

2016 CMP MONITORING AND CONFORMANCE REPORT

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Executive Summary

Introduction

State Statute 65089 requires Congestion Management Agencies (CMAs) to conduct analysis of all Congestion Management Program (CMP) roadways every two years to ensure Member Agencies – the cities, towns and county – are developing in a manner consistent with the CMP level of service standard of LOS E. As the responsible CMA for Santa Clara County, the Valley Transportation Authority (VTA) undertakes this analysis on an annual basis. VTA prepares the annual Monitoring and Conformance Report which documents the CMP conformance findings.

The scope of data collection is reduced every other year during odd-numbered years to minimize the costs of analyzing the CMP network annually. During the “off-years,” the reduced scope of work includes only land use and freeway level of service data, and Deficiency Plan Status Reports. All other CMP elements are collected biennially as part of the full scope.

The 2016 Monitoring and Conformance Report feature the full scope of data collection and analysis of each CMP element. The following summarizes the results of the 2014 Monitoring Program.

Land Use

VTA’s Member Agencies, the cities, towns and County of Santa Clara, submit land use data to VTA in the form of residential and commercial/industrial project approvals for the prior fiscal year. The data reflects changes in residential dwelling units for approvals as well as estimate changes in commercial/industrial job approvals. Job change estimates are determined by applying job density values to square footage and land use type of commercial/industrial projects in order to estimate how many jobs are likely created or lost as a result of the land use approval.

In 2016, 9,630 dwelling units were approved, an increase of 83 percent from 2015. The estimated number of jobs created by commercial and industrial approvals totaled 24,247, a slight decrease compared to 2015.

Freeway

Aerial photography is used to collect traffic data to document congestion on all 313 directional miles of Santa Clara County’s freeway system. The photographs are analyzed to determine the peak period of vehicle density which is used to determine level of service. Mixed-flow lanes are treated as separate facilities from HOV lanes and their levels of service are calculated separately.

In 2016, there were 93 AM freeway segments (95 directional miles) and 77 PM freeway segments (70 directional miles) that operated at LOS F. These numbers are identified as a continuing growth trend in freeway traffic.

Segments that operated at LOS F when monitoring began in 1991 are exempt from CMP level of service standards. Of the freeway segments operating at LOS F, 24 AM and 27 PM freeway segments are considered deficient due to 1991 baseline exemption. Member Agencies with non-conforming facilities within their jurisdiction are encouraged to implement strategies listed in the Immediate Implementation Action List found in VTA's Requirements for Local Deficiency Plans.

CMP Intersections

VTA collected intersection level of service data and conducted LOS analyses for all CMP intersections except for City of Campbell who performed their own LOS analysis. This year, six of the 252 intersections operated at LOS F. Page Mill/Oregon Expressway at Foothill Expressway, San Tomas Expressway at Campbell Avenue, Capitol Expressway at Aborn Road, Montague Expressway at Main Street/Old Oakland Road, Montague Expressway at McCarthy Blvd/O'Toole Avenue, Highway 17 Southbound/San Tomas Expressway are exempt from meeting the level of service requirements due to 1991 baseline exemption. De La Cruz and Central Expressway is a deficient intersection but has been operating at LOS F since 1996.

Rural Highways

VTA recorded 24-hour counts at 12 rural highway locations in Santa Clara County. All count locations operated at or above the CMP standard of LOS E. Segments increasing traffic volume by 10% or more include (#1) State Route 35 north of State Route 9, (#2) State Route 35 south of State Route 9, (#3) State Route 9 west of Sanborn Road, (#5) Saratoga-Sunnyvale Road north of Big Basin Way, (#6) Hamilton Road east of Clayton Road, (#10) State Route 152 east of State Route 156, and (#12) State Route 9 east of State Route 35, while (#11) State Route 152 east of SR 156 had decreasing traffic volumes by more than 10%.

Expressways

Santa Clara County Roads and Airports Department staff last year installed Bluetooth (BT) readers at selected intersections throughout all eight County expressways to collect travel times as part of the Predictive Signal Timing Coordination Project. The BT installation enables County to obtain continuous travel time data on a 24/7 basis where travel time information can be extracted for a moment in time, or an average for a period of times. Unfortunately with limited grant funds, County was not able to install BT units at all expressway signalized intersections nor was able to cover the whole length of all corridors; therefore, revised

segment limits are shown to reflect 2016 study segments. Chapter 6 provides more detailed information on each expressway.

Bicycle and Pedestrian

Bicycle and pedestrian single-day counts are collected each year at 20 new locations to better highlight the usage of bicyclists and pedestrians in the Santa Clara County.

Deficiency Plans

The CMP legislation requires Member Agencies to prepare Deficiency Plans when CMP facilities located within their jurisdiction exceed the CMP traffic LOS standard, or when a project's Transportation Impact Analysis indicates that the LOS standard is expected to be exceeded. Deficiency Plans identify offsetting measures to mitigate transportation conditions on the CMP system in lieu of making physical traffic capacity improvements such as widening an intersection or roadway.

Cities of San Jose and Sunnyvale are two Member Agencies with adopted Deficiency Plans. Both cities submitted Deficiency Plan Implementation Status Reports, which provided a summary of the city's progress on the implementation of the actions in their Deficiency Plans. VTA staff reviewed these reports and found Sunnyvale and San Jose in conformance with this requirement.

Conformance Findings

The 2016 Monitoring and Conformance Report find all Member Agencies in compliance with the CMP monitoring requirements.

Introduction

California State Government Code 65089 mandates the creation of a Congestion Management Program (CMP) for each county to manage the effects of transportation and land use. It requires that all elements of the CMP be monitored at least biennially by the designated Congestion Management Agency (CMA) to determine if the county and city governments, known collectively as Member Agencies, are conforming to the level of service standard set by the CMA.

