtotal	571	562	98.4%	27.9	C
EB	Left Turn	246	240	97.6%	43.4	D
	Through	120	108	90.0%	25.1	C
	Right Turn	205	228	111.2%	3.7	A
	Subtotal	571	576	100.9%	24.3	C
WB	Left Turn	61	59	96.7%	43.8	D
	Through	155	167	107.7%	29.0	C
	Right Turn	41	35	85.4%	1.7	A
	Subtotal	257	261	101.6%	28.7	C
Total		1,937	1,926	99.4%	28.3	C

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	102	98	96.1%	8.1	A
	Through					
	Right Turn					
	Subtotal	102	98	96.1%	8.1	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	190	185	97.4%	6.6	A
	Subtotal	190	185	97.4%	6.6	A
WB	Left Turn	73	92	126.0%	15.1	C
	Through	74	76	102.7%	17.9	C
	Right Turn					
	Subtotal	147	168	114.3%	16.4	C
Total		439	451	102.7%	10.6	B

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	102	99	97.1%	0.6	A
	Right Turn	49	51	104.1%	0.5	A
	Subtotal	151	150	99.3%	0.6	A
SB	Left Turn	50	52	104.0%	0.7	A
	Through	213	227	106.6%	0.1	A
	Right Turn					
	Subtotal	263	279	106.1%	0.2	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		414	429	103.6%	0.3	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	183	207	113.1%	68.7	E
	Through	338	354	104.7%	68.2	E
	Right Turn	84	75	89.3%	10.1	B
	Subtotal	605	636	105.1%	61.5	E
SB	Left Turn	160	158	98.8%	73.1	E
	Through	247	254	102.8%	68.9	E
	Right Turn	301	293	97.3%	17.7	B
	Subtotal	708	705	99.6%	48.6	D
EB	Left Turn	273	273	100.0%	87.7	F
	Through	1,515	1,533	101.2%	33.1	C
	Right Turn	199	192	96.5%	5.0	A
	Subtotal	1,987	1,998	100.6%	37.8	D
WB	Left Turn	125	122	97.6%	52.0	D
	Through	1,667	1,532	91.9%	8.2	A
	Right Turn	164	135	82.3%	7.2	A
	Subtotal	1,956	1,789	91.5%	11.1	B
Total		5,256	5,128	97.6%	32.9	C

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	86	80	93.0%	79.6	E
	Through	55	57	103.6%	78.6	E
	Right Turn	105	96	91.4%	12.7	B
	Subtotal	246	233	94.7%	51.8	D
SB	Left Turn	42	39	92.9%	43.1	D
	Through	33	33	100.0%	71.3	E
	Right Turn	55	47	85.5%	9.9	A
	Subtotal	130	119	91.5%	37.8	D
EB	Left Turn	62	68	109.7%	49.9	D
	Through	1,649	1,611	97.7%	24.2	C
	Right Turn	48	39	81.3%	12.1	B
	Subtotal	1,759	1,718	97.7%	24.9	C
WB	Left Turn	109	98	89.9%	136.6	F
	Through	1,815	1,668	91.9%	71.6	E
	Right Turn	58	36	62.1%	64.6	E
	Subtotal	1,982	1,802	90.9%	74.9	E
Total		4,117	3,872	94.0%	50.2	D

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	14	12	85.7%	0.0	A
	Subtotal	14	12	85.7%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	322	321	99.7%	0.2	A
	Right Turn	27	24	88.9%	0.2	A
	Subtotal	349	345	98.9%	0.2	A
WB	Left Turn					
	Through	525	501	95.4%	0.2	A
	Right Turn					
	Subtotal	525	501	95.4%	0.2	A
Total		888	858	96.6%	0.2	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	79	68	86.1%	20.0	B
	Through	242	250	103.3%	6.7	A
	Right Turn	15	13	86.7%	2.0	A
	Subtotal	336	331	98.5%	9.2	A
SB	Left Turn	42	34	81.0%	24.9	C
	Through	399	401	100.5%	15.1	B
	Right Turn	5	3	60.0%	4.4	A
	Subtotal	446	438	98.2%	15.8	B
EB	Left Turn	6	5	83.3%	23.3	C
	Through	30	26	86.7%	18.5	B
	Right Turn	85	73	85.9%	6.2	A
	Subtotal	121	104	86.0%	10.1	B
WB	Left Turn	41	31	75.6%	21.5	C
	Through	47	45	95.7%	23.2	C
	Right Turn	39	41	105.1%	4.9	A
	Subtotal	127	117	92.1%	16.4	B
Total		1,030	990	96.1%	13.1	B

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,324	1,289	97.4%	0.5	A
	Subtotal	1,324	1,289	97.4%	0.5	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	564	594	105.3%	0.4	A
	Right Turn					
	Subtotal	564	594	105.3%	0.4	A
WB	Left Turn					
	Through	1,445	1,345	93.1%	2.3	A
	Right Turn	559	522	93.4%	0.9	A
	Subtotal	2,004	1,867	93.2%	1.9	A
Total		3,892	3,750	96.4%	1.2	A

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,421	1,337	94.1%	30.8	D
	Subtotal	1,421	1,337	94.1%	30.8	D
EB	Left Turn					
	Through	1,377	1,338	97.2%	5.6	A
	Right Turn	364	416	114.3%	4.8	A
	Subtotal	1,741	1,754	100.7%	5.4	A
WB	Left Turn					
	Through	798	756	94.7%	1.9	A
	Right Turn					
	Subtotal	798	756	94.7%	1.9	A
Total		3,960	3,847	97.1%	13.5	B

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	23	24	104.3%	0.9	A
	Subtotal	23	24	104.3%	0.9	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,377	1,338	97.2%	7.6	A
	Right Turn					
	Subtotal	1,377	1,338	97.2%	7.6	A
WB	Left Turn					
	Through	798	758	95.0%	0.8	A
	Right Turn	127	130	102.4%	2.1	A
	Subtotal	925	888	96.0%	1.0	A
Total		2,325	2,250	96.8%	4.9	A

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	433	401	92.6%	2.9	A
	Subtotal	433	401	92.6%	2.9	A
EB	Left Turn					
	Through	228	217	95.2%	2.6	A
	Right Turn	1,172	1,147	97.9%	22.7	C
	Subtotal	1,400	1,364	97.4%	19.5	C
WB	Left Turn					
	Through	492	481	97.8%	0.1	A
	Right Turn					
	Subtotal	492	481	97.8%	0.1	A
Total		2,325	2,246	96.6%	12.4	B

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	121	128	105.8%	0.0	A
	Subtotal	121	128	105.8%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	228	217	95.2%	0.1	A
	Right Turn					
	Subtotal	228	217	95.2%	0.1	A
WB	Left Turn					
	Through	492	476	96.7%	0.0	A
	Right Turn	33	30	90.9%	0.1	A
	Subtotal	525	506	96.4%	0.0	A
Total		874	851	97.4%	0.1	A

VISSIM Post-Processor **SR 262 Cross Connector**

Results from 1 Run **Existing Conditions**

Delay & LOS by Interval **PM Peak Period (1:00 PM – 9:00 PM)**

	Location	Facility Type	1:00 PM		2:00 PM		3:00 PM		4:00 PM		5:00 PM		6:00 PM		7:00 PM		8:00 PM	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Landing Boulevard/West Warren Avenue	Signal	7.7	A	6.8	A	6.1	A	7.4	A	25.3	C	15.2	B	5.9	A	3.8	A
2	Lakeview Boulevard/southbound I-880 ramps/Warren Avenue	Signal	13.4	B	12.6	B	13.2	B	13.1	B	31.3	C	16.1	B	11.5	B	6.8	A
3	Northbound I-880 ramps/Warren Avenue	Signal	12.2	B	13.1	B	13.9	B	14.4	B	12.8	B	13.2	B	12.3	B	8.4	A
4	Kato Road/Warren Avenue	Signal	24.1	C	24.5	C	26.9	C	32.4	C	41.7	D	42.4	D	28.0	C	13.2	B
5	Mission Falls Court/Warren Avenue	Side-street Stop	0.6	A	1.1	A	0.7	A	1.1	A	3.5	A	4.9	A	1.1	A	0.3	A
6	Warm Springs Blvd/Warren Avenue	Signal	25.0	C	33.1	C	35.2	D	35.7	D	39.1	D	36.9	D	34.4	C	18.1	B
7	Kato Road/Mission Boulevard off-ramp	All-way Stop	1.1	A	1.1	A	1.0	A	1.2	A	1.4	A	1.7	A	0.9	A	0.7	A
8	Kato Road/Mission Boulevard On-ramp	Uncontrolled	0.2	A	0.2	A	0.2	A	0.5	A	0.6	A	0.5	A	0.5	A	0.1	A
9	Warm Springs Blvd/Mission Blvd	Signal	**128.4**	**F**	**305.8**	**F**	**403.3**	**F**	**592.6**	**F**	**718.2**	**F**	**262.0**	**F**	43.2	D	39.5	D
10	Mohave Drive/Mission Blvd	Signal	42.9	D	37.8	D	**60.2**	**E**	53.5	D	53.2	D	41.1	D	19.9	B	20.8	C
11	Curtner Rd/Mission Blvd	Side-street Stop	0.6	A	1.4	A	3.4	A	11.1	B	2.9	A	1.9	A	1.2	A	0.6	A
12	Mission Blvd/Paseo Padre Pkwy	Signal	12.5	B	29.4	C	36.2	D	29.6	C	38.3	D	32.1	C	18.9	B	12.3	B
13	I-880 Ramps/Mission Boulevard	Uncontrolled	**43.0**	**E**	**179.1**	**F**	**243.6**	**F**	**330.0**	**F**	**361.8**	**F**	**103.5**	**F**	1.3	A	0.7	A
14	Southbound I-680 Diagonal Ramps/Mission Boulevard	Uncontrolled	5.9	A	5.7	A	16.5	C	14.0	B	14.8	B	5.8	A	1.5	A	2.2	A
15	Southbound I-680 Loop Ramps/Mission Boulevard	Uncontrolled	12.6	B	13.8	B	**47.2**	**E**	**46.2**	**E**	**44.3**	**E**	18.6	C	1.6	A	2.8	A
16	Northbound I-680 Loop Ramps/Mission Boulevard	Uncontrolled	20.6	C	23.2	C	**67.9**	**F**	**76.6**	**F**	**77.6**	**F**	**36.5**	**E**	1.5	A	2.7	A
17	Northbound I-680 Diagonal Ramps/Mission Boulevard	Uncontrolled	0.2	A	0.5	A	1.8	A	7.5	A	1.7	A	0.7	A	0.5	A	0.2	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	16	19	118.8%	12.8	B
	Through	18	25	138.9%	12.4	B
	Right Turn	58	45	77.6%	2.0	A
	Subtotal	92	89	96.7%	7.2	A
SB	Left Turn	112	103	92.0%	17.3	B
	Through	11	11	100.0%	19.3	B
	Right Turn	26	34	130.8%	4.4	A
	Subtotal	149	148	99.3%	14.4	B
EB	Left Turn	12	12	100.0%	18.2	B
	Through	275	273	99.3%	6.3	A
	Right Turn	28	24	85.7%	1.5	A
	Subtotal	315	309	98.1%	6.3	A
WB	Left Turn	125	127	101.6%	14.9	B
	Through	274	272	99.3%	4.4	A
	Right Turn	87	76	87.4%	1.3	A
	Subtotal	486	475	97.7%	6.7	A
Total		1,042	1,021	98.0%	7.7	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	16	17	106.3%	22.5	C
	Through	25	15	60.0%	30.8	C
	Right Turn	98	106	108.2%	2.6	A
	Subtotal	139	138	99.3%	8.1	A
SB	Left Turn	334	368	110.2%	16.7	B
	Through	89	81	91.0%	15.2	B
	Right Turn	96	82	85.4%	4.1	A
	Subtotal	519	531	102.3%	14.5	B
EB	Left Turn	140	122	87.1%	22.5	C
	Through	288	275	95.5%	15.4	B
	Right Turn	17	27	158.8%	6.6	A
	Subtotal	445	424	95.3%	16.9	B
WB	Left Turn	128	144	112.5%	21.9	C
	Through	374	371	99.2%	12.1	B
	Right Turn	175	184	105.1%	1.8	A
	Subtotal	677	699	103.2%	11.4	B
Total		1,780	1,792	100.7%	13.4	B

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	176	190	108.0%	21.3	C
	Through					
	Right Turn	196	194	99.0%	3.3	A
	Subtotal	372	384	103.2%	12.2	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	612	642	104.9%	14.5	B
	Right Turn	108	106	98.1%	1.9	A
	Subtotal	720	748	103.9%	12.7	B
WB	Left Turn	289	273	94.5%	24.0	C
	Through	501	514	102.6%	5.1	A
	Right Turn					
	Subtotal	790	787	99.6%	11.7	B
Total		1,882	1,919	102.0%	12.2	B

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	171	166	97.1%	35.6	D
	Through	71	62	87.3%	28.6	C
	Right Turn	91	88	96.7%	2.1	A
	Subtotal	333	316	94.9%	24.9	C
SB	Left Turn	52	53	101.9%	39.8	D
	Through	123	101	82.1%	41.5	D
	Right Turn	139	150	107.9%	0.6	A
	Subtotal	314	304	96.8%	21.0	C
EB	Left Turn	80	77	96.3%	35.5	D
	Through	471	498	105.7%	25.3	C
	Right Turn	257	263	102.3%	22.0	C
	Subtotal	808	838	103.7%	25.2	C
WB	Left Turn	95	105	110.5%	37.4	D
	Through	480	465	96.9%	21.2	C
	Right Turn	22	23	104.5%	10.6	B
	Subtotal	597	593	99.3%	23.6	C
Total		2,052	2,051	100.0%	24.1	C

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	32	32	100.0%	3.6	A
	Through					
	Right Turn	19	16	84.2%	2.0	A
	Subtotal	51	48	94.1%	3.1	A
SB	Left Turn	16	6	37.5%	0.0	A
	Through					
	Right Turn	8	14	175.0%	0.0	A
	Subtotal	24	20	83.3%	0.0	A
EB	Left Turn	24	15	62.5%	4.9	A
	Through	565	603	106.7%	0.6	A
	Right Turn	25	22	88.0%	1.0	A
	Subtotal	614	640	104.2%	0.7	A
WB	Left Turn	27	32	118.5%	2.9	A
	Through	557	536	96.2%	0.0	A
	Right Turn	45	43	95.6%	0.9	A
	Subtotal	629	611	97.1%	0.2	A
Total		1,318	1,319	100.1%	0.6	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	238	225	94.5%	39.1	D
	Through	398	396	99.5%	22.3	C
	Right Turn	37	29	78.4%	12.0	B
	Subtotal	673	650	96.6%	27.6	C
SB	Left Turn	152	123	80.9%	48.3	D
	Through	338	341	100.9%	26.4	C
	Right Turn	208	225	108.2%	0.9	A
	Subtotal	698	689	98.7%	22.0	C
EB	Left Turn	231	253	109.5%	39.1	D
	Through	169	162	95.9%	26.9	C
	Right Turn	200	211	105.5%	3.4	A
	Subtotal	600	626	104.3%	23.9	C
WB	Left Turn	66	63	95.5%	38.8	D
	Through	183	156	85.2%	33.8	C
	Right Turn	43	55	127.9%	1.4	A
	Subtotal	292	274	93.8%	28.5	C
Total		2,263	2,239	98.9%	25.0	C

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	133	131	98.5%	0.8	A
	Through					
	Right Turn					
	Subtotal	133	131	98.5%	0.8	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	257	248	96.5%	0.9	A
	Subtotal	257	248	96.5%	0.9	A
WB	Left Turn	107	101	94.4%	1.4	A
	Through	79	98	124.1%	1.8	A
	Right Turn					
	Subtotal	186	199	107.0%	1.6	A
Total		576	578	100.3%	1.1	A

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	133	132	99.2%	0.4	A
	Right Turn	40	30	75.0%	0.4	A
	Subtotal	173	162	93.6%	0.4	A
SB	Left Turn	50	43	86.0%	1.1	A
	Through	314	307	97.8%	0.1	A
	Right Turn					
	Subtotal	364	350	96.2%	0.2	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		537	512	95.3%	0.2	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	199	245	123.1%	65.2	E
	Through	377	401	106.4%	55.2	E
	Right Turn	96	90	93.8%	15.9	B
	Subtotal	672	736	109.5%	53.7	D
SB	Left Turn	152	148	97.4%	70.1	E
	Through	387	392	101.3%	49.6	D
	Right Turn	345	337	97.7%	15.5	B
	Subtotal	884	877	99.2%	39.9	D
EB	Left Turn	274	236	86.1%	328.0	F
	Through	1,862	1,717	92.2%	279.2	F
	Right Turn	177	177	100.0%	226.0	F
	Subtotal	2,313	2,130	92.1%	280.2	F
WB	Left Turn	134	132	98.5%	56.4	E
	Through	1,598	1,560	97.6%	25.2	C
	Right Turn	157	173	110.2%	12.4	B
	Subtotal	1,889	1,865	98.7%	26.2	C
Total		5,758	5,608	97.4%	128.4	F

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	68	65	95.6%	79.2	E
	Through	32	40	125.0%	83.2	F
	Right Turn	124	114	91.9%	9.4	A
	Subtotal	224	219	97.8%	43.6	D
SB	Left Turn	63	45	71.4%	35.7	D
	Through	40	43	107.5%	38.7	D
	Right Turn	58	63	108.6%	0.3	A
	Subtotal	161	151	93.8%	21.8	C
EB	Left Turn	45	57	126.7%	69.7	E
	Through	2,023	1,860	91.9%	56.1	E
	Right Turn	42	41	97.6%	5.5	A
	Subtotal	2,110	1,958	92.8%	55.4	E
WB	Left Turn	116	123	106.0%	90.2	F
	Through	1,763	1,760	99.8%	28.1	C
	Right Turn	54	48	88.9%	21.7	C
	Subtotal	1,933	1,931	99.9%	31.9	C
Total		4,428	4,259	96.2%	42.9	D

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	10	8	80.0%	0.0	A
	Subtotal	10	8	80.0%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	551	489	88.7%	1.0	A
	Right Turn	36	28	77.8%	0.2	A
	Subtotal	587	517	88.1%	0.9	A
WB	Left Turn					
	Through	407	397	97.5%	0.1	A
	Right Turn					
	Subtotal	407	397	97.5%	0.1	A
Total		1,004	922	91.8%	0.6	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	136	112	82.4%	18.3	B
	Through	410	365	89.0%	8.6	A
	Right Turn	15	18	120.0%	5.2	A
	Subtotal	561	495	88.2%	10.7	B
SB	Left Turn	26	22	84.6%	24.6	C
	Through	310	304	98.1%	14.3	B
	Right Turn	7	8	114.3%	3.1	A
	Subtotal	343	334	97.4%	14.7	B
EB	Left Turn	4	4	100.0%	36.8	D
	Through	29	31	106.9%	28.8	C
	Right Turn	59	49	83.1%	2.3	A
	Subtotal	92	84	91.3%	13.7	B
WB	Left Turn	38	38	100.0%	25.8	C
	Through	33	33	100.0%	19.1	B
	Right Turn	68	56	82.4%	1.4	A
	Subtotal	139	127	91.4%	13.3	B
Total		1,135	1,040	91.6%	12.5	B