The Santa Clara Valley Transportation Authority (VTA) is the designated CMA for Santa Clara County and is charged with monitoring the CMP network. VTA exceeds the state requirement by collecting data each year and producing an annual Monitoring and Conformance Report.

The high cost of data collection each year has resulted in reduced monitoring scope in the “off-years” or odd-numbered years while still meeting the requirements of the CMP statute. The 2014 report covers the full-scope year and includes all CMP elements for monitoring.

Level of Service

Traffic congestion is monitored on the CMP roadway network which is comprised of freeways, state highways, expressways and principal arterials. Congestion is monitored in terms of level of service (LOS), a sliding scale from A through F where LOS A represents best traffic flow and LOS F represents significant traffic delay. Santa Clara County’s LOS standard is LOS E. Table 1.1 provides a description of LOS standards.

TABLE 1.1 | LEVEL OF SERVICE (LOS) STANDARDS

Level of Service	Description
A B C	Traffic can move relatively freely without significant delay
D	Delay become more noticeable
E	Traffic volumes are at or close to capacity, resulting in significant delays and average speeds that are no more than about one-third the uncongested speed
F	Traffic demand exceeds available capacity. Very slow speeds (stop-and-go), long delays (over one minute) and standing queues at signalized intersections.

Conformance Standard

To comply with the CMP standard, Member Agencies must demonstrate that all CMP roadways (excluding freeways) within their jurisdictions are operating at or above the CMP traffic level of service standard of LOS E. Member Agencies that do not maintain the CMP LOS standard risk

having their Proposition 111 (1991) gas tax subvention withheld. If the LOS standard cannot be met, a deficiency plan must be approved by VTA. Freeway segments and CMP intersections that operated at LOS F when monitoring began in 1991 are exempt from meeting the LOS E standard. Freeway LOS thresholds are taken from the Highway Capacity Manual with the exception of D/E and E/F thresholds which are selected by VTA for Santa Clara County conditions.

2

LAND USE

Introduction

California State CMA legislation requires Congestion Management Agencies to monitor land use changes within its jurisdiction. Each year, VTA monitors land use changes within Santa Clara County by requesting land use data from Member Agencies in terms of residential and commercial/industrial projects that have been approved.

Methodology

VTA collects land use data from Member Agencies each year to track decisions jurisdictions are making about land use. Member Agencies submit land use data for the prior fiscal year in the form of changes in dwelling units for residential approvals and changes in square footage for commercial and industrial approvals. This data is limited to tracking approvals only if those approvals do not result in construction during the reporting year or at all.

For commercial and industrial approvals, changes in square footage are used to estimate the number of jobs created or lost. Jobs are estimated by applying a job density value (measured in jobs per 1,000 sq. ft.) to the size of the site. Job density values vary depending on the specific land use type. The appropriate job density is multiplied by the square footage of each site to determine the number of estimated jobs. Table 2.1 shows the job density values per type of land use.

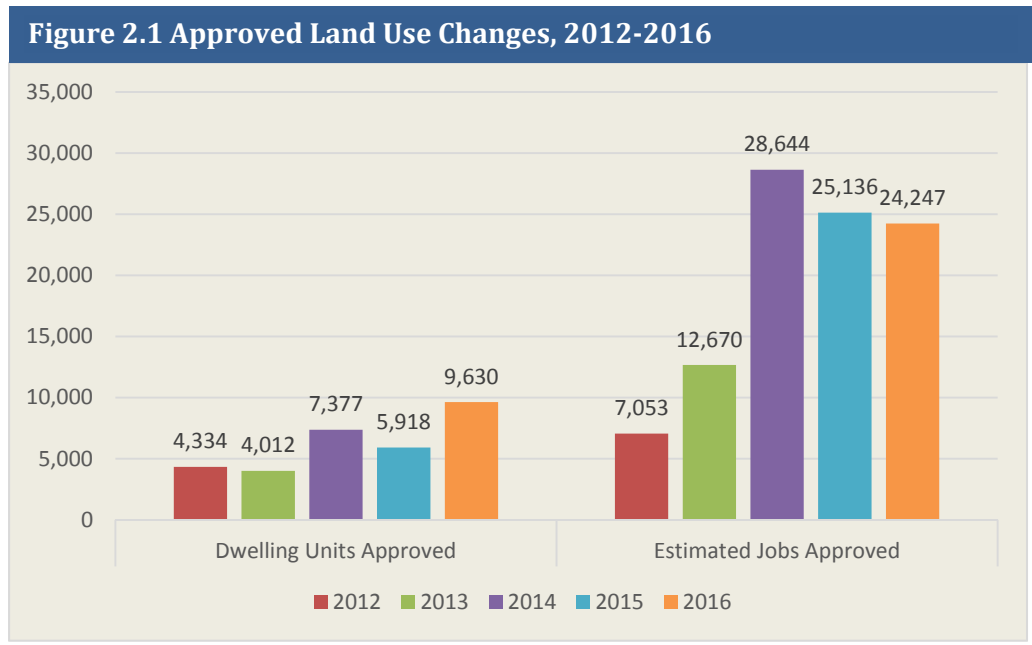
TABLE 2.1 | COMMERCIAL AND INDUSTRIAL JOB DENSITIES (JOBS PER 1,000 SQ. FT.)

Density	Land Use
3.4	Office/Educational/Institutional/Hospital
3.1	Transportation
2.5	R&D Office
2.0	Hotel/Motel
1.75	Retail/Manufacturing
0.75	Non-Manufacturing
0	Park/Recreation/Agriculture/Cemetery/Urban Reserve

The focus of VTA’s land use analysis is development approvals that provide the capacity to accommodate population and employment growth. The data is not a reflection in actual changes in residents or job creation. Rather, it is a measure of the trend in allocation of land for different purposes. In addition to the analyses included in this report, the data can be used to understand the current and projected demand in housing and employment. To better understand the employment data it is helpful to understand limitations that affect the data quality but are beyond the control of VTA and the Member Agencies:

- It is assumed commercial and industrial sites were fully occupied for employment uses
- It is assumed that all jobs that can be accommodated on the existing site are lost when a commercial or industrial site is converted to a different type of land use. Under this methodology, commercial/industrial sites that are either underutilized or unoccupied assume a full reduction in employment even if few or any jobs are actually lost. To compensate for this, VTA requests Member Agencies to indicate in their land use data submittal whether jobs were lost during conversions to a different use. Since not all Member Agencies provided this data, our methodology assumes full employment for commercial/industrial conversions, which may negatively impact the job change estimate for 2016.

Despite these limitations, the analysis provides valuable information to illustrate the trend of land use development and where housing and employment growth is likely to occur, and where Member Agencies are actually targeting growth.



Land Use Analysis

As shown in Table 2.2, Member Agencies approved 9,630 residential units in 2016, an 83% increase from the previous year when 5,918 units were approved. Notably, the City of San Jose and Santa Clara saw a large increases in approvals from 2015 to 2016. Santa Clara and Sunnyvale continued to see approvals of several large mixed-use developments and approved the greatest number of units overall in 2016. Most notably, San Jose and Santa Clara have both approved residential developments with urban villages and City Place, respectively.

TABLE 2.2 | APPROVED RESIDENTIAL UNITS, 2011-2016

Member Agency	2011	2012	2013	2014	2015	2016
Campbell	27	195	12	21	273	23
Cupertino	1	0	-30	15	15	788
Gilroy	35	101	278	350	646	810
Los Altos	69	204	20	0	4	4
Los Altos Hills	5	1	7	0	3	20
Los Gatos	31	116	20	23	53	6
Milpitas	2,531	2,243	793	466	857	0
Monte Sereno	0	0	0	0	0	0
Morgan Hill	96	268	544	103	241	372
Mountain View	273	298	537	399	1,051	277
Palo Alto	47	1	2	311	18	38
San Jose	2,496	536	729	3,182	2,112	4,127
Santa Clara	102	48	140	1,363	572	2,512
Santa Clara County	0	0	369	0	0	0
Saratoga	0	2	8	0	0	0
Sunnyvale	315	321	583	1,144	73	653
Total	6,028	4,334	4,012	7,325	5,918	9,630

As shown in Table 2.3, commercial and industrial approvals in 2016 resulted in an estimated total of 24,247. Compared to the previous year, job change estimates have decreased slightly when 25,136 jobs were estimated in 2015. Sunnyvale, San Jose, Palo Alto and Mountain View saw a large increase in available commercial land in 2016 due to mixed-use approvals on former industrial sites near downtown San Jose and major redevelopment projects in Mountain View. Palo Alto approved almost the same amount of development as they did last year.

TABLE 2.3 | JOB CHANGE ESTIMATES BASED ON COMMERCIAL/INDUSTRIAL APPROVALS, 2011-2016

Member Agency	2011	2012	2013	2014	2015	2016
Campbell	-179	-140	0	9	-120	6
Cupertino	-3	432	277	700	21	144
Gilroy	56	0	39	639	10	250
Los Altos	-40	50	211	0	19	1
Los Altos Hills	0	0	0	0	0	0
Los Gatos	264	70	555	23	12	2
Milpitas	706	-1,176	-399	0	0	0
Monte Sereno	0	0	0	0	0	0
Morgan Hill	10	0	57	0	968	170
Mountain View	598	798	1,151	2,304	1,698	3,017
Palo Alto	4,584	585	924	-993	1,840	1,809
San Jose	853	1,247	4,211	7,913	3,510	6,215
Santa Clara	460	2,583	3,407	13,700	14,425	5,733
Santa Clara County	693	80	1,071	318	1,302	0
Saratoga	0	0	0	0	0	0
Sunnyvale	635	2,524	1,179	4,031	1,631	6,900
Total	8,636	7,053	12,683	31,047	25,136	24,247

Proximity to Cores, Corridors, and Station Areas

In 2003, VTA in partnership with Member Agencies developed the Community Design & Transportation (CDT) program to craft best practices for land use and transportation. The CDT program established a framework of Cores, Corridors and Station Areas as priority areas identified by VTA and Member Agencies for targeting future growth and transportation investments. These areas are most likely to benefit from concentrated development due to its location near major transit corridors.

Spatial analysis was conducted on the land use data submitted by Member Agencies to determine the proximity of approved developments to the Cores, Corridors and Station Areas. Proximity is defined as a 1/3 mile within major transit stations and ¼ mile buffer from the cores, and future Bus Rapid Transit (BRT) corridors. The purpose of the spatial analysis is to illustrate where housing and employment growth is likely to occur and trend over time.

As shown in Table 2.4, there were 9,630 total residential units approved in 2016. Of these, 3,667 residential approvals, or 50 percent were located within the Cores, Corridors and Station Areas. This is a slight increase from 2013 when 49 percent of the potential growth in housing was planned near the targeted areas for development.

Of the 24,247 estimated increased jobs due to commercial/industrial development, 9,929 jobs or 41 percent were located within the Cores, Corridors and Station Areas. This is an increase from 2015 when 22 percent of the commercial/industrial approvals were within the Cores,

Corridors and Station Areas. However, it is worth noting that there was an overall decrease in total estimated jobs in 2015.