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,692	1,592	94.1%	91.4	F
	Subtotal	1,692	1,592	94.1%	91.4	F
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	607	587	96.7%	45.0	E
	Right Turn					
	Subtotal	607	587	96.7%	45.0	E
WB	Left Turn					
	Through	1,302	1,287	98.8%	3.3	A
	Right Turn	654	660	100.9%	1.8	A
	Subtotal	1,956	1,947	99.5%	2.7	A
Total		4,255	4,126	97.0%	43.0	E

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,272	1,282	100.8%	2.5	A
	Subtotal	1,272	1,282	100.8%	2.5	A
EB	Left Turn					
	Through	1,973	1,820	92.2%	10.5	B
	Right Turn	462	416	90.0%	4.2	A
	Subtotal	2,435	2,236	91.8%	9.3	A
WB	Left Turn					
	Through	636	627	98.6%	0.5	A
	Right Turn					
	Subtotal	636	627	98.6%	0.5	A
Total		4,343	4,145	95.4%	5.9	A

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	20	23	115.0%	2.9	A
	Subtotal	20	23	115.0%	2.9	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,973	1,818	92.1%	17.7	C
	Right Turn					
	Subtotal	1,973	1,818	92.1%	17.7	C
WB	Left Turn					
	Through	636	627	98.6%	0.5	A
	Right Turn	147	140	95.2%	1.4	A
	Subtotal	783	767	98.0%	0.6	A
Total		2,776	2,608	93.9%	12.6	B

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	422	415	98.3%	4.2	A
	Subtotal	422	415	98.3%	4.2	A
EB	Left Turn					
	Through	426	354	83.1%	0.6	A
	Right Turn	1,567	1,476	94.2%	34.9	D
	Subtotal	1,993	1,830	91.8%	28.3	D
WB	Left Turn					
	Through	361	354	98.1%	0.1	A
	Right Turn					
	Subtotal	361	354	98.1%	0.1	A
Total		2,776	2,599	93.6%	20.6	C

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	161	163	101.2%	0.8	A
	Subtotal	161	163	101.2%	0.8	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	426	355	83.3%	0.1	A
	Right Turn					
	Subtotal	426	355	83.3%	0.1	A
WB	Left Turn					
	Through	361	354	98.1%	0.0	A
	Right Turn	46	43	93.5%	0.1	A
	Subtotal	407	397	97.5%	0.0	A
Total		994	915	92.1%	0.2	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	11	11	100.0%	9.5	A
	Through	12	15	125.0%	11.8	B
	Right Turn	121	110	90.9%	2.4	A
	Subtotal	144	136	94.4%	4.0	A
SB	Left Turn	106	90	84.9%	13.7	B
	Through	7	7	100.0%	10.4	B
	Right Turn	13	27	207.7%	2.6	A
	Subtotal	126	124	98.4%	11.1	B
EB	Left Turn	4	3	75.0%	7.4	A
	Through	265	255	96.2%	6.5	A
	Right Turn	14	18	128.6%	2.8	A
	Subtotal	283	276	97.5%	6.2	A
WB	Left Turn	65	67	103.1%	12.3	B
	Through	258	246	95.3%	6.3	A
	Right Turn	45	54	120.0%	1.9	A
	Subtotal	368	367	99.7%	6.8	A
Total		869	903	103.9%	6.8	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	14	13	92.9%	18.5	B
	Through	50	44	88.0%	23.2	C
	Right Turn	121	116	95.9%	3.6	A
	Subtotal	185	173	93.5%	9.7	A
SB	Left Turn	365	350	95.9%	16.4	B
	Through	43	53	123.3%	19.3	B
	Right Turn	63	57	90.5%	3.5	A
	Subtotal	471	460	97.7%	15.1	B
EB	Left Turn	162	143	88.3%	22.8	C
	Through	311	294	94.5%	10.2	B
	Right Turn	19	19	100.0%	2.9	A
	Subtotal	492	456	92.7%	13.8	B
WB	Left Turn	75	65	86.7%	21.9	C
	Through	291	302	103.8%	14.7	B
	Right Turn	229	238	103.9%	2.3	A
	Subtotal	595	605	101.7%	10.6	B
Total		1,743	1,694	97.2%	12.6	B

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	117	109	93.2%	24.4	C
	Through					
	Right Turn	244	251	102.9%	4.2	A
	Subtotal	361	360	99.7%	10.3	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	698	659	94.4%	15.8	B
	Right Turn	99	97	98.0%	3.3	A
	Subtotal	797	756	94.9%	14.2	B
WB	Left Turn	399	373	93.5%	24.0	C
	Through	478	495	103.6%	5.3	A
	Right Turn					
	Subtotal	877	868	99.0%	13.3	B
Total		2,035	1,984	97.5%	13.1	B

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	229	233	101.7%	36.8	D
	Through	74	67	90.5%	31.9	C
	Right Turn	103	107	103.9%	4.2	A
	Subtotal	406	407	100.2%	27.4	C
SB	Left Turn	88	87	98.9%	33.0	C
	Through	122	111	91.0%	36.2	D
	Right Turn	194	193	99.5%	0.7	A
	Subtotal	404	391	96.8%	17.9	B
EB	Left Turn	57	37	64.9%	36.4	D
	Through	654	657	100.5%	26.3	C
	Right Turn	231	214	92.6%	28.2	C
	Subtotal	942	908	96.4%	27.1	C
WB	Left Turn	60	45	75.0%	32.3	C
	Through	454	439	96.7%	22.0	C
	Right Turn	23	14	60.9%	9.8	A
	Subtotal	537	498	92.7%	22.6	C
Total		2,289	2,204	96.3%	24.5	C

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	32	30	93.8%	3.4	A
	Through	4	4	100.0%	1.2	A
	Right Turn	14	10	71.4%	9.9	A
	Subtotal	50	44	88.0%	4.7	A
SB	Left Turn	31	33	106.5%	0.0	A
	Through					
	Right Turn	33	27	81.8%	0.0	A
	Subtotal	64	60	93.8%	0.0	A
EB	Left Turn	29	41	141.4%	3.4	A
	Through	792	791	99.9%	1.0	A
	Right Turn	24	18	75.0%	1.2	A
	Subtotal	845	850	100.6%	1.2	A
WB	Left Turn	69	62	89.9%	6.2	A
	Through	472	446	94.5%	0.0	A
	Right Turn	18	25	138.9%	1.1	A
	Subtotal	559	533	95.3%	0.8	A
Total		1,518	1,487	98.0%	1.1	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	204	195	95.6%	61.3	E
	Through	639	633	99.1%	26.1	C
	Right Turn	85	92	108.2%	20.1	C
	Subtotal	928	920	99.1%	33.0	C
SB	Left Turn	163	149	91.4%	71.4	E
	Through	280	259	92.5%	20.4	C
	Right Turn	141	136	96.5%	0.0	A
	Subtotal	584	544	93.2%	29.3	C
EB	Left Turn	256	258	100.8%	54.0	D
	Through	260	251	96.5%	44.3	D
	Right Turn	321	320	99.7%	4.3	A
	Subtotal	837	829	99.0%	31.9	C
WB	Left Turn	107	110	102.8%	49.4	D
	Through	214	184	86.0%	49.6	D
	Right Turn	57	57	100.0%	2.6	A
	Subtotal	378	351	92.9%	41.9	D
Total		2,727	2,644	97.0%	33.1	C

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	120	98	81.7%	0.8	A
	Through					
	Right Turn					
	Subtotal	120	98	81.7%	0.8	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	438	426	97.3%	1.2	A
	Subtotal	438	426	97.3%	1.2	A
WB	Left Turn	52	55	105.8%	1.5	A
	Through	66	61	92.4%	1.0	A
	Right Turn					
	Subtotal	118	116	98.3%	1.3	A
Total		676	640	94.7%	1.1	A

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	120	97	80.8%	0.4	A
	Right Turn	34	20	58.8%	0.4	A
	Subtotal	154	117	76.0%	0.4	A
SB	Left Turn	86	91	105.8%	0.6	A
	Through	404	389	96.3%	0.1	A
	Right Turn					
	Subtotal	490	480	98.0%	0.2	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		644	597	92.7%	0.2	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	249	303	121.7%	76.6	E
	Through	562	554	98.6%	55.5	E
	Right Turn	141	136	96.5%	12.2	B
	Subtotal	952	993	104.3%	56.0	E
SB	Left Turn	206	198	96.1%	67.8	E
	Through	308	311	101.0%	52.5	D
	Right Turn	333	353	106.0%	12.0	B
	Subtotal	847	862	101.8%	39.4	D
EB	Left Turn	405	344	84.9%	861.2	F
	Through	1,527	1,650	108.1%	757.8	F
	Right Turn	169	151	89.3%	700.1	F
	Subtotal	2,101	2,145	102.1%	770.3	F
WB	Left Turn	107	111	103.7%	47.3	D
	Through	1,573	1,525	96.9%	18.8	B
	Right Turn	181	178	98.3%	11.8	B
	Subtotal	1,861	1,814	97.5%	19.8	B
Total		5,761	5,814	100.9%	305.8	F

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	96	90	93.8%	84.4	F
	Through	56	47	83.9%	67.4	E
	Right Turn	133	138	103.8%	10.4	B
	Subtotal	285	275	96.5%	44.3	D
SB	Left Turn	84	71	84.5%	22.8	C
	Through	64	60	93.8%	34.9	C
	Right Turn	36	39	108.3%	0.7	A
	Subtotal	184	170	92.4%	22.0	C
EB	Left Turn	60	72	120.0%	52.0	D
	Through	1,759	1,838	104.5%	38.0	D
	Right Turn	55	64	116.4%	6.2	A
	Subtotal	1,874	1,974	105.3%	37.4	D
WB	Left Turn	110	109	99.1%	94.6	F
	Through	1,729	1,672	96.7%	35.0	C
	Right Turn	57	58	101.8%	36.1	D
	Subtotal	1,896	1,839	97.0%	38.6	D
Total		4,239	4,258	100.4%	37.8	D

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	9	8	88.9%	0.0	A
	Subtotal	9	8	88.9%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,092	1,040	95.2%	1.9	A
	Right Turn	43	42	97.7%	0.3	A
	Subtotal	1,135	1,082	95.3%	1.8	A
WB	Left Turn					
	Through	385	389	101.0%	0.1	A
	Right Turn					
	Subtotal	385	389	101.0%	0.1	A
Total		1,529	1,479	96.7%	1.4	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	245	226	92.2%	80.5	F
	Through	816	777	95.2%	19.3	B
	Right Turn	40	47	117.5%	12.1	B
	Subtotal	1,101	1,050	95.4%	32.1	C
SB	Left Turn	43	36	83.7%	54.4	D
	Through	284	283	99.6%	19.8	B
	Right Turn	19	26	136.8%	8.9	A
	Subtotal	346	345	99.7%	22.6	C
EB	Left Turn	6	5	83.3%	79.3	E
	Through	43	33	76.7%	37.2	D
	Right Turn	66	68	103.0%	3.7	A
	Subtotal	115	106	92.2%	17.7	B
WB	Left Turn	35	38	108.6%	44.2	D
	Through	166	161	97.0%	41.0	D
	Right Turn	83	68	81.9%	3.0	A
	Subtotal	284	267	94.0%	31.8	C
Total		1,846	1,768	95.8%	29.4	C

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,487	1,479	98.5%	447.9	F
	Subtotal	1,502	1,479	98.5%	447.9	F
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	593	569	96.0%	126.3	F
	Right Turn					
	Subtotal	593	569	96.0%	126.3	F
WB	Left Turn					
	Through	1,268	1,301	102.6%	2.8	A
	Right Turn	769	778	101.2%	1.4	A
	Subtotal	2,037	2,079	102.1%	2.3	A
Total		4,132	4,127	99.9%	179.1	F

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,237	1,216	98.3%	2.1	A
	Subtotal	1,237	1,216	98.3%	2.1	A
EB	Left Turn					
	Through	1,555	1,650	106.1%	11.0	B
	Right Turn	681	636	93.4%	4.1	A
	Subtotal	2,236	2,286	102.2%	9.1	A
WB	Left Turn					
	Through	709	687	96.9%	0.8	A
	Right Turn					
	Subtotal	709	687	96.9%	0.8	A
Total		4,182	4,189	100.2%	5.7	A

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	23	17	73.9%	6.2	A
	Subtotal	23	17	73.9%	6.2	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,555	1,638	105.3%	20.6	C
	Right Turn					
	Subtotal	1,555	1,638	105.3%	20.6	C
WB	Left Turn					
	Through	709	687	96.9%	0.7	A
	Right Turn	166	172	103.6%	2.0	A
	Subtotal	875	859	98.2%	0.9	A
Total		2,453	2,514	102.5%	13.8	B

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	514	499	97.1%	8.0	A
	Subtotal	514	499	97.1%	8.0	A
EB	Left Turn					
	Through	641	637	99.4%	1.1	A
	Right Turn	937	997	106.4%	53.3	F
	Subtotal	1,578	1,634	103.5%	33.0	D
WB	Left Turn					
	Through	361	361	100.0%	0.1	A
	Right Turn					
	Subtotal	361	361	100.0%	0.1	A
Total		2,453	2,494	101.7%	23.2	C

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	494	445	90.1%	1.5	A
	Subtotal	494	445	90.1%	1.5	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	641	637	99.4%	0.1	A
	Right Turn					
	Subtotal	641	637	99.4%	0.1	A
WB	Left Turn					
	Through	361	361	100.0%	0.0	A
	Right Turn	24	28	116.7%	0.1	A
	Subtotal	385	389	101.0%	0.0	A
Total		1,520	1,471	96.8%	0.5	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	23	24	104.3%	11.9	B
	Through	28	22	78.6%	11.3	B
	Right Turn	90	79	87.8%	2.2	A
	Subtotal	141	125	88.7%	5.6	A
SB	Left Turn	83	72	86.7%	11.5	B
	Through	9	17	188.9%	12.5	B
	Right Turn	8	8	100.0%	3.2	A
	Subtotal	100	97	97.0%	11.0	B
EB	Left Turn	12	16	133.3%	9.9	A
	Through	251	239	95.2%	4.8	A
	Right Turn	7	6	85.7%	0.8	A
	Subtotal	270	261	96.7%	5.0	A
WB	Left Turn	26	34	130.8%	10.4	B
	Through	268	283	105.6%	6.0	A
	Right Turn	51	58	113.7%	2.4	A
	Subtotal	345	375	108.7%	5.8	A
Total		856	858	100.2%	6.1	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	29	44	151.7%	26.4	C
	Through	39	29	74.4%	19.0	B
	Right Turn	165	153	92.7%	3.0	A
	Subtotal	233	226	97.0%	9.6	A
SB	Left Turn	441	446	101.1%	17.4	B
	Through	35	46	131.4%	21.9	C
	Right Turn	56	59	105.4%	4.4	A
	Subtotal	532	551	103.6%	16.4	B
EB	Left Turn	129	134	103.9%	22.7	C
	Through	274	236	86.1%	13.0	B
	Right Turn	21	15	71.4%	11.7	B
	Subtotal	424	385	90.8%	16.3	B
WB	Left Turn	37	44	118.9%	25.0	C
	Through	260	272	104.6%	13.1	B
	Right Turn	255	235	92.2%	2.2	A
	Subtotal	552	551	99.8%	9.4	A
Total		1,741	1,713	98.4%	13.2	B

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	70	74	105.7%	47.2	D
	Through					
	Right Turn	198	203	102.5%	26.0	C
	Subtotal	268	277	103.4%	31.7	C
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	771	730	94.7%	11.8	B
	Right Turn	109	107	98.2%	2.4	A
	Subtotal	880	837	95.1%	10.6	B
WB	Left Turn	347	322	92.8%	23.5	C
	Through	482	471	97.7%	2.7	A
	Right Turn					
	Subtotal	829	793	95.7%	11.1	B
Total		1,977	1,907	96.5%	13.9	B

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	291	284	97.6%	37.6	D
	Through	97	82	84.5%	37.9	D
	Right Turn	143	157	109.8%	6.9	A
	Subtotal	531	523	98.5%	28.4	C
SB	Left Turn	103	105	101.9%	34.1	C
	Through	118	122	103.4%	38.9	D
	Right Turn	187	178	95.2%	0.7	A
	Subtotal	408	405	99.3%	20.9	C
EB	Left Turn	51	42	82.4%	49.6	D
	Through	679	644	94.8%	29.7	C
	Right Turn	239	244	102.1%	27.9	C
	Subtotal	969	930	96.0%	30.1	C
WB	Left Turn	49	56	114.3%	39.0	D
	Through	351	339	96.6%	21.8	C
	Right Turn	17	26	152.9%	11.7	B
	Subtotal	417	421	101.0%	23.5	C
Total		2,325	2,279	98.0%	26.9	C

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	27	24	88.9%	3.5	A
	Through	4	3	75.0%	7.3	A
	Right Turn	6	9	150.0%	2.9	A
	Subtotal	37	36	97.3%	3.6	A
SB	Left Turn	13	8	61.5%	0.0	A
	Through					
	Right Turn	17	16	94.1%	0.0	A
	Subtotal	30	24	80.0%	0.0	A
EB	Left Turn	14	16	114.3%	1.2	A
	Through	899	876	97.4%	0.7	A
	Right Turn	12	12	100.0%	1.3	A
	Subtotal	925	904	97.7%	0.7	A
WB	Left Turn	31	27	87.1%	8.5	A
	Through	373	376	100.8%	0.0	A
	Right Turn	6	7	116.7%	0.7	A
	Subtotal	410	410	100.0%	0.6	A
Total		1,402	1,374	98.0%	0.7	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	183	163	89.1%	59.2	E
	Through	685	667	97.4%	32.6	C
	Right Turn	67	72	107.5%	27.4	C
	Subtotal	935	902	96.5%	37.0	D
SB	Left Turn	169	166	98.2%	71.0	E
	Through	368	323	87.8%	31.0	C
	Right Turn	102	126	123.5%	1.4	A
	Subtotal	639	615	96.2%	35.7	D
EB	Left Turn	258	255	98.8%	53.3	D
	Through	363	341	93.9%	39.1	D
	Right Turn	297	300	101.0%	4.9	A
	Subtotal	918	896	97.6%	31.7	C
WB	Left Turn	79	85	107.6%	51.0	D
	Through	125	116	92.8%	48.1	D
	Right Turn	66	48	72.7%	1.5	A
	Subtotal	270	249	92.2%	40.1	D
Total		2,762	2,662	96.4%	35.2	D

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	130	119	91.5%	0.9	A
	Through					
	Right Turn					
	Subtotal	130	119	91.5%	0.9	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	435	434	99.8%	1.1	A
	Subtotal	435	434	99.8%	1.1	A
WB	Left Turn	64	68	106.3%	1.4	A
	Through	70	76	108.6%	1.0	A
	Right Turn					
	Subtotal	134	144	107.5%	1.2	A
Total		699	697	99.7%	1.0	A