TABLE 2.4 | LAND USE APPROVALS NEAR CORES, CORRIDORS AND STATION AREAS, 2009-2014

	2016	2015	2014	2013
Residential Unit Approvals within CCSAs	3,586	2,755	2,855	1,982
Total Units	9,630	5,918	7,325	4,012
% near CCSAs	37%	47%	66%	49%
Job Change Estimates within CCSAs	9,929	5,442	2,610	6,966
Total Estimated Jobs	24,247	25,136	28,644	12,683
% near CCSAs	41%	22%	37%	55%

FIGURE 2.2 | APPROVED RESIDENTIAL UNITS NEAR VTA'S CORES, CORRIDORS AND STATION AREAS (2014 NET CHANGE)

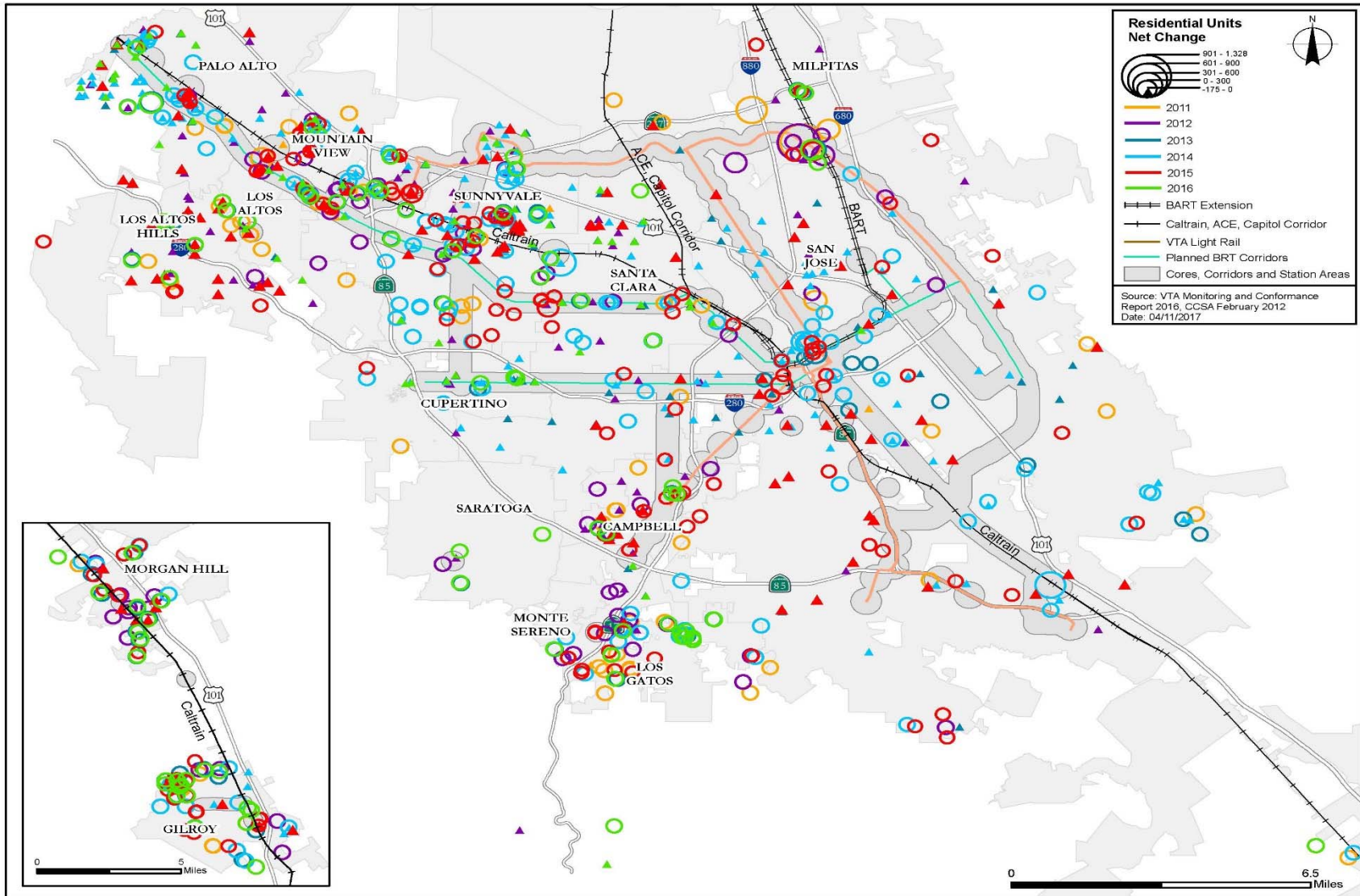


FIGURE 2.3 | APPROVED RESIDENTIAL UNITS NEAR VTA'S CORES, CORRIDORS AND STATION AREAS (2014 NET CHANGE)

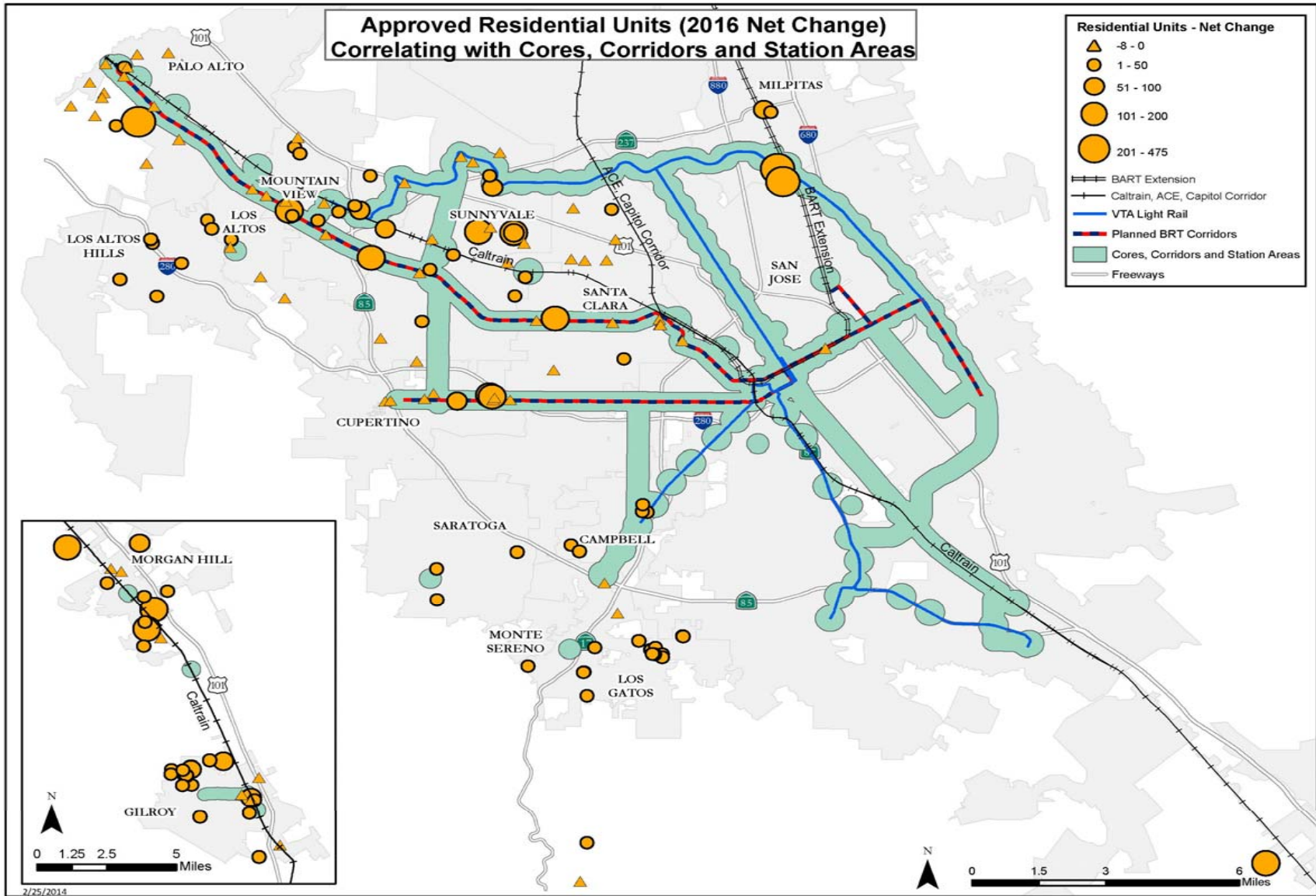


FIGURE 2.4 | JOB CHANGE ESTIMATES NEAR VTA'S CORES, CORRIDORS AND STATION AREAS (2014 NET CHANGE)