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	130	119	91.5%	0.3	A
	Right Turn	35	32	91.4%	0.5	A
	Subtotal	165	151	91.5%	0.4	A
SB	Left Turn	91	95	104.4%	0.6	A
	Through	408	406	99.5%	0.1	A
	Right Turn					
	Subtotal	499	501	100.4%	0.2	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		664	652	98.2%	0.2	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	209	224	107.2%	68.3	E
	Through	686	668	97.4%	55.2	E
	Right Turn	114	96	84.2%	85.1	F
	Subtotal	1,009	988	97.9%	61.1	E
SB	Left Turn	283	255	90.1%	108.5	F
	Through	360	381	105.8%	51.3	D
	Right Turn	282	308	109.2%	8.7	A
	Subtotal	925	944	102.1%	52.9	D
EB	Left Turn	404	384	95.0%	1136.3	F
	Through	1,487	1,322	88.9%	1123.2	F
	Right Turn	180	126	70.0%	1081.5	F
	Subtotal	2,071	1,832	88.5%	1123.1	F
WB	Left Turn	99	110	111.1%	53.2	D
	Through	1,377	1,393	101.2%	20.5	C
	Right Turn	229	199	86.9%	12.2	B
	Subtotal	1,705	1,702	99.8%	21.6	C
Total		5,710	5,466	95.7%	403.3	F

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	94	87	92.6%	80.5	F
	Through	61	45	73.8%	78.0	E
	Right Turn	152	160	105.3%	25.8	C
	Subtotal	307	292	95.1%	50.2	D
SB	Left Turn	117	118	100.9%	31.7	C
	Through	56	54	96.4%	23.4	C
	Right Turn	41	35	85.4%	1.1	A
	Subtotal	214	207	96.7%	24.4	C
EB	Left Turn	60	42	70.0%	64.6	E
	Through	1,767	1,587	89.8%	88.8	F
	Right Turn	57	45	78.9%	76.2	E
	Subtotal	1,884	1,674	88.9%	87.8	F
WB	Left Turn	142	131	92.3%	92.6	F
	Through	1,570	1,542	98.2%	35.6	D
	Right Turn	60	67	111.7%	25.7	C
	Subtotal	1,772	1,740	98.2%	39.5	D
Total		4,177	3,913	93.7%	60.2	E

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	7	4	57.1%	0.0	A
	Subtotal	7	4	57.1%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,408	1,330	94.5%	4.7	A
	Right Turn	57	54	94.7%	0.2	A
	Subtotal	1,465	1,384	94.5%	4.5	A
WB	Left Turn					
	Through	500	462	92.4%	0.1	A
	Right Turn					
	Subtotal	500	462	92.4%	0.1	A
Total		1,972	1,850	93.8%	3.4	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	243	233	95.9%	98.9	F
	Through	1,111	1,034	93.1%	31.6	C
	Right Turn	61	45	73.8%	23.2	C
	Subtotal	1,415	1,312	92.7%	43.2	D
SB	Left Turn	45	56	124.4%	49.2	D
	Through	354	324	91.5%	25.2	C
	Right Turn	11	20	181.8%	21.4	C
	Subtotal	410	400	97.6%	28.4	C
EB	Left Turn	4	5	125.0%	72.9	E
	Through	67	59	88.1%	42.4	D
	Right Turn	100	99	99.0%	6.4	A
	Subtotal	171	163	95.3%	21.5	C
WB	Left Turn	46	47	102.2%	45.9	D
	Through	229	227	99.1%	32.0	C
	Right Turn	115	112	97.4%	7.5	A
	Subtotal	390	386	99.0%	26.6	C
Total		2,386	2,261	94.8%	36.2	D

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,231	1,150	93.4%	615.4	F
	Subtotal	1,231	1,150	93.4%	615.4	F
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	714	558	78.2%	249.2	F
	Right Turn					
	Subtotal	714	558	78.2%	249.2	F
WB	Left Turn					
	Through	1,065	1,122	105.4%	3.2	A
	Right Turn	669	665	99.4%	1.7	A
	Subtotal	1,734	1,787	103.1%	2.7	A
Total		3,679	3,495	95.0%	243.6	F

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Total Delay (sec/veh) Average	LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,139	1,171	102.8%	2.4	A
	Subtotal	1,139	1,171	102.8%	2.4	A
EB	Left Turn					
	Through	1,260	1,223	97.1%	44.2	E
	Right Turn	961	809	84.2%	10.5	B
	Subtotal	2,221	2,032	91.5%	30.8	D
WB	Left Turn					
	Through	832	787	94.6%	0.9	A
	Right Turn					
	Subtotal	832	787	94.6%	0.9	A
Total		4,192	3,990	95.2%	16.5	C

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Total Delay (sec/veh) Average	LOS
NB	Left Turn					
	Through					
	Right Turn	12	13	108.3%	26.1	D
	Subtotal	12	13	108.3%	26.1	D
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,260	1,228	97.5%	83.3	F
	Right Turn					
	Subtotal	1,260	1,228	97.5%	83.3	F
WB	Left Turn					
	Through	832	789	94.8%	0.7	A
	Right Turn	194	168	86.6%	3.0	A
	Subtotal	1,026	957	93.3%	1.1	A
Total		2,298	2,198	95.6%	47.2	E

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	564	530	94.0%	14.7	B
	Subtotal	564	530	94.0%	14.7	B
EB	Left Turn					
	Through	662	639	96.5%	7.7	A
	Right Turn	610	615	100.8%	223.3	F
	Subtotal	1,272	1,254	98.6%	113.4	F
WB	Left Turn					
	Through	462	425	92.0%	0.1	A
	Right Turn					
	Subtotal	462	425	92.0%	0.1	A
Total		2,298	2,209	96.1%	67.9	F

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	803	748	93.2%	4.3	A
	Subtotal	803	748	93.2%	4.3	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	662	637	96.2%	0.1	A
	Right Turn					
	Subtotal	662	637	96.2%	0.1	A
WB	Left Turn					
	Through	462	425	92.0%	0.0	A
	Right Turn	38	37	97.4%	0.0	A
	Subtotal	500	462	92.4%	0.0	A
Total		1,965	1,847	94.0%	1.8	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	17	25	147.1%	9.6	A
	Through	109	104	95.4%	15.1	B
	Right Turn	166	157	94.6%	5.3	A
	Subtotal	292	286	97.9%	9.2	A
SB	Left Turn	75	68	90.7%	14.5	B
	Through	8	8	100.0%	16.3	B
	Right Turn	6	4	66.7%	2.6	A
	Subtotal	89	80	89.9%	14.1	B
EB	Left Turn	48	37	77.1%	16.7	B
	Through	366	367	100.3%	5.7	A
	Right Turn	9	11	122.2%	2.1	A
	Subtotal	423	415	98.1%	6.6	A
WB	Left Turn	29	20	69.0%	16.6	B
	Through	255	243	95.3%	5.2	A
	Right Turn	95	85	89.5%	2.5	A
	Subtotal	379	348	91.8%	5.2	A
Total		1,183	1,129	95.4%	7.4	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	34	35	102.9%	19.3	B
	Through	95	79	83.2%	22.0	C
	Right Turn	285	295	103.5%	4.6	A
	Subtotal	414	409	98.8%	9.2	A
SB	Left Turn	338	344	101.8%	18.7	B
	Through	27	29	107.4%	14.2	B
	Right Turn	51	46	90.2%	3.5	A
	Subtotal	416	419	100.7%	16.7	B
EB	Left Turn	181	180	99.4%	22.1	C
	Through	408	394	96.6%	12.9	B
	Right Turn	18	19	105.6%	2.8	A
	Subtotal	607	593	97.7%	15.4	B
WB	Left Turn	31	31	100.0%	27.0	C
	Through	294	261	88.8%	16.4	B
	Right Turn	242	235	97.1%	2.1	A
	Subtotal	567	527	92.9%	10.7	B
Total		2,004	1,948	97.2%	13.1	B

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	45	39	86.7%	81.8	F
	Through					
	Right Turn	123	109	88.6%	69.5	E
	Subtotal	168	148	88.1%	72.7	E
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	852	843	98.9%	11.4	B
	Right Turn	179	177	98.9%	2.7	A
	Subtotal	1,031	1,020	98.9%	9.8	A
WB	Left Turn	345	314	91.0%	20.3	C
	Through	522	484	92.7%	2.3	A
	Right Turn					
	Subtotal	867	798	92.0%	9.4	A
Total		2,066	1,966	95.2%	14.4	B

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	350	327	93.4%	50.4	D
	Through	232	224	96.6%	44.8	D
	Right Turn	229	227	99.1%	17.0	B
	Subtotal	811	778	95.9%	39.0	D
SB	Left Turn	69	61	88.4%	40.2	D
	Through	103	102	99.0%	41.2	D
	Right Turn	185	164	88.6%	0.7	A
	Subtotal	357	327	91.6%	20.7	C
EB	Left Turn	101	96	95.0%	48.6	D
	Through	675	649	96.1%	31.1	C
	Right Turn	199	222	111.6%	29.7	C
	Subtotal	975	967	99.2%	32.5	C
WB	Left Turn	47	54	114.9%	50.7	D
	Through	332	306	92.2%	28.6	C
	Right Turn	71	97	136.6%	18.4	B
	Subtotal	450	457	101.6%	29.0	C
Total		2,593	2,529	97.5%	32.4	C

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	68	64	94.1%	4.7	A
	Through	5	4	80.0%	13.6	B
	Right Turn	11	10	90.9%	3.1	A
	Subtotal	84	78	92.9%	5.0	A
SB	Left Turn	13	8	61.5%	0.0	A
	Through					
	Right Turn	24	28	116.7%	0.0	A
	Subtotal	37	36	97.3%	0.0	A
EB	Left Turn	14	15	107.1%	3.9	A
	Through	935	895	95.7%	0.9	A
	Right Turn	24	17	70.8%	1.2	A
	Subtotal	973	927	95.3%	1.0	A
WB	Left Turn	37	40	108.1%	8.4	A
	Through	358	363	101.4%	0.0	A
	Right Turn	6	8	133.3%	0.8	A
	Subtotal	401	411	102.5%	0.8	A
Total		1,495	1,452	97.1%	1.1	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	216	216	100.0%	65.8	E
	Through	809	781	96.5%	29.8	C
	Right Turn	116	123	106.0%	26.7	C
	Subtotal	1,141	1,120	98.2%	36.4	D
SB	Left Turn	169	154	91.1%	58.9	E
	Through	408	363	89.0%	26.8	C
	Right Turn	96	128	133.3%	2.9	A
	Subtotal	673	645	95.8%	29.7	C
EB	Left Turn	353	286	81.0%	58.8	E
	Through	353	352	99.7%	49.5	D
	Right Turn	253	285	112.6%	4.2	A
	Subtotal	959	923	96.2%	38.4	D
WB	Left Turn	56	61	108.9%	50.8	D
	Through	89	82	92.1%	50.2	D
	Right Turn	54	47	87.0%	1.5	A
	Subtotal	199	190	95.5%	38.4	D
Total		2,972	2,878	96.8%	35.7	D

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	349	349	100.0%	1.2	A
	Through					
	Right Turn					
	Subtotal	349	349	100.0%	1.2	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	359	342	95.3%	1.1	A
	Subtotal	359	342	95.3%	1.1	A
WB	Left Turn	68	58	85.3%	1.1	A
	Through	185	167	90.3%	1.5	A
	Right Turn					
	Subtotal	253	225	88.9%	1.4	A
Total		961	916	95.3%	1.2	A

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	349	352	100.9%	0.5	A
	Right Turn	55	65	118.2%	0.4	A
	Subtotal	404	417	103.2%	0.4	A
SB	Left Turn	70	75	107.1%	2.2	A
	Through	357	327	91.6%	0.1	A
	Right Turn					
	Subtotal	427	402	94.1%	0.5	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		831	819	98.6%	0.5	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	274	297	108.4%	70.9	E
	Through	818	777	95.0%	61.7	E
	Right Turn	124	124	100.0%	60.6	E
	Subtotal	1,216	1,198	98.5%	63.8	E
SB	Left Turn	323	308	95.4%	88.0	F
	Through	387	405	104.7%	54.3	D
	Right Turn	364	372	102.2%	10.8	B
	Subtotal	1,074	1,085	101.0%	49.0	D
EB	Left Turn	313	335	107.0%	1701.3	F
	Through	1,448	1,532	105.8%	1716.9	F
	Right Turn	163	167	102.5%	1670.3	F
	Subtotal	1,924	2,034	105.7%	1710.5	F
WB	Left Turn	123	125	101.6%	43.1	D
	Through	1,481	1,469	99.2%	19.5	B
	Right Turn	233	242	103.9%	14.1	B
	Subtotal	1,837	1,836	99.9%	20.4	C
Total		6,051	6,153	101.7%	592.6	F

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	105	114	108.6%	73.3	E
	Through	72	74	102.8%	75.5	E
	Right Turn	167	151	90.4%	25.0	C
	Subtotal	344	339	98.5%	52.2	D
SB	Left Turn	98	94	95.9%	26.8	C
	Through	42	35	83.3%	31.4	C
	Right Turn	46	51	110.9%	2.1	A
	Subtotal	186	180	96.8%	20.7	C
EB	Left Turn	80	65	81.3%	60.8	E
	Through	1,752	1,824	104.1%	73.3	E
	Right Turn	63	60	95.2%	23.1	C
	Subtotal	1,895	1,949	102.8%	71.3	E
WB	Left Turn	146	148	101.4%	88.7	F
	Through	1,686	1,670	99.1%	33.9	C
	Right Turn	59	45	76.3%	31.2	C
	Subtotal	1,891	1,863	98.5%	38.2	D
Total		4,316	4,331	100.3%	53.5	D

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	8	8	100.0%	0.0	A
	Subtotal	8	8	100.0%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,418	1,399	98.7%	14.9	B
	Right Turn	50	49	98.0%	0.3	A
	Subtotal	1,468	1,448	98.6%	14.4	B
WB	Left Turn					
	Through	430	422	98.1%	0.2	A
	Right Turn					
	Subtotal	430	422	98.1%	0.2	A
Total		1,906	1,878	98.5%	11.1	B

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	255	221	86.7%	62.1	E
	Through	1,127	1,124	99.7%	23.8	C
	Right Turn	44	56	127.3%	15.4	B
	Subtotal	1,426	1,401	98.2%	29.5	C
SB	Left Turn	45	45	100.0%	56.4	E
	Through	283	284	100.4%	23.5	C
	Right Turn	11	12	109.1%	3.4	A
	Subtotal	339	341	100.6%	27.1	C
EB	Left Turn	4	6	150.0%	86.1	F
	Through	55	56	101.8%	50.9	D
	Right Turn	106	94	88.7%	16.7	B
	Subtotal	165	156	94.5%	31.7	C
WB	Left Turn	41	39	95.1%	48.8	D
	Through	315	311	98.7%	39.6	D
	Right Turn	147	135	91.8%	6.6	A
	Subtotal	503	485	96.4%	31.1	C
Total		2,433	2,383	97.9%	29.6	C

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,108	1,266	114.3%	565.7	F
	Subtotal	1,108	1,266	114.3%	565.7	F
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	691	583	84.4%	891.7	F
	Right Turn					
	Subtotal	691	583	84.4%	891.7	F
WB	Left Turn					
	Through	1,156	1,171	101.3%	2.3	A
	Right Turn	710	737	103.8%	1.5	A
	Subtotal	1,866	1,908	102.3%	2.0	A
Total		3,665	3,757	102.5%	330.0	F

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	1,116	1,074	96.2%	2.5	A
	Subtotal	1,116	1,074	96.2%	2.5	A
EB	Left Turn					
	Through	879	1,010	114.9%	48.5	E
	Right Turn	937	912	97.3%	3.3	A
	Subtotal	1,816	1,922	105.8%	27.1	D
WB	Left Turn					
	Through	1,019	998	97.9%	1.1	A
	Right Turn					
	Subtotal	1,019	998	97.9%	1.1	A
Total		3,951	3,994	101.1%	14.0	B

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	22	26	118.2%	24.9	C
	Subtotal	22	26	118.2%	24.9	C
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	879	1,014	115.4%	98.2	F
	Right Turn					
	Subtotal	879	1,014	115.4%	98.2	F
WB	Left Turn					
	Through	1,019	999	98.0%	0.9	A
	Right Turn	152	162	106.6%	3.3	A
	Subtotal	1,171	1,161	99.1%	1.2	A
Total		2,072	2,201	106.2%	46.2	E

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	761	763	100.3%	28.7	D
	Subtotal	761	763	100.3%	28.7	D
EB	Left Turn					
	Through	413	483	116.9%	4.5	A
	Right Turn	488	542	111.1%	264.8	F
	Subtotal	901	1,025	113.8%	142.1	F
WB	Left Turn					
	Through	410	399	97.3%	0.2	A
	Right Turn					
	Subtotal	410	399	97.3%	0.2	A
Total		2,072	2,187	105.6%	76.6	F

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,055	963	91.3%	14.5	B
	Subtotal	1,055	963	91.3%	14.5	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	413	484	117.2%	0.1	A
	Right Turn					
	Subtotal	413	484	117.2%	0.1	A
WB	Left Turn					
	Through	410	399	97.3%	0.1	A
	Right Turn	20	23	115.0%	0.0	A
	Subtotal	430	422	98.1%	0.0	A
Total		1,898	1,869	98.5%	7.5	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	17	23	135.3%	52.7	D
	Through	364	339	93.1%	44.6	D
	Right Turn	247	253	102.4%	38.2	D
	Subtotal	628	615	97.9%	42.3	D
SB	Left Turn	129	114	88.4%	14.6	B
	Through	6	11	183.3%	12.8	B
	Right Turn	17	19	111.8%	2.6	A
	Subtotal	152	144	94.7%	12.9	B
EB	Left Turn	164	143	87.2%	30.1	C
	Through	410	414	101.0%	14.2	B
	Right Turn	7	4	57.1%	7.9	A
	Subtotal	581	561	96.6%	18.2	B
WB	Left Turn	23	26	113.0%	28.9	C
	Through	326	295	90.5%	20.8	C
	Right Turn	202	197	97.5%	7.9	A
	Subtotal	551	518	94.0%	16.3	B
Total		1,912	1,838	96.1%	25.3	C

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	66	66	100.0%	29.8	C
	Through	97	102	105.2%	29.9	C
	Right Turn	489	470	96.1%	16.8	B
	Subtotal	652	638	97.9%	20.2	C
SB	Left Turn	428	425	99.3%	77.6	E
	Through	31	47	151.6%	88.7	F
	Right Turn	68	77	113.2%	65.1	E
	Subtotal	527	549	104.2%	76.8	E
EB	Left Turn	224	230	102.7%	29.1	C
	Through	551	543	98.5%	19.7	B
	Right Turn	11	7	63.6%	18.3	B
	Subtotal	786	780	99.2%	22.4	C
WB	Left Turn	52	41	78.8%	33.2	C
	Through	417	378	90.6%	23.4	C
	Right Turn	294	279	94.9%	2.8	A
	Subtotal	763	698	91.5%	15.7	B
Total		2,728	2,665	97.7%	31.3	C

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	38	40	105.3%	110.9	F
	Through					
	Right Turn	106	101	95.3%	90.3	F
	Subtotal	144	141	97.9%	96.1	F
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,145	1,122	98.0%	9.2	A
	Right Turn	323	316	97.8%	3.6	A
	Subtotal	1,468	1,438	98.0%	7.9	A
WB	Left Turn	287	234	81.5%	25.2	C
	Through	725	669	92.3%	1.3	A
	Right Turn					
	Subtotal	1,012	903	89.2%	7.5	A
Total		2,624	2,482	94.6%	12.8	B

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	420	327	77.9%	85.6	F
	Through	322	231	71.7%	85.7	F
	Right Turn	379	282	74.4%	51.2	D
	Subtotal	1,121	840	74.9%	74.1	E
SB	Left Turn	91	88	96.7%	40.2	D
	Through	99	86	86.9%	43.2	D
	Right Turn	276	275	99.6%	0.9	A
	Subtotal	466	449	96.4%	16.7	B
EB	Left Turn	163	153	93.9%	48.1	D
	Through	897	874	97.4%	31.4	C
	Right Turn	191	184	96.3%	27.5	C
	Subtotal	1,251	1,211	96.8%	32.9	C
WB	Left Turn	49	48	98.0%	53.1	D
	Through	316	299	94.6%	28.7	C
	Right Turn	67	69	103.0%	10.8	B
	Subtotal	432	416	96.3%	28.6	C
Total		3,270	2,916	89.2%	41.7	D

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	83	71	85.5%	11.7	B
	Through	4	1	25.0%	38.4	E
	Right Turn	13	16	123.1%	8.0	A
	Subtotal	100	88	88.0%	11.4	B
SB	Left Turn	8	5	62.5%	0.0	A
	Through					
	Right Turn	13	15	115.4%	0.0	A
	Subtotal	21	20	95.2%	0.0	A
EB	Left Turn	16	14	87.5%	1.8	A
	Through	1,319	1,205	91.4%	3.8	A
	Right Turn	32	26	81.3%	1.6	A
	Subtotal	1,367	1,245	91.1%	3.7	A
WB	Left Turn	25	25	100.0%	15.1	C
	Through	336	334	99.4%	0.0	A
	Right Turn	4	3	75.0%	0.8	A
	Subtotal	365	362	99.2%	1.0	A
Total		1,853	1,715	92.6%	3.5	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	134	120	89.6%	58.8	E
	Through	709	739	104.2%	33.0	C
	Right Turn	70	78	111.4%	27.1	C
	Subtotal	913	937	102.6%	35.8	D
SB	Left Turn	174	164	94.3%	67.0	E
	Through	447	391	87.5%	30.1	C
	Right Turn	92	133	144.6%	1.3	A
	Subtotal	713	688	96.5%	33.3	C
EB	Left Turn	380	322	84.7%	57.5	E
	Through	643	581	90.4%	59.6	E
	Right Turn	317	293	92.4%	6.4	A
	Subtotal	1,340	1,196	89.3%	46.0	D
WB	Left Turn	91	76	83.5%	44.6	D
	Through	139	124	89.2%	50.0	D
	Right Turn	68	77	113.2%	1.4	A
	Subtotal	298	277	93.0%	35.0	D
Total		3,264	3,098	94.9%	39.1	D

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	446	369	82.7%	1.4	A
	Through					
	Right Turn					
	Subtotal	446	369	82.7%	1.4	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	503	484	96.2%	1.3	A
	Subtotal	503	484	96.2%	1.3	A
WB	Left Turn	58	54	93.1%	1.2	A
	Through	148	135	91.2%	1.7	A
	Right Turn					
	Subtotal	206	189	91.7%	1.6	A
Total		1,155	1,042	90.2%	1.4	A

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	446	369	82.7%	0.6	A
	Right Turn	106	83	78.3%	0.5	A
	Subtotal	552	452	81.9%	0.6	A
SB	Left Turn	95	87	91.6%	2.8	A
	Through	466	451	96.8%	0.1	A
	Right Turn					
	Subtotal	561	538	95.9%	0.5	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		1,113	990	88.9%	0.6	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	225	303	134.7%	73.7	E
	Through	781	800	102.4%	68.2	E
	Right Turn	151	129	85.4%	74.6	E
	Subtotal	1,157	1,232	106.5%	70.2	E
SB	Left Turn	357	353	98.9%	99.5	F
	Through	446	447	100.2%	54.8	D
	Right Turn	491	482	98.2%	14.4	B
	Subtotal	1,294	1,282	99.1%	51.9	D
EB	Left Turn	234	258	110.3%	2185.7	F
	Through	1,342	1,510	112.5%	2200.4	F
	Right Turn	184	172	93.5%	2147.4	F
	Subtotal	1,760	1,940	110.2%	2193.7	F
WB	Left Turn	83	86	103.6%	51.0	D
	Through	1,531	1,453	94.9%	18.7	B
	Right Turn	202	192	95.0%	9.6	A
	Subtotal	1,816	1,731	95.3%	19.3	B
Total		6,027	6,185	102.6%	718.2	F

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	167	145	86.8%	87.8	F
	Through	144	134	93.1%	78.2	E
	Right Turn	174	191	109.8%	22.2	C
	Subtotal	485	470	96.9%	58.4	E
SB	Left Turn	107	106	99.1%	25.2	C
	Through	75	67	89.3%	17.8	B
	Right Turn	40	41	102.5%	0.0	A
	Subtotal	222	214	96.4%	18.0	B
EB	Left Turn	143	117	81.8%	57.8	E
	Through	1,643	1,847	112.4%	71.7	E
	Right Turn	64	61	95.3%	30.3	C
	Subtotal	1,850	2,025	109.5%	69.7	E
WB	Left Turn	132	118	89.4%	84.8	F
	Through	1,609	1,545	96.0%	33.8	C
	Right Turn	75	67	89.3%	24.5	C
	Subtotal	1,816	1,730	95.3%	36.9	D
Total		4,373	4,439	101.5%	53.2	D

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	8	8	100.0%	0.0	A
	Subtotal	8	8	100.0%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,462	1,420	97.1%	3.9	A
	Right Turn	160	159	99.4%	1.0	A
	Subtotal	1,622	1,579	97.3%	3.6	A
WB	Left Turn					
	Through	420	400	95.2%	0.1	A
	Right Turn					
	Subtotal	420	400	95.2%	0.1	A
Total		2,050	1,987	96.9%	2.9	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	260	240	92.3%	51.7	D
	Through	1,176	1,180	100.3%	29.7	C
	Right Turn	34	25	73.5%	19.4	B
	Subtotal	1,470	1,445	98.3%	33.1	C
SB	Left Turn	61	57	93.4%	55.6	E
	Through	276	270	97.8%	23.8	C
	Right Turn	12	12	100.0%	11.6	B
	Subtotal	349	339	97.1%	28.7	C
EB	Left Turn	4	7	175.0%	67.1	E
	Through	82	78	95.1%	46.6	D
	Right Turn	98	93	94.9%	6.9	A
	Subtotal	184	178	96.7%	26.7	C
WB	Left Turn	46	37	80.4%	80.9	F
	Through	487	482	99.0%	72.9	E
	Right Turn	304	294	96.7%	19.3	B
	Subtotal	837	813	97.1%	53.9	D
Total		2,840	2,775	97.7%	38.3	D

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,559	1,175	75.4%	483.7	F
	Subtotal	1,559	1,175	75.4%	483.7	F
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	515	546	106.0%	1442.4	F
	Right Turn					
	Subtotal	515	546	106.0%	1442.4	F
WB	Left Turn					
	Through	1,184	1,146	96.8%	1.9	A
	Right Turn	857	890	103.9%	1.3	A
	Subtotal	2,041	2,036	99.8%	1.6	A
Total		4,115	3,757	91.3%	361.8	F

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	983	944	96.0%	2.2	A
	Subtotal	983	944	96.0%	2.2	A
EB	Left Turn					
	Through	985	1,117	113.4%	49.6	E
	Right Turn	912	957	104.9%	3.1	A
	Subtotal	1,897	2,074	109.3%	28.1	D
WB	Left Turn					
	Through	1,224	1,154	94.3%	1.2	A
	Right Turn					
	Subtotal	1,224	1,154	94.3%	1.2	A
Total		4,104	4,172	101.7%	14.8	B

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	25	20	80.0%	21.1	C
	Subtotal	25	20	80.0%	21.1	C
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	985	1,105	112.2%	96.1	F
	Right Turn					
	Subtotal	985	1,105	112.2%	96.1	F
WB	Left Turn					
	Through	1,224	1,153	94.2%	0.8	A
	Right Turn	172	165	95.9%	3.6	A
	Subtotal	1,396	1,318	94.4%	1.2	A
Total		2,406	2,443	101.5%	44.3	E

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	992	934	94.2%	39.1	E
	Subtotal	992	934	94.2%	39.1	E
EB	Left Turn					
	Through	537	507	94.4%	6.8	A
	Right Turn	473	632	133.6%	238.3	F
	Subtotal	1,010	1,139	112.8%	135.2	F
WB	Left Turn					
	Through	404	384	95.0%	0.1	A
	Right Turn					
	Subtotal	404	384	95.0%	0.1	A
Total		2,406	2,457	102.1%	77.6	F

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,085	1,076	99.2%	3.0	A
	Subtotal	1,085	1,076	99.2%	3.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	537	506	94.2%	0.3	A
	Right Turn					
	Subtotal	537	506	94.2%	0.3	A
WB	Left Turn					
	Through	404	384	95.0%	0.0	A
	Right Turn	16	16	100.0%	0.0	A
	Subtotal	420	400	95.2%	0.0	A
Total		2,042	1,982	97.1%	1.7	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	18	21	116.7%	15.9	B
	Through	352	340	96.6%	20.7	C
	Right Turn	221	224	101.4%	16.7	B
	Subtotal	591	585	99.0%	19.0	B
SB	Left Turn	114	100	87.7%	12.9	B
	Through	6	13	216.7%	11.5	B
	Right Turn	20	18	90.0%	3.3	A
	Subtotal	140	131	93.6%	11.5	B
EB	Left Turn	103	97	94.2%	28.2	C
	Through	396	404	102.0%	11.0	B
	Right Turn	7	9	128.6%	1.1	A
	Subtotal	506	510	100.8%	14.1	B
WB	Left Turn	17	16	94.1%	31.2	C
	Through	306	308	100.7%	16.0	B
	Right Turn	195	186	95.4%	6.5	A
	Subtotal	518	510	98.5%	13.0	B
Total		1,755	1,736	98.9%	15.2	B

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	64	59	92.2%	20.7	C
	Through	73	76	104.1%	27.1	C
	Right Turn	465	455	97.8%	7.2	A
	Subtotal	602	590	98.0%	11.1	B
SB	Left Turn	335	319	95.2%	24.6	C
	Through	18	18	100.0%	25.4	C
	Right Turn	63	68	107.9%	4.5	A
	Subtotal	416	405	97.4%	21.3	C
EB	Left Turn	212	228	107.5%	30.5	C
	Through	509	491	96.5%	17.1	B
	Right Turn	10	13	130.0%	10.1	B
	Subtotal	731	732	100.1%	21.2	C
WB	Left Turn	43	44	102.3%	34.8	C
	Through	391	386	98.7%	17.9	B
	Right Turn	332	332	100.0%	3.0	A
	Subtotal	766	762	99.5%	12.4	B
Total		2,515	2,489	99.0%	16.1	B

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	38	33	86.8%	113.7	F
	Through					
	Right Turn	83	112	134.9%	80.1	F
	Subtotal	121	145	119.8%	87.7	F
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,033	990	95.8%	10.2	B
	Right Turn	276	278	100.7%	3.4	A
	Subtotal	1,309	1,268	96.9%	8.7	A
WB	Left Turn	309	265	85.8%	25.8	C
	Through	728	721	99.0%	1.6	A
	Right Turn					
	Subtotal	1,037	986	95.1%	8.1	A
Total		2,467	2,399	97.2%	13.2	B

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	365	340	93.2%	86.7	F
	Through	196	207	105.6%	84.9	F
	Right Turn	350	369	105.4%	49.1	D
	Subtotal	911	916	100.5%	71.2	E
SB	Left Turn	155	145	93.5%	46.1	D
	Through	117	112	95.7%	43.1	D
	Right Turn	349	344	98.6%	0.8	A
	Subtotal	621	601	96.8%	19.6	B
EB	Left Turn	85	89	104.7%	51.5	D
	Through	887	876	98.8%	34.3	C
	Right Turn	144	141	97.9%	28.2	C
	Subtotal	1,116	1,106	99.1%	34.9	C
WB	Left Turn	25	33	132.0%	51.3	D
	Through	323	305	94.4%	30.1	C
	Right Turn	30	25	83.3%	9.4	A
	Subtotal	378	363	96.0%	30.6	C
Total		3,026	2,986	98.7%	42.4	D

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	52	45	86.5%	8.3	A
	Through					
	Right Turn	9	11	122.2%	3.4	A
	Subtotal	61	56	91.8%	7.4	A
SB	Left Turn	5	7	140.0%	0.0	A
	Through					
	Right Turn	7	5	71.4%	0.0	A
	Subtotal	12	12	100.0%	0.0	A
EB	Left Turn	12	11	91.7%	4.1	A
	Through	1,346	1,365	101.4%	6.0	A
	Right Turn	34	24	70.6%	2.2	A
	Subtotal	1,392	1,400	100.6%	5.9	A
WB	Left Turn	13	7	53.8%	10.1	B
	Through	319	308	96.6%	0.0	A
	Right Turn	4	3	75.0%	1.0	A
	Subtotal	336	318	94.6%	0.2	A
Total		1,801	1,786	99.2%	4.9	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	136	126	92.6%	55.8	E
	Through	713	719	100.8%	31.6	C
	Right Turn	80	76	95.0%	29.8	C
	Subtotal	929	921	99.1%	34.8	C
SB	Left Turn	147	153	104.1%	64.4	E
	Through	442	415	93.9%	28.2	C
	Right Turn	96	145	151.0%	0.7	A
	Subtotal	685	713	104.1%	30.4	C
EB	Left Turn	407	362	88.9%	50.9	D
	Through	647	669	103.4%	55.1	E
	Right Turn	306	336	109.8%	5.4	A
	Subtotal	1,360	1,367	100.5%	41.8	D
WB	Left Turn	80	73	91.3%	58.2	E
	Through	104	83	79.8%	52.5	D
	Right Turn	71	79	111.3%	1.4	A
	Subtotal	255	235	92.2%	37.1	D
Total		3,229	3,236	100.2%	36.9	D

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	216	223	103.2%	1.1	A
	Through					
	Right Turn					
	Subtotal	216	223	103.2%	1.1	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	753	746	99.1%	2.0	A
	Subtotal	753	746	99.1%	2.0	A
WB	Left Turn	32	32	100.0%	1.2	A
	Through	93	109	117.2%	0.9	A
	Right Turn					
	Subtotal	125	141	112.8%	0.9	A
Total		1,094	1,110	101.5%	1.7	A

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	216	224	103.7%	0.5	A
	Right Turn	95	98	103.2%	0.6	A
	Subtotal	311	322	103.5%	0.5	A
SB	Left Turn	164	173	105.5%	2.0	A
	Through	621	606	97.6%	0.1	A
	Right Turn					
	Subtotal	785	779	99.2%	0.6	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		1,096	1,101	100.5%	0.5	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	189	263	139.2%	67.2	E
	Through	824	843	102.3%	72.6	E
	Right Turn	178	181	101.7%	60.0	E
	Subtotal	1,191	1,287	108.1%	69.7	E
SB	Left Turn	389	371	95.4%	79.2	E
	Through	384	430	112.0%	54.2	D
	Right Turn	415	414	99.8%	13.8	B
	Subtotal	1,188	1,215	102.3%	48.1	D
EB	Left Turn	281	344	122.4%	715.3	F
	Through	1,430	1,776	124.2%	684.1	F
	Right Turn	163	199	122.1%	672.1	F
	Subtotal	1,874	2,319	123.7%	687.7	F
WB	Left Turn	138	136	98.6%	46.8	D
	Through	1,463	1,514	103.5%	18.6	B
	Right Turn	318	331	104.1%	15.2	B
	Subtotal	1,919	1,981	103.2%	20.0	B
Total		6,172	6,802	110.2%	262.0	F

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	127	145	114.2%	89.3	F
	Through	141	139	98.6%	77.0	E
	Right Turn	198	176	88.9%	23.5	C
	Subtotal	466	460	98.7%	60.4	E
SB	Left Turn	100	104	104.0%	17.6	B
	Through	83	74	89.2%	17.1	B
	Right Turn	26	27	103.8%	0.0	A
	Subtotal	209	205	98.1%	15.1	B
EB	Left Turn	157	182	115.9%	60.3	E
	Through	1,763	2,067	117.2%	36.1	D
	Right Turn	77	72	93.5%	23.4	C
	Subtotal	1,997	2,321	116.2%	37.6	D
WB	Left Turn	127	154	121.3%	99.2	F
	Through	1,766	1,840	104.2%	39.1	D
	Right Turn	57	57	100.0%	31.5	C
	Subtotal	1,950	2,051	105.2%	43.4	D
Total		4,622	5,037	109.0%	41.1	D

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	6	4	66.7%	0.0	A
	Subtotal	6	4	66.7%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,347	1,398	103.8%	2.5	A
	Right Turn	134	151	112.7%	0.7	A
	Subtotal	1,481	1,549	104.6%	2.3	A
WB	Left Turn					
	Through	401	410	102.2%	0.1	A
	Right Turn					
	Subtotal	401	410	102.2%	0.1	A
Total		1,888	1,963	104.0%	1.9	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	267	262	98.1%	57.7	E
	Through	1,057	1,096	103.7%	26.2	C
	Right Turn	29	27	93.1%	13.0	B
	Subtotal	1,353	1,385	102.4%	31.9	C
SB	Left Turn	42	39	92.9%	48.4	D
	Through	274	277	101.1%	24.6	C
	Right Turn	12	10	83.3%	5.6	A
	Subtotal	328	326	99.4%	26.9	C
EB	Left Turn	4	7	175.0%	70.4	E
	Through	80	68	85.0%	31.8	C
	Right Turn	90	93	103.3%	4.2	A
	Subtotal	174	168	96.6%	18.1	B
WB	Left Turn	37	37	100.0%	68.4	E
	Through	425	435	102.4%	53.0	D
	Right Turn	336	317	94.3%	12.8	B
	Subtotal	798	789	98.9%	37.6	D
Total		2,653	2,668	100.6%	32.1	C

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,111	1,392	125.3%	127.6	F
	Subtotal	1,111	1,392	125.3%	127.6	F
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	504	661	131.2%	366.6	F
	Right Turn					
	Subtotal	504	661	131.2%	366.6	F
WB	Left Turn					
	Through	1,245	1,275	102.4%	2.2	A
	Right Turn	697	763	109.5%	1.0	A
	Subtotal	1,942	2,038	104.9%	1.7	A
Total		3,557	4,091	115.0%	103.5	F