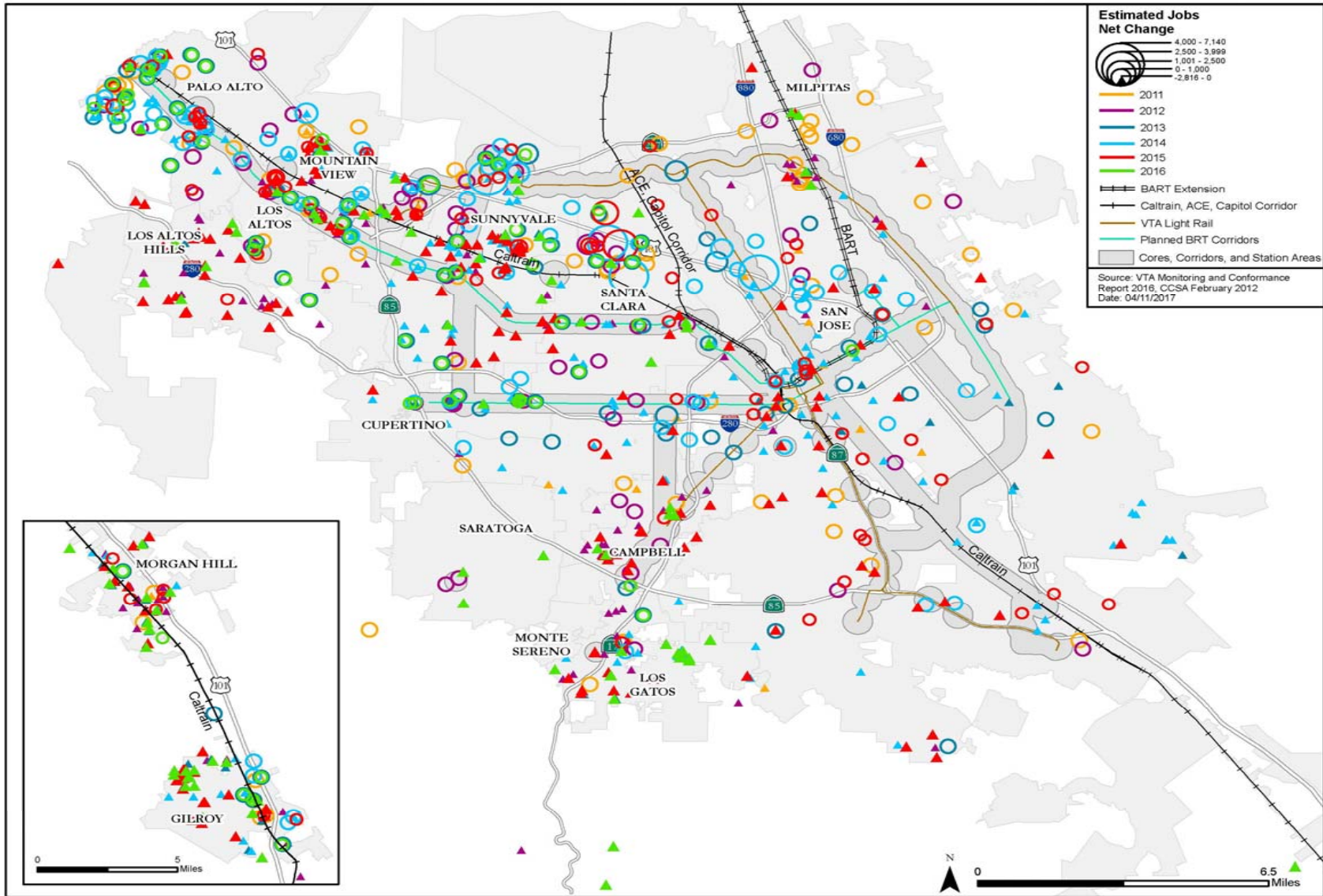
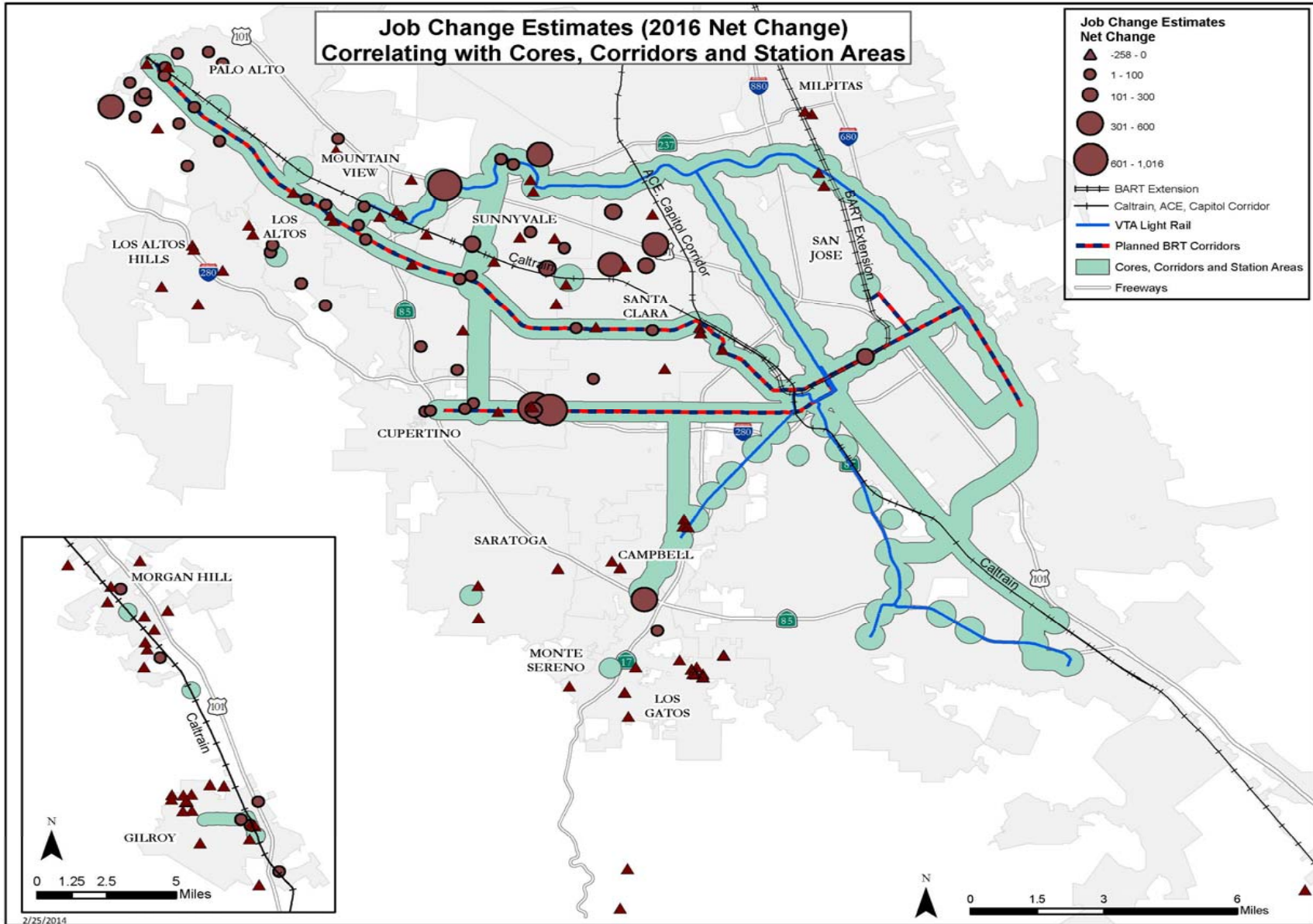


FIGURE 2.5 | JOB CHANGE ESTIMATES NEAR VTA'S CORES, CORRIDORS AND STATION AREAS (2014 NET CHANGE)



Introduction

The CMP arterial system encompasses the county's major arterials. VTA monitors 252 major intersections in Santa Clara County for traffic level-of-service (LOS). CMP intersection LOS data is collected and evaluated every two years. Intersection counts were last collected in 2012.

CMP intersections which operated at LOS F since level of service began in 1991 are exempt from meeting the level of service standard of LOS E. All other intersections that degrade to LOS F since 1991 are considered non-conforming. Non-conforming intersections place the responsible jurisdictions at risk for losing their gas tax subventions under Proposition 111 (1991).

Methodology

The methodology used to determine the level of service for each intersection is consistent with the thresholds outlined in VTA's *Traffic Level of Service Guidelines*, which are based on average control per delay per the 2000 *Highway Capacity Manual*. The average control delay thresholds with their corresponding LOS grades for CMP signalized intersections are presented in Table 3.1.

Data Collection

Similar to the 2012 study, all intersection turn movement counts were collected by Kittelson & Associates (KAI) by using the data collection subconsultants, Wiltec and Quality Counts. Additionally, all intersections, except those within the City of Campbell and the City of Cupertino, were analyzed by KAI. The Cities of Campbell and Cupertino have opted to perform their own analysis of intersection LOS for their respective intersections based on intersection turn movement counts supplied by KAI.

The data collected for this analysis included PM peak period vehicle, pedestrian, and bicycle counts at 242 of the 252 intersections that are part of the CMP network. The ten (10) intersections shown in Table 3.2 were not analyzed due to ongoing construction in 2016.