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	994	1,015	102.1%	1.9	A
	Subtotal	994	1,015	102.1%	1.9	A
EB	Left Turn					
	Through	1,447	1,626	112.4%	12.5	B
	Right Turn	871	975	111.9%	3.2	A
	Subtotal	2,318	2,601	112.2%	9.0	A
WB	Left Turn					
	Through	846	944	111.6%	0.9	A
	Right Turn					
	Subtotal	846	944	111.6%	0.9	A
Total		4,158	4,560	109.7%	5.8	A

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	16	12	75.0%	18.4	C
	Subtotal	16	12	75.0%	18.4	C
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,447	1,641	113.4%	30.2	D
	Right Turn					
	Subtotal	1,447	1,641	113.4%	30.2	D
WB	Left Turn					
	Through	846	945	111.7%	0.7	A
	Right Turn	141	140	99.3%	2.4	A
	Subtotal	987	1,085	109.9%	0.9	A
Total		2,450	2,738	111.8%	18.6	C

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	597	690	115.6%	15.5	C
	Subtotal	597	690	115.6%	15.5	C
EB	Left Turn					
	Through	797	852	106.9%	1.8	A
	Right Turn	666	813	122.1%	108.3	F
	Subtotal	1,463	1,665	113.8%	53.8	F
WB	Left Turn					
	Through	390	395	101.3%	0.1	A
	Right Turn					
	Subtotal	390	395	101.3%	0.1	A
Total		2,450	2,750	112.2%	36.5	E

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	684	691	101.0%	1.8	A
	Subtotal	684	691	101.0%	1.8	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	797	854	107.2%	0.2	A
	Right Turn					
	Subtotal	797	854	107.2%	0.2	A
WB	Left Turn					
	Through	390	396	101.5%	0.0	A
	Right Turn	11	14	127.3%	0.1	A
	Subtotal	401	410	102.2%	0.0	A
Total		1,882	1,955	103.9%	0.7	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	7	7	100.0%	8.0	A
	Through	91	88	96.7%	12.2	B
	Right Turn	73	74	101.4%	3.5	A
	Subtotal	171	169	98.8%	8.2	A
SB	Left Turn	68	69	101.5%	12.5	B
	Through	5	2	40.0%	16.4	B
	Right Turn	8	9	112.5%	2.6	A
	Subtotal	81	80	98.8%	11.5	B
EB	Left Turn	38	33	86.8%	11.7	B
	Through	299	288	96.3%	4.3	A
	Right Turn	2	7	350.0%	1.4	A
	Subtotal	339	328	96.8%	4.9	A
WB	Left Turn	7	6	85.7%	9.1	A
	Through	266	270	101.5%	4.9	A
	Right Turn	78	76	97.4%	3.0	A
	Subtotal	351	352	100.3%	4.5	A
Total		942	929	98.6%	5.9	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	24	30	125.0%	16.3	B
	Through	47	47	100.0%	23.2	C
	Right Turn	248	238	96.0%	4.0	A
	Subtotal	319	315	98.7%	8.0	A
SB	Left Turn	304	306	100.7%	14.9	B
	Through	13	13	100.0%	16.9	B
	Right Turn	62	60	96.8%	3.4	A
	Subtotal	379	379	100.0%	13.2	B
EB	Left Turn	100	102	102.0%	20.8	C
	Through	333	326	97.9%	11.2	B
	Right Turn	7	4	57.1%	5.9	A
	Subtotal	440	432	98.2%	13.4	B
WB	Left Turn	24	27	112.5%	29.7	C
	Through	265	256	96.6%	12.7	B
	Right Turn	131	115	87.8%	1.2	A
	Subtotal	420	398	94.8%	10.5	B
Total		1,558	1,524	97.8%	11.5	B

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	67	55	82.1%	27.9	C
	Through					
	Right Turn	136	138	101.5%	5.7	A
	Subtotal	203	193	95.1%	12.0	B
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	662	647	97.7%	12.9	B
	Right Turn	223	236	105.8%	3.7	A
	Subtotal	885	883	99.8%	10.4	B
WB	Left Turn	288	373	129.5%	25.1	C
	Through	353	349	98.9%	3.4	A
	Right Turn					
	Subtotal	641	722	112.6%	14.6	B
Total		1,729	1,798	104.0%	12.3	B

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	196	289	147.4%	46.7	D
	Through	74	140	189.2%	51.1	D
	Right Turn	130	224	172.3%	27.4	C
	Subtotal	400	653	163.3%	41.0	D
SB	Left Turn	21	25	119.0%	44.5	D
	Through	46	49	106.5%	30.6	C
	Right Turn	103	102	99.0%	0.6	A
	Subtotal	170	176	103.5%	15.2	B
EB	Left Turn	43	31	72.1%	38.6	D
	Through	683	671	98.2%	22.8	C
	Right Turn	72	76	105.6%	23.8	C
	Subtotal	798	778	97.5%	23.5	C
WB	Left Turn	20	30	150.0%	37.0	D
	Through	342	330	96.5%	19.5	B
	Right Turn	18	17	94.4%	9.0	A
	Subtotal	380	377	99.2%	20.4	C
Total		1,748	1,984	113.5%	28.0	C

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	33	26	78.8%	4.3	A
	Through	1	4	400.0%	3.3	A
	Right Turn	7	7	100.0%	5.2	A
	Subtotal	41	37	90.2%	4.3	A
SB	Left Turn	3	3	100.0%	0.0	A
	Through					
	Right Turn	4	5	125.0%	0.0	A
	Subtotal	7	8	114.3%	0.0	A
EB	Left Turn	4	5	125.0%	1.2	A
	Through	824	908	110.2%	1.3	A
	Right Turn	6	7	116.7%	1.6	A
	Subtotal	834	920	110.3%	1.3	A
WB	Left Turn	7	9	128.6%	1.6	A
	Through	343	349	101.7%	0.0	A
	Right Turn					
	Subtotal	350	358	102.3%	0.0	A
Total		1,232	1,323	107.4%	1.1	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	164	161	98.2%	60.1	E
	Through	683	705	103.2%	23.5	C
	Right Turn	129	119	92.2%	22.2	C
	Subtotal	976	985	100.9%	29.3	C
SB	Left Turn	187	143	76.5%	56.2	E
	Through	325	285	87.7%	24.8	C
	Right Turn	92	124	134.8%	0.6	A
	Subtotal	604	552	91.4%	27.5	C
EB	Left Turn	243	253	104.1%	66.1	E
	Through	369	463	125.5%	51.4	D
	Right Turn	222	231	104.1%	3.7	A
	Subtotal	834	947	113.5%	43.7	D
WB	Left Turn	40	36	90.0%	61.4	E
	Through	94	88	93.6%	43.8	D
	Right Turn	55	51	92.7%	1.5	A
	Subtotal	189	175	92.6%	35.1	D
Total		2,603	2,659	102.2%	34.4	C

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	87	127	146.0%	1.1	A
	Through					
	Right Turn					
	Subtotal	87	127	146.0%	1.1	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	167	162	97.0%	0.8	A
	Subtotal	167	162	97.0%	0.8	A
WB	Left Turn	36	43	119.4%	1.0	A
	Through	41	50	122.0%	0.9	A
	Right Turn					
	Subtotal	77	93	120.8%	1.0	A
Total		331	382	115.4%	0.9	A

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	87	123	141.4%	0.7	A
	Right Turn	48	65	135.4%	0.5	A
	Subtotal	135	188	139.3%	0.6	A
SB	Left Turn	33	38	115.2%	1.5	A
	Through	170	167	98.2%	0.0	A
	Right Turn					
	Subtotal	203	205	101.0%	0.3	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		338	393	116.3%	0.5	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	170	191	112.4%	66.2	E
	Through	628	649	103.3%	56.7	E
	Right Turn	183	177	96.7%	6.7	A
	Subtotal	981	1,017	103.7%	49.8	D
SB	Left Turn	274	276	100.7%	67.1	E
	Through	307	329	107.2%	51.6	D
	Right Turn	336	343	102.1%	8.0	A
	Subtotal	917	948	103.4%	40.3	D
EB	Left Turn	308	283	91.9%	101.6	F
	Through	1,613	1,541	95.5%	48.9	D
	Right Turn	183	155	84.7%	18.6	B
	Subtotal	2,104	1,979	94.1%	54.1	D
WB	Left Turn	114	99	86.8%	55.5	E
	Through	1,319	1,334	101.1%	27.0	C
	Right Turn	167	170	101.8%	13.5	B
	Subtotal	1,600	1,603	100.2%	27.3	C
Total		5,602	5,547	99.0%	43.2	D

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	68	68	100.0%	77.6	E
	Through	63	71	112.7%	76.9	E
	Right Turn	118	109	92.4%	7.3	A
	Subtotal	249	248	99.6%	46.5	D
SB	Left Turn	77	54	70.1%	15.0	B
	Through	60	77	128.3%	30.7	C
	Right Turn	24	23	95.8%	0.0	A
	Subtotal	161	154	95.7%	20.6	C
EB	Left Turn	96	99	103.1%	44.4	D
	Through	1,927	1,833	95.1%	9.2	A
	Right Turn	47	69	146.8%	2.2	A
	Subtotal	2,070	2,001	96.7%	10.7	B
WB	Left Turn	107	103	96.3%	79.8	E
	Through	1,508	1,528	101.3%	23.5	C
	Right Turn	42	41	97.6%	22.5	C
	Subtotal	1,657	1,672	100.9%	27.0	C
Total		4,137	4,075	98.5%	19.9	B

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	12	12	100.0%	0.0	A
	Subtotal	12	12	100.0%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,326	1,270	95.8%	1.5	A
	Right Turn	50	45	90.0%	0.4	A
	Subtotal	1,376	1,315	95.6%	1.5	A
WB	Left Turn					
	Through	315	309	98.1%	0.1	A
	Right Turn					
	Subtotal	315	309	98.1%	0.1	A
Total		1,703	1,636	96.1%	1.2	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	234	224	95.7%	37.5	D
	Through	1,078	1,040	96.5%	15.3	B
	Right Turn	26	31	119.2%	6.3	A
	Subtotal	1,338	1,295	96.8%	19.0	B
SB	Left Turn	34	29	85.3%	41.2	D
	Through	236	228	96.6%	16.9	B
	Right Turn	10	10	100.0%	8.1	A
	Subtotal	280	267	95.4%	19.2	B
EB	Left Turn	5	8	160.0%	51.3	D
	Through	41	40	97.6%	40.7	D
	Right Turn	52	40	76.9%	3.0	A
	Subtotal	98	88	89.8%	24.5	C
WB	Left Turn	27	40	148.1%	37.8	D
	Through	137	139	101.5%	25.2	C
	Right Turn	178	174	97.8%	6.1	A
	Subtotal	342	353	103.2%	17.2	B
Total		2,058	2,003	97.3%	18.9	B

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,419	1,432	100.9%	0.3	A
	Subtotal	1,419	1,432	100.9%	0.3	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	366	389	106.3%	0.4	A
	Right Turn					
	Subtotal	366	389	106.3%	0.4	A
WB	Left Turn					
	Through	1,095	1,161	106.0%	2.5	A
	Right Turn	653	644	98.6%	1.6	A
	Subtotal	1,748	1,805	103.3%	2.2	A
Total		3,533	3,626	102.6%	1.3	A

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	814	828	101.7%	1.4	A
	Subtotal	814	828	101.7%	1.4	A
EB	Left Turn					
	Through	1,795	1,649	91.9%	1.9	A
	Right Turn	606	632	104.3%	1.8	A
	Subtotal	2,401	2,281	95.0%	1.9	A
WB	Left Turn					
	Through	752	757	100.7%	0.5	A
	Right Turn					
	Subtotal	752	757	100.7%	0.5	A
Total		3,967	3,866	97.5%	1.5	A

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	19	15	78.9%	0.0	A
	Subtotal	19	15	78.9%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	1,795	1,654	92.1%	2.2	A
	Right Turn					
	Subtotal	1,795	1,654	92.1%	2.2	A
WB	Left Turn					
	Through	752	757	100.7%	0.5	A
	Right Turn	100	87	87.0%	1.2	A
	Subtotal	852	844	99.1%	0.5	A
Total		2,666	2,513	94.3%	1.6	A

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	545	542	99.4%	2.2	A
	Subtotal	545	542	99.4%	2.2	A
EB	Left Turn					
	Through	817	749	91.7%	0.1	A
	Right Turn	997	929	93.2%	2.7	A
	Subtotal	1,814	1,678	92.5%	1.6	A
WB	Left Turn					
	Through	307	299	97.4%	0.1	A
	Right Turn					
	Subtotal	307	299	97.4%	0.1	A
Total		2,666	2,519	94.5%	1.5	A

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	559	567	101.4%	1.2	A
	Subtotal	559	567	101.4%	1.2	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	817	748	91.6%	0.1	A
	Right Turn					
	Subtotal	817	748	91.6%	0.1	A
WB	Left Turn					
	Through	307	298	97.1%	0.0	A
	Right Turn	8	11	137.5%	0.0	A
	Subtotal	315	309	98.1%	0.0	A
Total		1,691	1,624	96.0%	0.5	A

Intersection 1 **Landing Blvd./West Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	5	3	60.0%	6.9	A
	Through	6	8	133.3%	16.2	B
	Right Turn	26	27	103.8%	1.0	A
	Subtotal	37	38	102.7%	4.7	A
SB	Left Turn	60	56	93.3%	12.5	B
	Through	2	2	100.0%	7.0	A
	Right Turn	8	10	125.0%	2.4	A
	Subtotal	70	68	97.1%	10.9	B
EB	Left Turn	6	5	83.3%	12.7	B
	Through	204	194	95.1%	2.4	A
	Right Turn	3	7	233.3%	0.8	A
	Subtotal	213	206	96.7%	2.6	A
WB	Left Turn	7	3	42.9%	7.7	A
	Through	190	166	87.4%	2.7	A
	Right Turn	33	35	106.1%	1.2	A
	Subtotal	230	204	88.7%	2.5	A
Total		550	516	93.8%	3.8	A

Intersection 2 **Lakeview Blvd./SB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	4	4	100.0%	21.1	C
	Through	11	11	100.0%	21.2	C
	Right Turn	51	47	92.2%	1.4	A
	Subtotal	66	62	93.9%	6.2	A
SB	Left Turn	198	205	103.5%	8.7	A
	Through	7	12	171.4%	14.0	B
	Right Turn	49	36	73.5%	2.8	A
	Subtotal	254	253	99.6%	8.1	A
EB	Left Turn	53	47	88.7%	14.5	B
	Through	228	218	95.6%	5.4	A
	Right Turn	9	12	133.3%	0.8	A
	Subtotal	290	277	95.5%	6.7	A
WB	Left Turn	23	15	65.2%	12.4	B
	Through	177	166	93.8%	7.1	A
	Right Turn	66	67	101.5%	1.2	A
	Subtotal	266	248	93.2%	5.8	A
Total		876	840	95.9%	6.8	A

Intersection 3 **NB I-880 ramps/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	97	78	80.4%	13.7	B
	Through					
	Right Turn	184	196	106.5%	2.7	A
	Subtotal	281	274	97.5%	5.8	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	392	379	96.7%	9.7	A
	Right Turn	85	92	108.2%	1.3	A
	Subtotal	477	471	98.7%	8.1	A
WB	Left Turn	191	176	92.1%	17.5	B
	Through	169	166	98.2%	3.8	A
	Right Turn					
	Subtotal	360	342	95.0%	10.9	B
Total		1,118	1,087	97.2%	8.4	A

Intersection 4 **Kato Road/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	91	76	83.5%	18.6	B
	Through	44	50	113.6%	19.0	B
	Right Turn	40	39	97.5%	1.2	A
	Subtotal	175	165	94.3%	14.6	B
SB	Left Turn	17	14	82.4%	19.1	B
	Through	22	17	77.3%	24.1	C
	Right Turn	56	53	94.6%	0.6	A
	Subtotal	95	84	88.4%	8.5	A
EB	Left Turn	49	48	98.0%	20.9	C
	Through	451	469	104.0%	12.7	B
	Right Turn	76	75	98.7%	6.6	A
	Subtotal	576	592	102.8%	12.6	B
WB	Left Turn	23	28	121.7%	35.4	D
	Through	213	207	97.2%	13.8	B
	Right Turn	11	17	154.5%	2.3	A
	Subtotal	247	252	102.0%	15.4	B
Total		1,093	1,093	100.0%	13.2	B

Intersection 5 **Mission Falls Court/Warren Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	9	6	66.7%	2.6	A
	Through					
	Right Turn					
	Subtotal	9	6	66.7%	2.6	A
SB	Left Turn	3	3	100.0%	0.0	A
	Through					
	Right Turn	2	5	250.0%	0.0	A
	Subtotal	5	8	160.0%	0.0	A
EB	Left Turn	3	3	100.0%	1.5	A
	Through	499	512	102.6%	0.5	A
	Right Turn	6	8	133.3%	1.0	A
	Subtotal	508	523	103.0%	0.5	A
WB	Left Turn	9	9	100.0%	1.6	A
	Through	236	238	100.8%	0.0	A
	Right Turn					
	Subtotal	245	247	100.8%	0.1	A
Total		767	784	102.2%	0.3	A

Intersection 6 **Warm Springs Blvd/Warren Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	90	90	100.0%	24.9	C
	Through	255	247	96.9%	19.4	B
	Right Turn	38	44	115.8%	10.4	B
	Subtotal	383	381	99.5%	19.6	B
SB	Left Turn	129	136	105.4%	36.9	D
	Through	220	194	88.2%	15.5	B
	Right Turn	101	104	103.0%	0.0	A
	Subtotal	450	434	96.4%	18.5	B
EB	Left Turn	150	169	112.7%	24.2	C
	Through	176	198	112.5%	21.3	C
	Right Turn	176	165	93.8%	2.1	A
	Subtotal	502	532	106.0%	16.3	B
WB	Left Turn	27	19	70.4%	26.1	C
	Through	54	53	98.1%	28.4	C
	Right Turn	28	25	89.3%	1.2	A
	Subtotal	109	97	89.0%	20.9	C
Total		1,444	1,444	100.0%	18.1	B

Intersection 7 **Kato Road/Mission Blvd. off-ramp** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	66	84	127.3%	0.5	A
	Through					
	Right Turn					
	Subtotal	66	84	127.3%	0.5	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through					
	Right Turn	96	94	97.9%	0.7	A
	Subtotal	96	94	97.9%	0.7	A
WB	Left Turn	35	21	60.0%	1.2	A
	Through	40	40	100.0%	0.7	A
	Right Turn					
	Subtotal	75	61	81.3%	0.9	A
Total		237	239	100.8%	0.7	A

Intersection 8 **Kato Road/Mission Blvd. On-ramp** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	l Delay (sec/veh) Average	l Delay (sec/veh) LOS
NB	Left Turn					
	Through	66	84	127.3%	0.2	A
	Right Turn	38	31	81.6%	0.3	A
	Subtotal	104	115	110.6%	0.2	A
SB	Left Turn	36	31	86.1%	0.1	A
	Through	95	84	88.4%	0.0	A
	Right Turn					
	Subtotal	131	115	87.8%	0.0	A
EB	Left Turn					
	Through					
	Second Right					
	Subtotal					
WB	Left Turn					
	Through					
	Second Right					
	Subtotal					
Total		235	230	97.9%	0.1	A

Intersection 9 **Warm Springs Blvd/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	115	127	110.4%	72.2	E
	Through	209	221	105.7%	48.4	D
	Right Turn	109	121	111.0%	5.2	A
	Subtotal	433	469	108.3%	43.7	D
SB	Left Turn	181	169	93.4%	65.8	E
	Through	268	278	103.7%	49.1	D
	Right Turn	247	245	99.2%	6.3	A
	Subtotal	696	692	99.4%	38.0	D
EB	Left Turn	228	192	84.2%	94.2	F
	Through	1,811	1,613	89.1%	44.6	D
	Right Turn	102	100	98.0%	10.3	B
	Subtotal	2,141	1,905	89.0%	47.8	D
WB	Left Turn	80	73	91.3%	56.1	E
	Through	957	980	102.4%	23.7	C
	Right Turn	61	72	118.0%	7.5	A
	Subtotal	1,098	1,125	102.5%	24.8	C
Total		4,368	4,191	95.9%	39.5	D

Intersection 10 **Mohave Drive/Mission Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	46	41	89.1%	74.6	E
	Through	28	39	139.3%	78.4	E
	Right Turn	79	61	77.2%	6.5	A
	Subtotal	153	141	92.2%	46.2	D
SB	Left Turn	70	73	104.3%	13.4	B
	Through	50	44	88.0%	9.3	A
	Right Turn	26	18	69.2%	1.6	A
	Subtotal	146	135	92.5%	10.5	B
EB	Left Turn	46	48	104.3%	51.3	D
	Through	2,002	1,826	91.2%	16.1	B
	Right Turn	53	54	101.9%	2.0	A
	Subtotal	2,101	1,928	91.8%	16.6	B
WB	Left Turn	93	105	112.9%	80.7	F
	Through	1,026	1,041	101.5%	20.6	C
	Right Turn	39	39	100.0%	13.7	B
	Subtotal	1,158	1,185	102.3%	25.7	C
Total		3,558	3,389	95.3%	20.8	C

Intersection 11 **Curtner Rd/Mission Blvd** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	6	4	66.7%	0.0	A
	Subtotal	6	4	66.7%	0.0	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	754	737	97.7%	0.8	A
	Right Turn	36	35	97.2%	0.3	A
	Subtotal	790	772	97.7%	0.8	A
WB	Left Turn					
	Through	253	217	85.8%	0.0	A
	Right Turn					
	Subtotal	253	217	85.8%	0.0	A
Total		1,049	993	94.7%	0.6	A

Intersection 12 **Mission Blvd/Paseo Padre Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn	168	160	95.2%	19.5	B
	Through	561	571	101.8%	8.1	A
	Right Turn	31	24	77.4%	6.9	A
	Subtotal	760	755	99.3%	10.5	B
SB	Left Turn	23	24	104.3%	38.3	D
	Through	184	174	94.6%	12.8	B
	Right Turn	12	11	91.7%	4.6	A
	Subtotal	219	209	95.4%	15.3	B
EB	Left Turn	6	5	83.3%	35.4	D
	Through	46	52	113.0%	24.3	C
	Right Turn	45	33	73.3%	2.3	A
	Subtotal	97	90	92.8%	16.8	B
WB	Left Turn	24	13	54.2%	25.1	C
	Through	38	41	107.9%	26.6	C
	Right Turn	37	42	113.5%	1.8	A
	Subtotal	99	96	97.0%	15.6	B
Total		1,175	1,150	97.9%	12.3	B

Intersection 13 **I-880 Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	1,501	1,473	98.1%	0.4	A
	Subtotal	1,501	1,473	98.1%	0.4	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	464	397	85.6%	0.5	A
	Right Turn					
	Subtotal	464	397	85.6%	0.5	A
WB	Left Turn					
	Through	890	911	102.4%	1.5	A
	Right Turn	354	373	105.4%	0.6	A
	Subtotal	1,244	1,284	103.2%	1.2	A
Total		3,209	3,154	98.3%	0.7	A

Intersection 14 **SB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Total Delay (sec/veh) Average	LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	670	697	104.0%	1.3	A
	Subtotal	670	697	104.0%	1.3	A
EB	Left Turn					
	Through	2,006	1,847	92.1%	3.0	A
	Right Turn	473	435	92.0%	1.4	A
	Subtotal	2,479	2,282	92.1%	2.7	A
WB	Left Turn					
	Through	326	330	101.2%	0.2	A
	Right Turn					
	Subtotal	326	330	101.2%	0.2	A
Total		3,475	3,309	95.2%	2.2	A

Intersection 15 **SB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Total Delay (sec/veh) Average	LOS
NB	Left Turn					
	Through					
	Right Turn	14	23	164.3%	0.4	A
	Subtotal	14	23	164.3%	0.4	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	2,006	1,849	92.2%	3.4	A
	Right Turn					
	Subtotal	2,006	1,849	92.2%	3.4	A
WB	Left Turn					
	Through	326	327	100.3%	0.2	A
	Right Turn	71	60	84.5%	0.3	A
	Subtotal	397	387	97.5%	0.2	A
Total		2,417	2,259	93.5%	2.8	A

Intersection 16 **NB I-680 Loop Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
SB	Left Turn					
	Through					
	Right Turn	155	177	114.2%	1.0	A
	Subtotal	155	177	114.2%	1.0	A
EB	Left Turn					
	Through	622	593	95.3%	0.1	A
	Right Turn	1,398	1,279	91.5%	4.6	A
	Subtotal	2,020	1,872	92.7%	3.2	A
WB	Left Turn					
	Through	242	209	86.4%	0.0	A
	Right Turn					
	Subtotal	242	209	86.4%	0.0	A
Total		2,417	2,258	93.4%	2.7	A

Intersection 17 **NB I-680 Diagonal Ramps/Mission Blvd.** **Uncontrolled**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) LOS
NB	Left Turn					
	Through					
	Right Turn	168	178	106.0%	0.6	A
	Subtotal	168	178	106.0%	0.6	A
SB	Left Turn					
	Through					
	Right Turn					
	Subtotal					
EB	Left Turn					
	Through	622	594	95.5%	0.1	A
	Right Turn					
	Subtotal	622	594	95.5%	0.1	A
WB	Left Turn					
	Through	242	209	86.4%	0.0	A
	Right Turn	11	8	72.7%	0.0	A
	Subtotal	253	217	85.8%	0.0	A
Total		1,043	989	94.8%	0.2	A

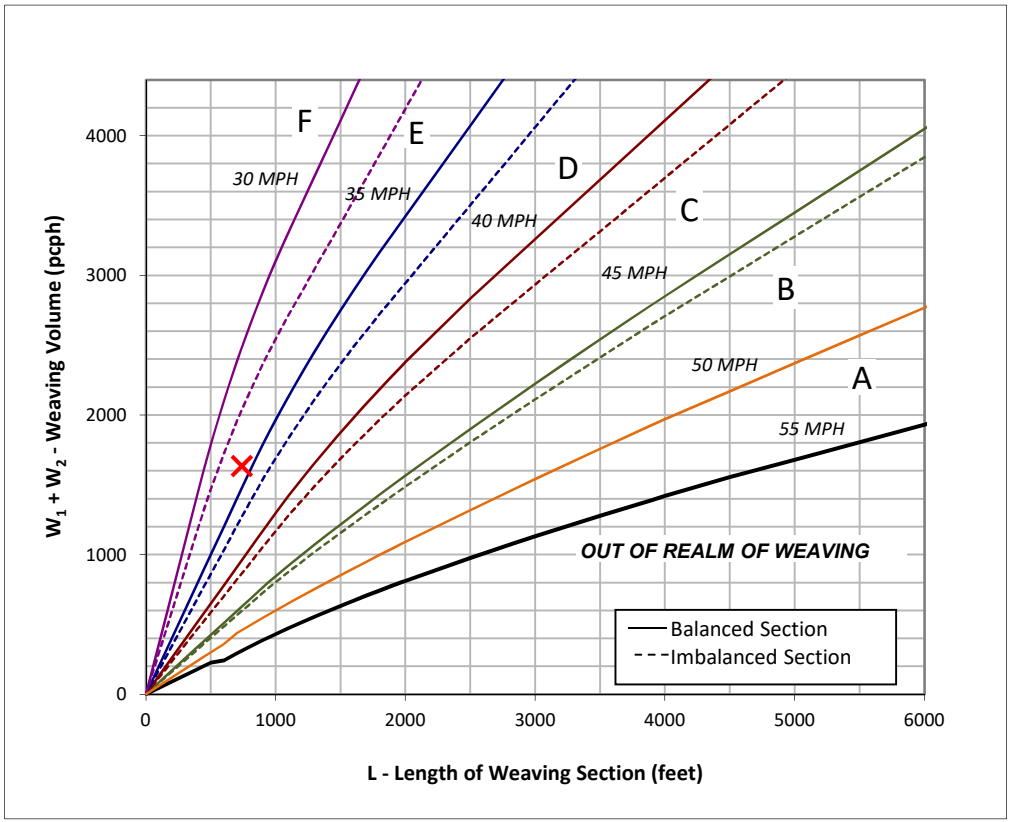
Appendix J:
Leisch Method Weaving Segment Analysis

Leisch Method for Weaving Analysis

Data Input		
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	740

Project Information	
Project	SR 262 Cross Connector
Scenario	Existing AM Peak Hour
Freeway	I-680 SB
On-ramp	Jacklin Rd
Off-ramp	Calaveras Blvd

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	4,881	405	1,163
Truck Percentage	10%	8%	8%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	5,136	422	1,212



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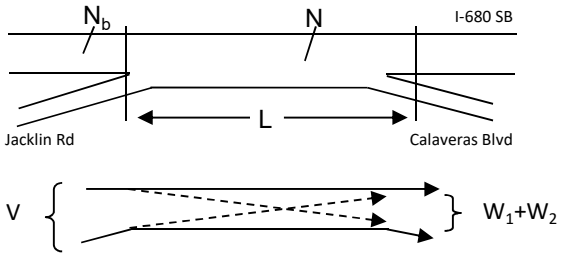


Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**30 MPH** and **35 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	32.7
4. Weaving Intensity Factor (k)	2.88
5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	1,482
6. Level of Service (LOS)	D

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

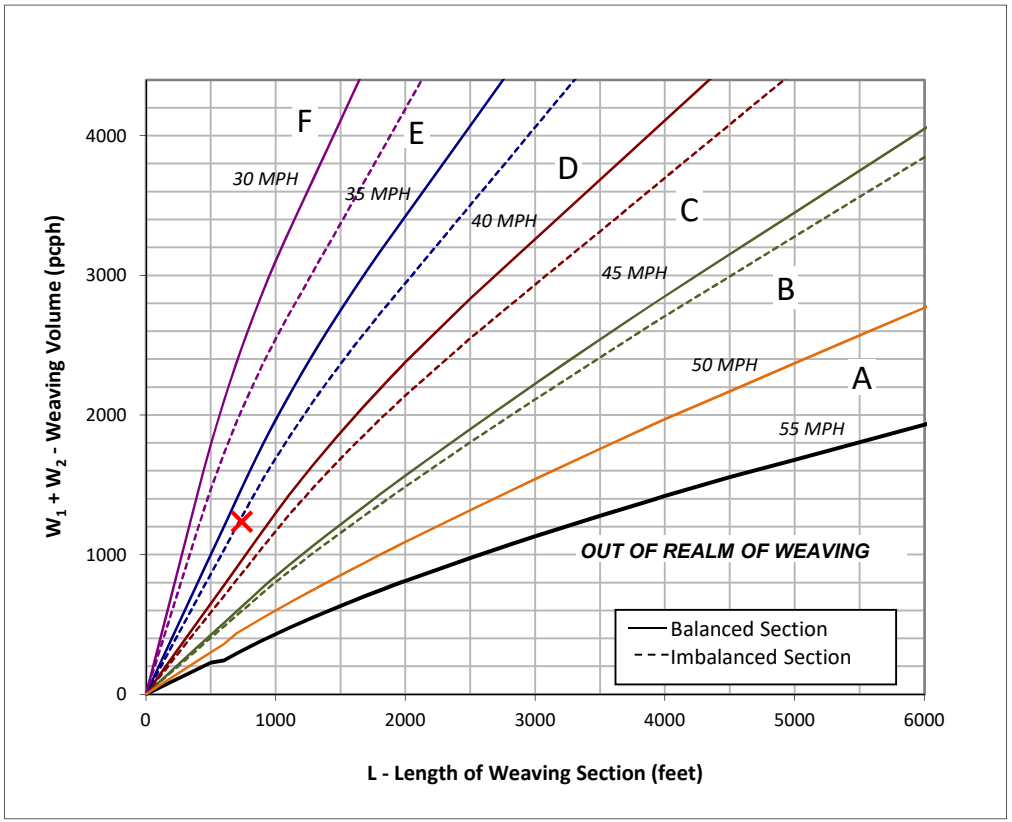
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

Data Input		
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	740

Project Information	
Project	SR 262 Cross Connector
Scenario	Existing PM Peak Hour
Freeway	I-680 SB
On-ramp	Jacklin Rd
Off-ramp	Calaveras Blvd

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	4,359	422	795
Truck Percentage	6%	3%	3%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	4,497	429	808



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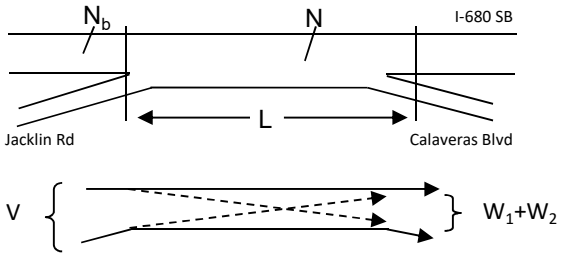


Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	35.5
4. Weaving Intensity Factor (k)	2.77
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,314
6. Level of Service (LOS)	C

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

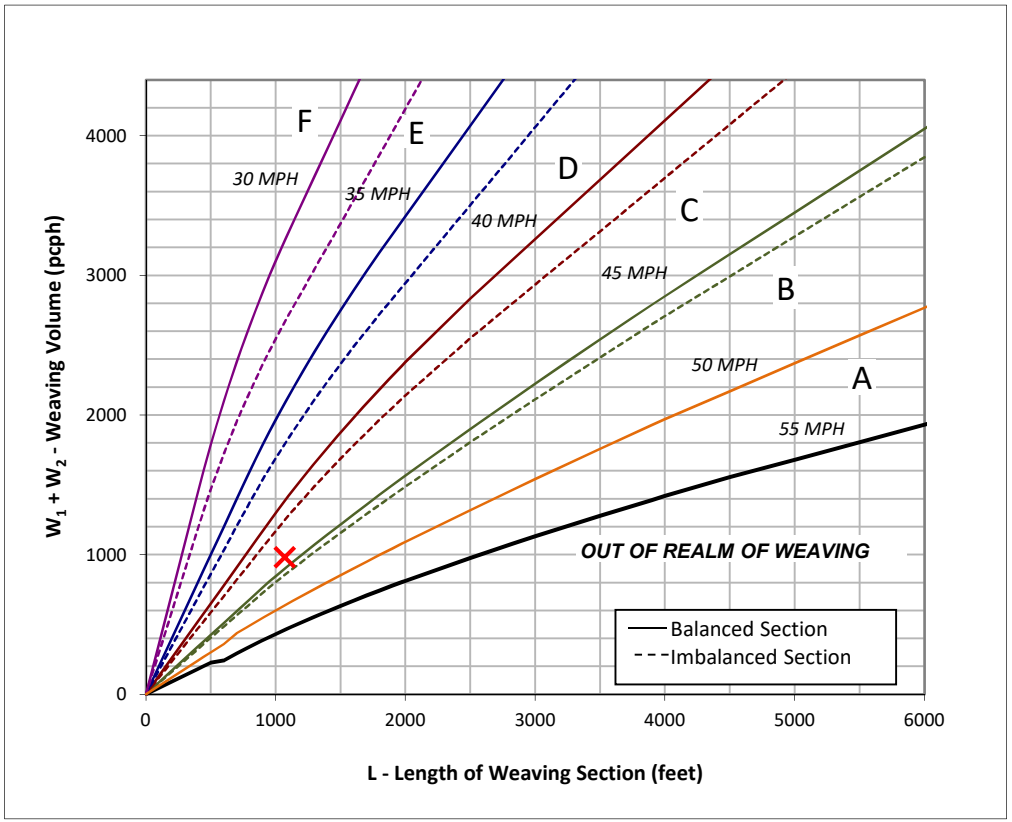
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

Data Input		
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	1,070

Project Information	
Project	SR 262 Cross Connector
Scenario	Existing AM Peak Hour
Freeway	I-680 NB
On-ramp	Calaveras Blvd
Off-ramp	Jacklin Road

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	5,907	Volume (vph)*	514	Volume (vph)*	431
Truck Percentage	8%	Truck Percentage	8%	Truck Percentage	8%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,132	Volume (pcph)	534	Volume (pcph)	448



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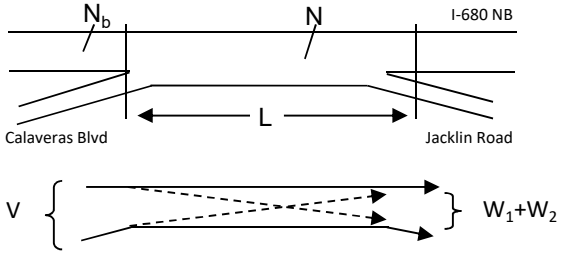


Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	43.4
4. Weaving Intensity Factor (k)	2.18
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,664
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