The average control delay thresholds with plus and minus LOS grades for CMP signalized intersections are presented in Table 3.1. The thresholds in this table still 'nest' within the HCM standards, with the addition of the plus and minus grades. For example, the LOS B+ to B- range is the same as the LOS B range in the HCM.

TABLE 3.1 - LEVEL OF SERVICE THRESHOLDS FOR SIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay (seconds/vehicle)	Description
A	≤ 10	Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.
B+	10 < delay ≤ 12	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher average delays.
B	12 < delay ≤ 18	
B-	18 < delay ≤ 20	
C+	20 < delay ≤ 23	Higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
C	23 < delay ≤ 32	
C-	32 < delay ≤ 35	
D+	35 < delay ≤ 39	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
D	39 < delay ≤ 51	
D-	51 < delay ≤ 55	
E+	55 < delay ≤ 60	This is considered to be the limit of capacity. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.
E	60 < delay ≤ 75	
E-	75 < delay ≤ 80	
F	> 80	This is considered to be unacceptable to most drivers. This condition occurs with over-saturation (i.e., when arrival flow rates exceed the capacity of the intersection). Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

TABLE 3.2 – INTERSECTIONS NOT ANALYZED THIS YEAR

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction
1211	Stevens Creek Blvd.	Lawrence Expwy. (E side)	Santa Clara	Santa Clara
1413	Mathilda Avenue	Maude Av.	Sunnyvale	Sunnyvale
3013	Hwy 87	Julian (East)	San Jose	San Jose
3014	Hwy 87	Julian (West)	San Jose	San Jose
3042	Hwy 680	Alum Rock (East)	San Jose	State
3043	Hwy 680	Alum Rock (West)	San Jose	State
3062	Alum Rock Avenue (Rte. 130)	Capitol Av.	San Jose	State
3063	Alum Rock Avenue (Rte. 130)	Jackson Av.	San Jose	State

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction
5803	Montague Exp.	Capitol Av.	Milpitas	SC County
5804	Montague Exp.	Milpitas Blvd.	Milpitas	SC County

TABLE 3.3 - PEAK PERIOD DATA COLLECTION BY VTA MEMBER AGENCY

Agency	Peak Period	Number of Intersections
City of Campbell	4:30-6:30pm	5
City of Cupertino	4:30-6:30pm	14
City of Gilroy	4:00-6:00pm	1
City of Los Gatos	4:00-6:00pm	3
City of Milpitas	4:00-6:00pm	2
City of Mountain View	4:30-6:30pm	6
City of Palo Alto	4:00-6:00pm	8
City of San Jose	4:00-6:00pm	117
City of Santa Clara	4:00-6:00pm	15
Santa Clara County	4:30-6:30pm	72
City of Saratoga	4:00-6:00pm	1
City of Sunnyvale	4:30-6:30pm	8

Data Collection Quality Assurance

Manual counts for each turn movement were performed in a video reduction center where counters review video of each intersection. It was determined that the use of video data offers a cost-effective and accurate approach to data collection as it allows counters to collect counts in a controlled setting, and return to the video to verify numbers and perform re-counts as necessary without having to return to the field. The counts collected were then reviewed for aspects of quality control which include, but are not limited to accuracy of lane configurations, consistent count volumes between adjacent intersections, accuracy of count details (times, dates, etc), and data integrity. Most sites are then subjected to test counts, which consist of recounting 15-minute segments of a location to verify accuracy.

When the data was submitted to Kittelson & Associates, additional checks were performed which included:

- Comparison of the 2016 counts for each of the 242 CMP intersections collected in 2016 with counts from the 2008, 2010, 2012, and 2014 monitoring reports.
- If the 2016 approach volumes were within 10% of either the 2008, 2010, 2012, or 2016 counts, or the 2016 approach volume fell between 2008 and 2014 counts, no further action was taken.
- Counts that did not meet these criteria were sent back to the data collection subconsultant for review of the video files to verify that the count was accurate.

- The final error-checking was completed when comparing the LOS between 2014 and 2016. All changes in LOS, especially in the LOS D, E, and F range, were investigated. These investigations looked at intersection geometry, counts, and signal timing to verify the cause of the change and to identify if there were significant issues.

Level of Service Analysis

In previous years, VTA member agencies were responsible for inputting all data into a TRAFFIX™ database and running the LOS analysis in TRAFFIX™. This information was then forwarded to the chosen consultant to consolidate the data into one master file. Since 2012, member agencies have the option to have KAI perform the analysis on intersections located within their jurisdiction. Agencies selecting this option were asked to provide any signal timing updates they wanted to include since the 2014 monitoring cycle, while the rest of the data input and analysis was performed by KAI. Table 3.4 presents a list of member agencies, the party responsible for the intersection analysis, and whether signal timing updates were provided to KAI for the 2016 Monitoring Study.

TABLE 3.4 - TRAFFIX™ IMPLEMENTATION ANALYSIS

Member Agency	Number of Intersections	Int. Analysis Performed by:	Signal Timing Changes from 2014
City of Campbell	5	Campbell	N/A
City of Cupertino	14	KAI	Yes
City of Gilroy	1	KAI	No
City of Los Gatos	3	KAI	No
City of Milpitas	2	KAI	No
City of Mountain View	6	KAI	No
City of Palo Alto	8	KAI	No
City of San Jose	117	KAI	Yes
City of Santa Clara	15	KAI	Yes
Santa Clara County	72	KAI	Yes
City of Saratoga	1	KAI	No
City of Sunnyvale	8	KAI	Yes

LOS Analysis Quality Assurance

A quality assurance process was employed to check the accuracy and reasonableness of the intersection LOS evaluations conducted for the 2016 Monitoring Program. The first step in this process was to check that all intersection counts had been entered into the TRAFFIX™ file correctly. This was done by comparing the TRAFFIX™ volume output file to an excel spreadsheet that contained all the counts collected for this monitoring cycle.