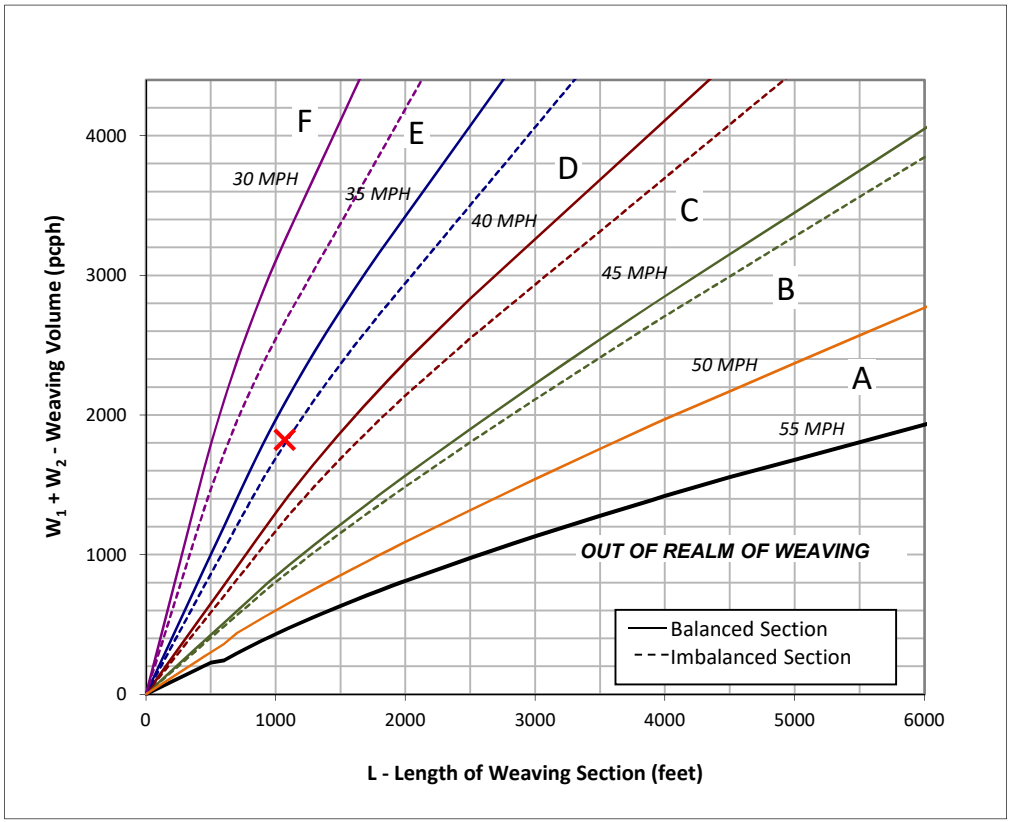
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

Data Input		
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	1,070

Project Information	
Project	SR 262 Cross Connector
Scenario	Existing PM Peak Hour
Freeway	I-680 NB
On-ramp	Calaveras Blvd
Off-ramp	Jacklin Road

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	5,383	Volume (vph)*	983	Volume (vph)*	812
Truck Percentage	3%	Truck Percentage	3%	Truck Percentage	3%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	5,469	Volume (pcph)	999	Volume (pcph)	825



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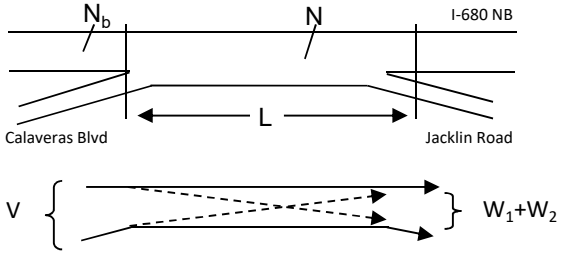


Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	N
2. In the chart to the left, which two speed curves is the red "x" between?	**30 MPH** and **35 MPH**
If left of the 30 MPH curve, LOS is F. Select "-". *If below the 55 MPH curve, out of the realm of weaving.*	
3. Interpolated Weaving Speed (S_w, mph)	34.8
4. Weaving Intensity Factor (k)	2.80
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,739
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

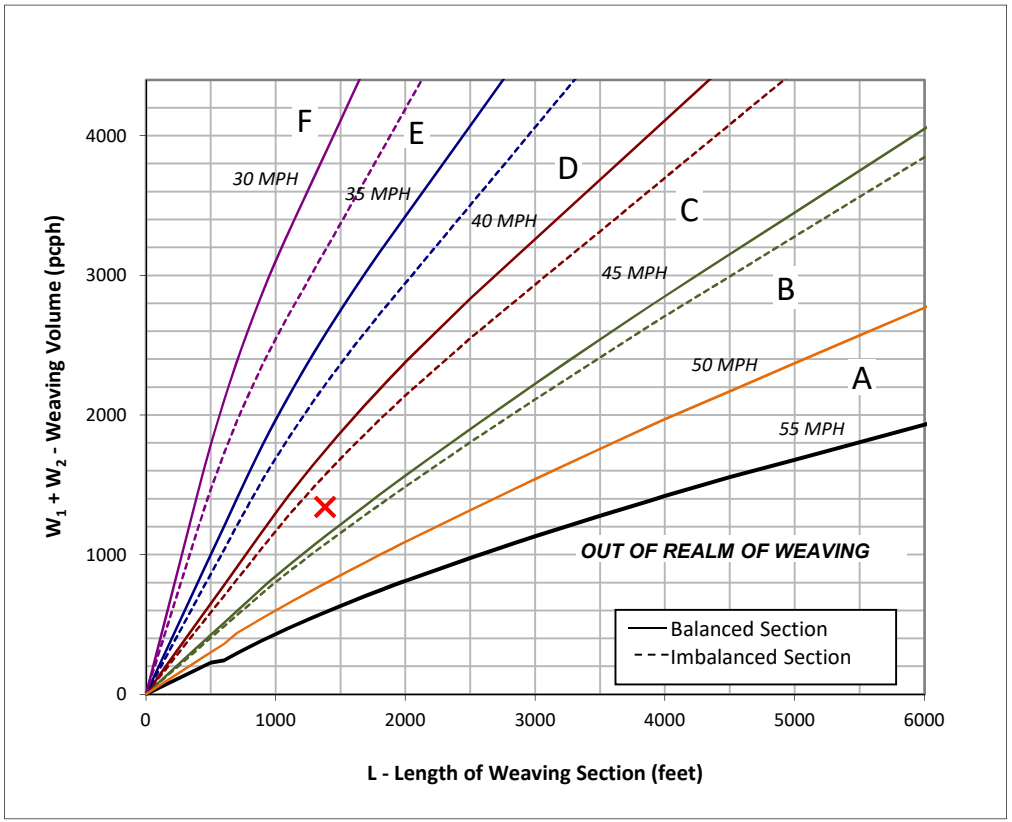
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

Data Input		
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	1,380

Project Information	
Project	SR 262 Cross Connector
Scenario	Existing AM Peak Hour
Freeway	I-880 SB
On-ramp	Fremont Blvd. (South)
Off-ramp	Warren Ave.

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	6,046	401	892
Truck Percentage	10%	7%	8%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	6,356	416	926



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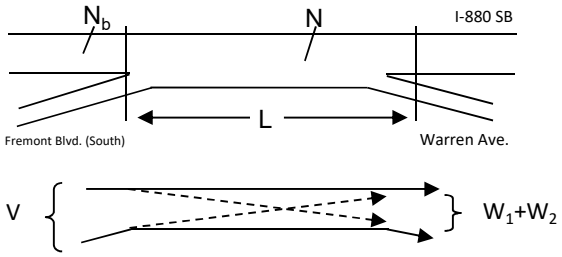


Capacity Analysis

1. Is the weaving section balanced (Y / N)?	Y
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	43.3
4. Weaving Intensity Factor (k)	2.19
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,712
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

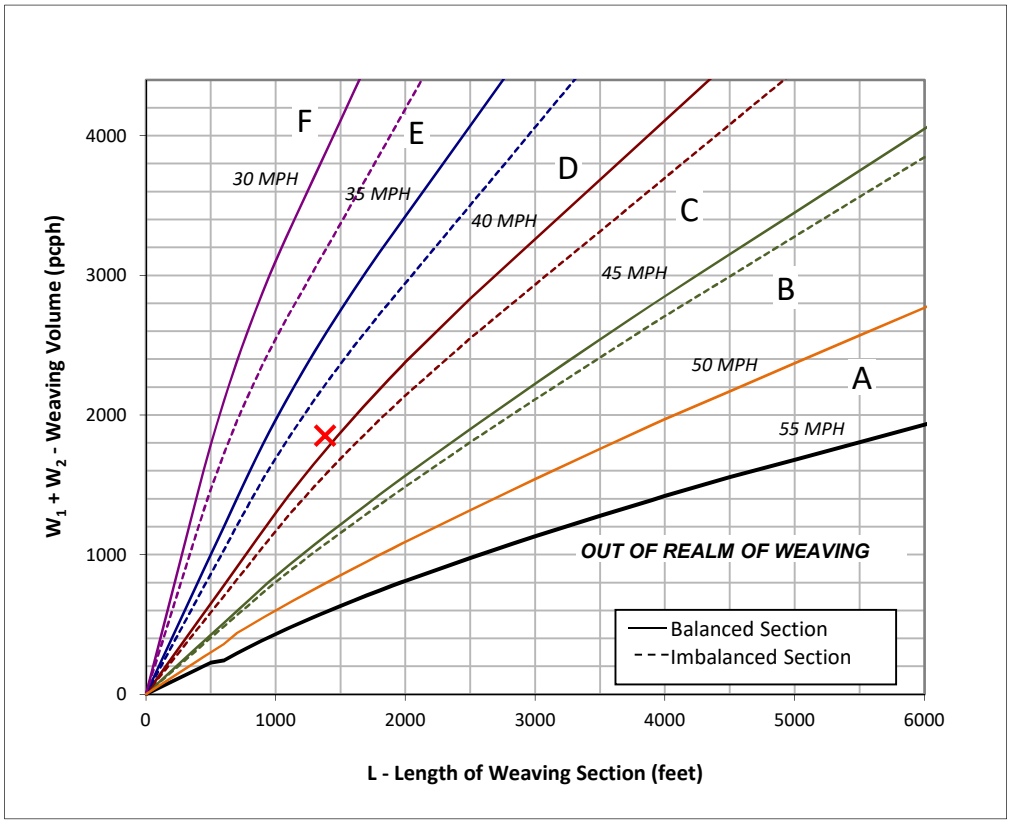
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

Data Input		
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	1,380

Project Information	
Project	SR 262 Cross Connector
Scenario	Existing PM Peak Hour
Freeway	I-880 SB
On-ramp	Fremont Blvd. (South)
Off-ramp	Warren Ave.

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	5,236	781	1,042
Truck Percentage	4%	3%	3%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	5,342	794	1,059



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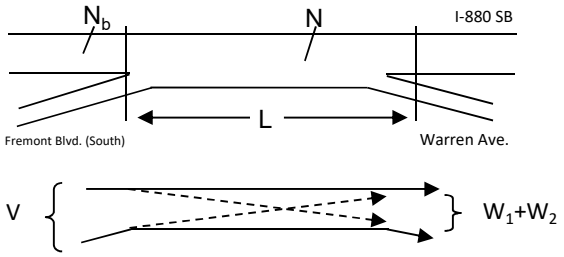


Capacity Analysis

1. Is the weaving section balanced (Y / N)?	Y
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	39.4
4. Weaving Intensity Factor (k)	2.56
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,645
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

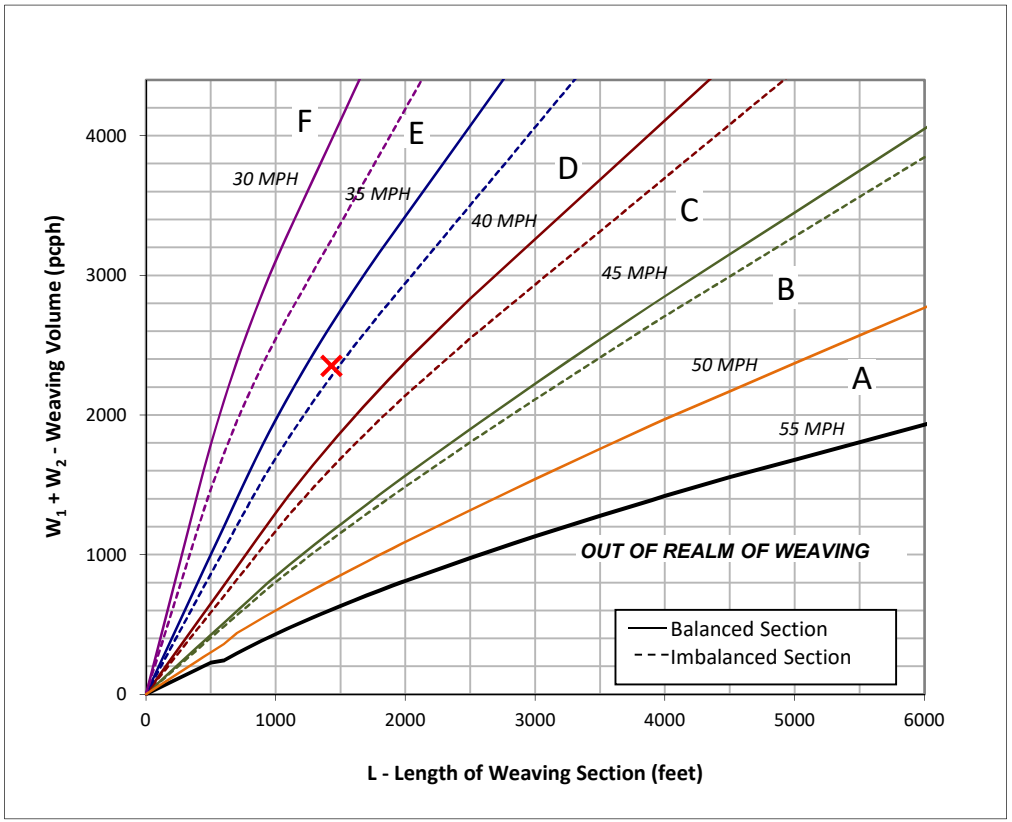
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

Data Input		
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	1,430

Project Information	
Project	SR 262 Cross Connector
Scenario	Existing AM Peak Hour
Freeway	I-880 NB
On-ramp	Mission Blvd.
Off-ramp	Fremont Blvd.

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	5,666	Volume (vph)*	1,158	Volume (vph)*	1,109
Truck Percentage	9%	Truck Percentage	8%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	5,908	Volume (pcph)	1,202	Volume (pcph)	1,151



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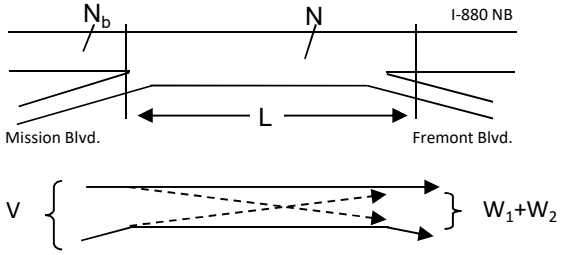


Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	Y
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	36.7
4. Weaving Intensity Factor (k)	2.71
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,970
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

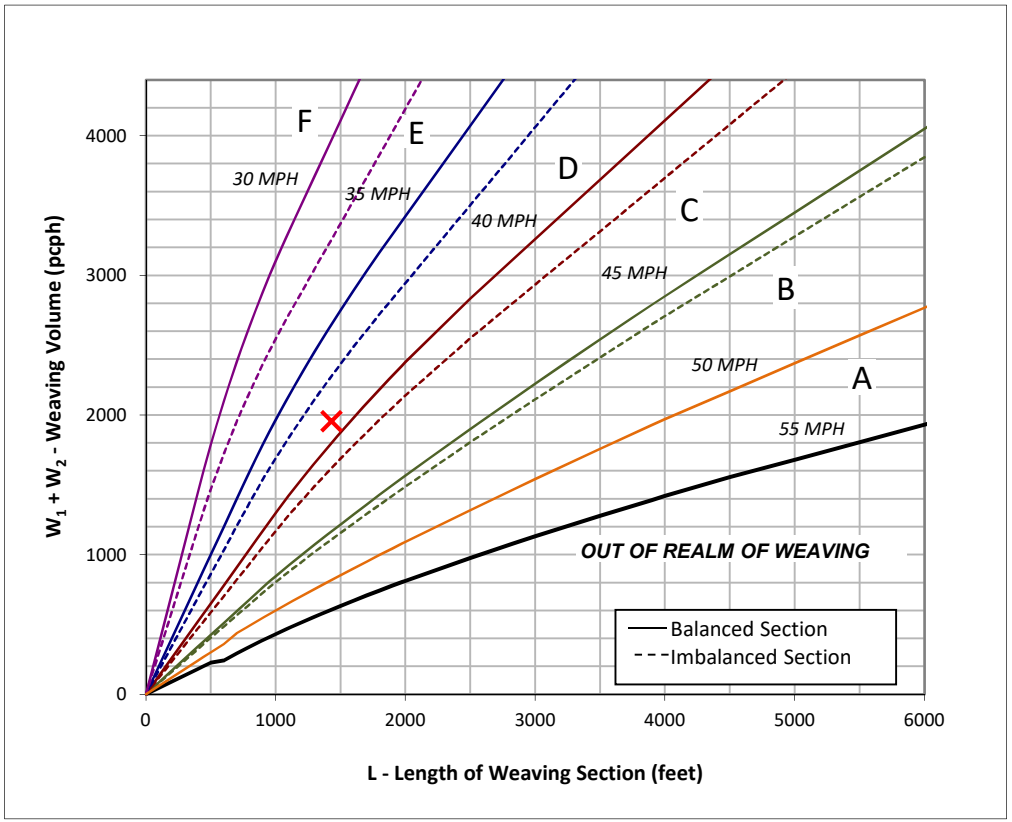
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

Data Input		
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	1,430

Project Information	
Project	SR 262 Cross Connector
Scenario	Existing PM Peak Hour
Freeway	I-880 NB
On-ramp	Mission Blvd.
Off-ramp	Fremont Blvd.

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,147	Volume (vph)*	669	Volume (vph)*	1,237
Truck Percentage	7%	Truck Percentage	5%	Truck Percentage	5%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,350	Volume (pcph)	687	Volume (pcph)	1,270



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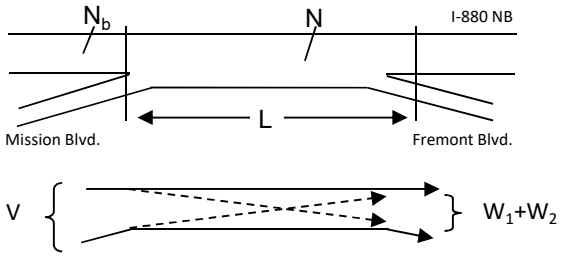

Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	Y
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	39.1
4. Weaving Intensity Factor (k)	2.58
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,859
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Appendix K:
Collision Analysis

2150 Trade Zone Boulevard
Suite 105A
San Jose, CA 95131
(408) 477-2181 P/F
www.chsconsulting.net

Memorandum

Date: June 25, 2019

To: Sissel Berntsen-Heber, HNTB
Kim Franchi, HNTB

From: Jill Hough and Siqing Yi, CHS Consulting Group

Re: State Route 262 (Mission Boulevard) Cross Connector Project - Collision Analysis

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The purpose of this memo is to provide a summary of collisions for the State Route 262 (Mission Boulevard) Cross Connector Project. CHS obtained collision data from the Traffic Analysis Surveillance and Analysis System (TASAS), which is the collision database maintained by Caltrans. The study area roadways for which the collision data was obtained included the following:

- I-680 between Scott Creek Road and Auto Mall Parkway;
- I-880 between Dixon Landing Road and Fremont Boulevard; and
- State Route 262 (Mission Boulevard) between I-880 and I-680.

Caltrans staff provided the collision data in the study area between January 1, 2013 and December 31, 2017 (for I-680) and between January 1, 2014 and December 31, 2018 (for I-880 and SR-262). The data was summarized and is presented in Table 1.

Table 1
Collision Summary for Study Area

Freeway	Location	Number of Accidents			Actual Accident Rate[3]			Average Accident Rate (State)[3]		
		Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury
SR-262[1]	Between I-880 and I-680	135	1	59	1.00	0.007	0.44	1.39	0.011	0.61
I-880[2]	Between Dixon Landing Road and Fremont Boulevard	1,025	4	277	0.89	0.003	0.24	0.89	0.003	0.27
I-680[2]	Between Scott Creek Road and Auto Mall Parkway	919	3	313	0.89	0.003	0.30	0.79	0.003	0.25

Notes:
1. Collisions on SR-262 include both intersections and roadways.
2. Collisions on I-680 and I-880 include both ramps and mainline.
3. Actual and Average Accident Rates are measured in accidents per million vehicle miles.

SR-262 (Mission Boulevard)

For SR-262 (Mission Boulevard), as shown in Table 1, a total of 135 collisions with one fatality were reported over the five-year period. The actual collision rates for SR-262 (Mission Boulevard) are lower than the Statewide average for total accidents, fatal accidents, and for "fatal + injury" accidents. Approximately 45% of the accidents were classified as "rear-end" collisions, and 33% were classified as "sideswipe" collisions. The majority of primary collision factors were speeding (40%) and improper turns (14%). Fewer collisions were categorized as "failure to yield" (11%) as the primary collision factor. The majority of collisions occurred in the left lanes (36%) and right lanes (43%). Fewer collisions occurred in the interior lanes (28%). In 81 percent of the collisions, the vehicle in the accident was proceeding straight. Of the 135 collisions, 24 occurred at intersections on Mission Boulevard: The remaining 111 accidents occurred on the Mission Boulevard roadway segments between I-880 and I-680. The detailed collision summary for the mainline and each intersection is shown in Table 2.

Table 2
Collision Summary for SR-262 (Mission Boulevard)

Location	Number of Accidents			Actual Accident Rate[1]			Average Accident Rate (State)[1]		
	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury
Mainline Between I-880 and I-680	111	1	41	0.82	0.007	0.30	1.39	0.011	0.61
Intersection at Warm Springs Blvd	9	0	5	0.06	0.00	0.03	0.24	0.001	0.11
Intersection at Mohave Dr	5	0	5	0.04	0.00	0.04	0.08	0.001	0.04
Intersection at Brown Rd	10	0	8	0.07	0.00	**0.06**	0.08	0.001	0.04

Notes: Actual accident rates shown in **bold** text exceed the statewide average for similar facilities.

1. Actual and Average Accident Rates are measured in accidents per million vehicle miles for mainline, and accidents per million vehicles for ramps.

The actual collision rates for the SR-262 mainline are lower than the SR-262 State average, with respect to total accidents, fatal accidents, and "fatal + injury" accidents. Review of detailed accident records associated with SR-262 shows that the majority of collisions are generally concentrated at the following two locations:

- Near the intersection of SR-262 and Warm Springs Boulevard: A total of 23.4% of the total SR-262 mainline collisions occurred within 300 feet west or east of the intersection; and

- At the SR-262 merging/diverging locations to I-880 and Kato Road ramps: A total of 42% of the total mainline collisions occurred from 300 feet west of the northbound and southbound I-880 on-ramp termini to eastbound Mission Boulevard; to 300 feet east of the Westbound Mission Boulevard off-ramp diverge point to Kato Road. Among the 74 collisions that occurred within these two segments, 62% were classified as "rear-end" collisions, and 38% were classified as "sideswipe" collisions. The primary collision factor for the majority of the collisions (54%) was speeding. Rear-end collisions, which make up the majority of accidents within this section, are generally associated with driver inattention, unsafe speeds, and/or lane changing in the presence of traffic congestion.

The actual collision rates for the intersections of SR-262 (Mission Boulevard) at Warm Springs Boulevard and Mohave Drive are lower than or the same as the Statewide average for total accidents, fatal accidents, and for "fatal + injury" accidents. At the intersection of SR-262 (Mission Boulevard) at Brown Road, the actual "fatal + injury" collision rate is slightly higher than the State average. A total of ten collisions occurred at this intersection, with eight collisions involving injuries. The primary collision factors were "failure to yield" for 40% of the collisions, and "improper turn" for 30% of the collisions. Seven of the ten collisions were classified as broadside collisions. The majority of the collisions related to left-turning vehicles from eastbound Mission Boulevard to northbound Brown Road. The types of collisions where the primary factors were either "failure to yield" or "improper turns" are generally associated with driver inattention.

I-880

As shown previously in Table 1, for I-880 overall, there were 1,025 collisions with four fatalities reported. The actual collision rates for mainline and ramps combined are lower than the State average for I-880 with respect to total accidents, fatal accidents, and "fatal + injury" accidents. The detailed collision summary for the mainline and for individual I-880 ramps is presented in Table 3.

The actual collision rates for the I-880 mainline are lower than the State average for I-880 with respect to total accidents, fatal accidents, and "fatal + injury" accidents. An analysis of individual collision records shows that a significant number of collisions occurred within the segment near Southbound I-880, north of the Mission Boulevard on-ramp and Northbound I -880, south of the Mission Boulevard off-ramp. There were 146 collisions reported within this segment (16% of the total collisions occurred within 3% of the total study area on I-880). Of the 146 collisions on this segment, 82% occurred in the northbound direction (NB I-880, south of the Mission Boulevard off-ramp).

Table 3
Collision Summary for I-880

Location	Number of Accidents			Actual Accident Rate[1]			Average Accident Rate (State)[1]		
	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury
Mainline Between Dixon Landing Road and Fremont Boulevard	898	3	233	0.75	0.003	0.20	0.90	0.003	0.27
I-880 SB On-ramp from WB Dixon Landing Rd	3	0	0	1.64	0	0	0.71	0.003	0.23
I-880 NB On-ramp from Dixon Landing Rd	10	0	6	**5.47**	0	**3.28**	0.6	0.002	0.21
I-880 SB Off-ramp to Dixon Landing Rd	4	0	1	**2.19**	0	**0.55**	0.2	0.001	0.06
I-880 SB On-ramp from EB Dixon Landing Rd	2	0	0	1.09	0	0	0.56	0.003	0.19
I-880 NB Off-ramp to Dixon Landing Rd	8	0	4	**4.38**	0	**2.19**	0.92	0.002	0.31
I-880 SB On-ramp from Warren Ave	1	0	1	0.55	0	**0.55**	0.67	0.001	0.23
I-880 NB On-ramp from Warren Ave	1	0	0	0.55	0	0	0.67	0.001	0.23
I-880 SB Off-ramp to Warren Ave	5	0	2	**2.74**	0	**1.09**	0.92	0.004	0.32
I-880 NB Off-ramp to Warren Ave	1	0	0	0.55	0	0	0.92	0.004	0.32
I-880 SB On-ramp from Mission Blvd	14	0	5	**7.66**	0	**2.74**	0.39	0.002	0.13
I-880 NB On-ramp from Mission Blvd	8	0	0	4.38	0	0	0.32	0.002	0.11
I-880 SB Off-ramp to Mission Blvd	6	0	2	**3.28**	0	**1.09**	0.45	0.003	0.15
I-880 NB Off-ramp to Mission Blvd	23	0	5	**12.58**	0	**2.74**	0.37	0.003	0.12
I-880 SB On-ramp from SB Fremont Blvd	8	0	6	**4.38**	0	**3.28**	0.6	0.002	0.21
I-880 NB Off-ramp to Fremont Blvd	28	1	10	**15.32**	0.547	**5.47**	0.92	0.004	0.32
I-880 NB On-ramp from SB Fremont Blvd	5	0	2	**1.03**	0	**0.41**	0.71	0.003	0.23

Notes: Actual accident rates shown in **bold** text exceed the statewide average for similar facilities.

1. Actual and Average Accident Rates are measured in accidents per million vehicle miles for the mainline, and accidents per million vehicles for ramps.

A total of 90 (or 62%) of the 146 collisions were classified as "rear-end" collisions, and the majority of collisions had "speeding" (53% of the total collisions) as the associate primary collision factor. This type of collision is generally associated with driver inattention, unsafe speeds, and or lane changing in congested traffic conditions.

For I-880 ramps, the actual total accident rates for most of the ramps are higher than the State average. Overall, 47% of the total 127 collisions on the I-880 ramps were classified as "rear-end" collisions, and 18% involved "hit object", such as guardrail and "dike or curb". The primary collision factor associated with the most collisions was "speeding" (39% of collisions), followed by the primary collision factor, "improper turns" which was associated with 17 percent of the collisions. Collisions in which the primary factor in the majority of cases is either speeding or improper turns are generally associated with driver inattention and unsafe speeds, as well as lane-changing in congested traffic conditions.

Review of detailed accident records associated with the I-880 ramps revealed three "hot spot" locations at which the total accident rates were highest, compared to the State averages for similar facilities:

- I-880 SB On-ramp from Mission Boulevard –A total of 14 accidents occurred at this location, seven of which involved injury or fatality. Of these collisions, eight (57%) were "sideswipe" collisions, and six (43%) were "rear-end" collisions. With respect to the primary collision factor, four (29%) of them were due to improper turns, and another four (29%) were because of speeding, making up the majority of these accidents. These types of collisions are generally associated with driver inattention, unsafe speeds and/or lane changing in congested traffic conditions.

- I-880 NB Off-ramp to Mission Boulevard –A total of 23 accidents occurred at this location, nine of which involved injury or fatality. Of these collisions, ten (44%) were "rear-end" collisions, and nine (39%) involved "hit object", such as guardrail. With respect to the primary collision factor, six (26%) were due to improper turns, and six (26%) were because of speeding, making up the majority of these accidents. These types of collisions are generally associated with driver inattention, unsafe speeds and/or lane changing in congested traffic conditions.

- I-880 NB Off-ramp to Fremont Boulevard – A total of 28 accidents occurred at this location, ten of which involved injury or fatality. The majority (68%) of the collisions were classified as "rear-end" collisions, and 16 of the total collisions (57%) indicated "speeding" as the primary collision factor. One fatality-collision occurred on this ramp and involved "hit object", in which the hit object was "dike or curb". Rear-end collisions were the majority of collisions and this type of

collision is generally associated with driver inattention, unsafe speeds, and lane changing in congested traffic conditions.

I-680

As shown previously in Table 1, there were 919 collisions reported on I-680 (freeway and ramps combined) with three fatalities: Two of the fatality collisions occurred in the northbound direction, and one fatality collision occurred in the southbound direction. The actual fatal collision rate for I-680 in the study area was the same as the average statewide collision rate. The actual "fatal + injury" collision rate was slightly higher than the State average; and the actual total collision rate was also slightly higher than the average. Additional analysis of I-680 collision mainline and ramp data was performed based on the fact that accident rates for I-680 within the study area were higher than the State average for total collision and "fatal + injury" collisions.

Regarding the types of collisions and primary collision factors associated with I-680, a total of 574 (or 63%) of the 919 total collisions were "rear-end" collisions, and 180 (20%) were "sideswipe" collisions. The majority of collisions (569 or 62%) had "speeding" as the associated primary collision factor.

A total of 313 (34%) of the total collisions involved injuries or fatalities. Approximately 68% of the parties involved in the 313 collisions with injury or fatality were classified as "rear-end" collisions. The "rear-end" type of collision was associated with the majority of both total collisions as well as collision with injury or fatality, along the I-680 corridor, in the study area.

Of the 919 total collisions, 807 (88%) involved hitting other vehicles, 22 (2%) involved hitting the median barrier, 14 (2%) involved hitting the "dike or curb", seven (1%) involved hitting traffic signs, and seven (1%) involved falling over an embankment. A total of 226 collisions (25%) of the 919 total collisions occurred in dusk/dawn or under dark lighting conditions.

The accident rates associated with the I-680 ramps in the study area are presented in Table 4. The types of collisions as well as the primary collision factors for the I-680 ramps are summarized as follows: A total of 108 collisions were reported over the five year period for the I-680 ramps in the study area. The actual collision rates for I-680 ramps are lower than the Statewide average for total accidents, fatal accidents, and for "fatal + injury" accidents. Approximately 53% of the accidents were classified as "rear-end" collisions, and 18% were classified as "hit object" collisions. The majority of primary collision factors were "speeding" (57%), followed by "improper turns" (19%). Of the 108 total collisions, 76 (73%)

Table 4

Collision Summary for I-680 Ramps

Location	Number of Accidents			Actual Accident Rate[1]			Average Accident Rate (State)[1]		
	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury
I-680 SB Off-Ramp to Scott Creek Rd	7	0	5	0.7	0	**0.5**	0.92	0.004	0.32
I-680 SB On-Ramp from Scott Creek Rd	6	0	2	0.58	0	0.19	0.6	0.002	0.21
I-680 NB On-Ramp from Scott Creek Rd	2	0	0	0.25	0	0	0.6	0.002	0.21
I-680 NB Off-Ramp to Scott Creek Rd	2	0	1	0.21	0	**0.1**	0.25	0.002	0.08
I-680 NB Off-Ramp Segment to WB Scott Creek Rd	4	0	1	0.47	0	0.12	0.93	0.004	0.3
I-680 NB Off-Ramp Segment to EB Scott Creek Rd	1	0	0	0.83	0	0	0.69	0.003	0.24
I-680 SB Off-Ramp to Mission Blvd	7	0	5	0.16	0	**0.11**	0.25	0.002	0.08
I-680 SB Off-Ramp Segment to WB Mission Blvd	14	0	4	0.33	0	0.09	0.37	0.003	0.12
I-680 SB Off-Ramp Segment to EB Mission Blvd	1	0	0	1.27	0	0	0.7	0.004	0.21
I-680 NB On-Ramp from Mission Blvd	2	0	1	0.06	0	0.03	0.2	0.001	0.06
I-680 NB On-Ramp Segment from WB Mission Blvd	2	0	0	3.43	0	0	0.56	0.003	0.19
I-680 NB On-Ramp Segment from EB Mission Blvd	10	0	3	0.3	0	0.09	0.71	0.003	0.23
I-680 SB On-Ramp from Mission Blvd	0	0	0	0	0	0	0.2	0.001	0.06
I-680 SB On-Ramp Segment from WB Mission Blvd	4	0	3	**1.07**	0	**0.8**	0.61	0.003	0.18
I-680 SB On-Ramp Segment from EB Mission Blvd	3	0	0	0.23	0	0	0.32	0.002	0.11
I-680 NB Off-Ramp to Mission Blvd	4	0	2	0.2	0	**0.1**	0.25	0.002	0.08
I-680 NB Off-Ramp Segment to WB Mission Blvd	4	0	2	0.28	0	0.14	0.93	0.004	0.3
I-680 NB Off-Ramp Segment to EB Mission Blvd	5	0	4	**0.82**	0	**0.65**	0.69	0.003	0.24
I-680 SB Off-Ramp to Auto Mall Pkwy	17	0	7	**0.99**	0	**0.41**	0.92	0.002	0.31

(Table 4, Continued)

Location	Number of Accidents			Actual Accident Rate[1]			Average Accident Rate (State)[1]		
	Total	Fatal	Fatal + Injury		Total	Fatal	Fatal + Injury		Total
I-680 SB On-Ramp from Auto Mall Pkwy	5	0	2	0.34	0	0.14	0.6	0.002	0.21
I-680 NB On-Ramp from Auto Mall Pkwy	2	0	2	0.13	0	0.13	0.6	0.003	0.21
I-680 NB Off-Ramp to Auto Mall Pkwy	6	0	0	0.48	0	0	0.92	0.004	0.32

Notes: Actual accident rates shown in **bold** text exceed the statewide average for similar facilities.

1. Actual and Average Accident Rates are measured in accidents per million vehicle miles for the mainline, and accidents per million vehicles for ramps.

involved hitting other vehicles, and 19 (18%) involved hitting objects such as "dikes and curbs", and traffic signs.

As mentioned, rear-end collisions made up the majority of accidents (and speeding made up the majority of primary collision factors). This type of collision is generally associated with driver inattention, unsafe speeds, and/or lane changing in congested traffic conditions.

Review of detailed accident records associated with the I-680 ramps revealed two "hot spot" locations, in the area within which improvements will be evaluated as part of the overall study; at which the fatal- or injury-accident rate was higher than the State average, as follows:

- I-680 Southbound On-Ramp Segment from Westbound Mission Blvd. – A total of four accidents occurred at this location, three of which involved injuries. 50 percent of the accident types were "overturn", 25% of the accident types were "rear-end", and 25% of the accident types were "hit object" (where the hit object was a guardrail).

- I-680 Northbound Off-Ramp Segment to Eastbound Mission Blvd – A total of five accidents occurred at this location, four of which involved injury or fatality. The majority of accidents (60%) were "hit object" collisions (where hit objects included guardrail, and dike or curb). The other two accidents were "overturn" collisions.

For the I-680 Southbound On-Ramp from Westbound Mission Blvd, 50% of accidents were "overturn" collisions, and suggest a possibility that the existing turning radii are challenging to drivers.

For the I-680 Northbound Off-Ramp Segment to Eastbound Mission Blvd, where the majority of accidents were "hit object" collisions (and struck objects were either dikes and curbs or guardrail); and the majority of collisions indicated "improper turns" as the primary collision factor. This type of collision is generally associated with driver inattention and/or lane changing in congested conditions. However, the SR-262 (Mission Boulevard) improvements could possibly address design issues (such as severe curves) that may be a factor with these accidents.

In conclusion, the review of both summary and detailed accident data results in the following key points:

- The actual collision rates on I-880 were lower than the State average for I-880 with respect to total accidents, fatal accidents, and "fatal + injury" accidents;

- The actual collision rates on SR-262 (Mission Boulevard) were lower than the State average for SR-262 (Mission Boulevard) with respect to total accidents, fatal accidents, and "fatal + injury" accidents;

- Detailed analysis of individual accidents on SR-262 (Mission Boulevard) indicates that the majority of accidents occurred on the roadway segments, as opposed to intersections. Most of the SR-262 (Mission Boulevard) accidents occurred in either the left lanes or right lanes and "speeding" was reported as a primary collision factor for the majority of accidents. Also, the majority of accidents at the intersections were also associated with speeding. These types of collisions are generally associated with driver inattention, unsafe speeding, and /or lane changing in congested traffic conditions.

- The actual "fatal + injury" collision rate for I-680 (combined freeway and ramp sections) was slightly higher than the State average; and the actual total collision rate was also slightly higher than the State average;

- Detailed analysis of the I-680 individual ramps, in the area in which improvements will be made in the study area, showed higher than average rates of accidents at the I-680 southbound on-ramp from Westbound Mission Boulevard as well as the I-680 northbound off-ramp segment to Eastbound Mission Boulevard.

- Half of accidents at the I-680 southbound on-ramp from Westbound Mission Boulevard involved "overturns"; and re-designing the ramp configuration for southbound I-680 could potentially

incorporate better turning radii (to the extent that the existing turning radii are challenging to drivers).

- The majority of accidents on the I-680 Northbound Off-ramp Segment to Eastbound Mission Boulevard was "hit object" collisions; and indicated "improper turn" as the primary collision factor. This type of collision ("hit object") is generally associated with driver inattention and/or lane changing in congested traffic congestions.