Once all of the monitored intersections' volumes were checked, a 'triage' approach was used to identify intersections requiring more detailed review, using the following criteria:

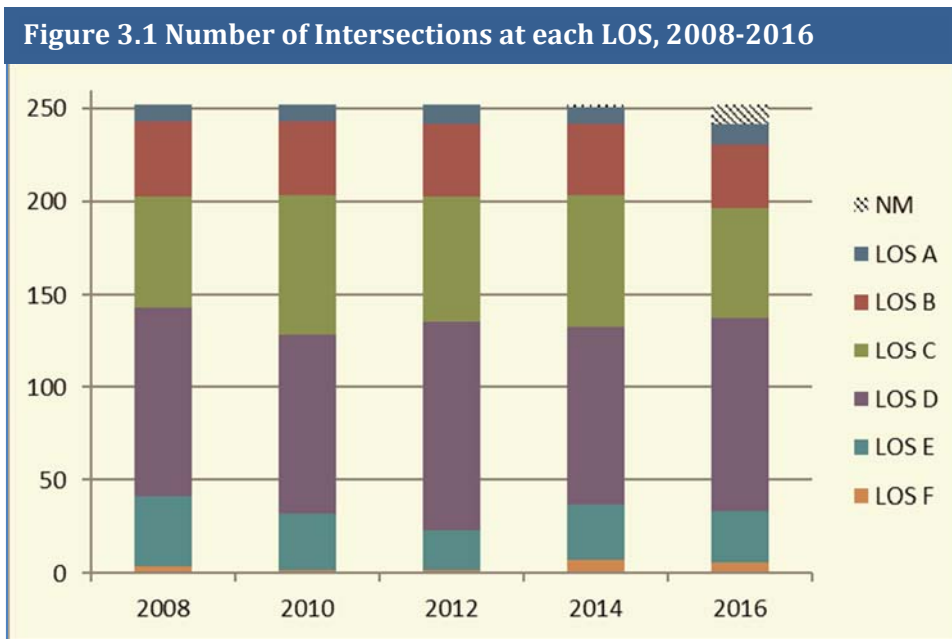
- Intersections at LOS F in 2016 that were at LOS E or better in 2014.
- Intersections at LOS E in 2016 that were at LOS F in 2014.
- Intersections that jumped two levels of service, either up or down, between 2014 and 2016.
- Other intersections identified by local agency staff familiar with local conditions where the computed LOS does not match prevailing field conditions.

Identified triage intersections were then reviewed to determine whether the resultant 2016 levels of service were reasonable.

Overall Intersection Operations

Since 2004, the VTA monitoring program has been using the LOS methodology described in the 2000 Highway Capacity Manual (HCM). Figure 3.1 presents a graphical view of the number of intersections experiencing the various LOS values over the last five monitoring cycles.

Table 3.10 shows how LOS has varied since the first monitoring cycle in 1991. In the table, the “Location” column is the agency responsible for maintaining the LOS standard, whereas the “Jurisdiction” column is the agency that operates the intersection; occasionally, these agencies are not the same. The PM peak hour TRAFFIX™ LOS analysis calculations for each intersection are available in an electronic TRAFFIX™ file format that will be submitted with this report.



LOS-exempt Intersections at LOS F

Table 3.5 lists the intersections that operated at LOS F in 2016, but are exempt from the CMP LOS standard. Intersections are defined as exempt if they operated at LOS F under the 1991 baseline conditions. These intersections have generally fluctuated between LOS E and LOS F since 1991. Highway 17 Southbound and San Tomas Expressway is back at LOS F for the first time since

2000. This change is a result in vehicle demand since geometry and signal timing remained unchanged from 2016.

TABLE 3.5 | LOS EXEMPT INTERSECTIONS AT LOS F

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction
5205	Page Mill/Oregon Exp.	Foothill Exp.	Palo Alto	SC County
5430	San Tomas Exp.	Campbell Av.	Campbell	SC County
5432	Hwy 17 (SB)	San Tomas Expwy./Camden Av.	Campbell	SC County
5724	Capitol Exp.	Aborn Rd.	San Jose	SC County
5809	Montague Exp.	McCarthy Blvd./O'Toole Av.	Milpitas	SC County

Deficient Intersections

The Central Expressway & De La Cruz Boulevard intersection (Table 3.6) was found to continue to operate at LOS F in 2014 as it has operated since 1996. This intersection is non-exempt since it operated at LOS E in 1991.

TABLE 3.6 | DEFICIENT INTERSECTIONS

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction
5335	Central Expressway	De la Cruz Blvd.	Santa Clara	SC County

In 2016, twenty-six (26) intersections were operating at LOS E. Twenty-three (23) of these intersections were also at LOS E in 2014 and are shown in Table 3.7. Three (3) intersections operated at LOS D or better in 2014 and are now at LOS E (Table 3.8). All three of these locations have fluctuated between LOS E and LOS D with all three at LOS E in 2012.

TABLE 3.7 | INTERSECTIONS OPERATING AT LOS E IN 2012 & 2014

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction
701	Calaveras Blvd. (Rte. 237)	Abel St.	Milpitas	Milpitas
5012	S. Bascom Av.	Moorpark Av.	San Jose	SC County
5108	Page Mill/Oregon Exp.	Middlefield Rd.	Palo Alto	SC County
5220	Foothill Exp.	Magdalena Av./Springer Rd.	Los Altos	SC County
5305	Central Exp.	Rengstorff Av.	Mountain View	SC County
5320	Central Exp.	Mary Av.	Sunnyvale	SC County
5329	Central Exp.	Bowers Av.	Santa Clara	SC County
5332	Central Exp.	Scott Blvd.	Santa Clara	SC County
5334	Central Exp.	Lafayette St.	Santa Clara	SC County
5405	San Tomas Exp.	Stevens Creek Blvd.	Santa Clara	SC County
5416	San Tomas Exp.	El Camino Real (Rte 82)	Santa Clara	SC County
5419	San Tomas Exp.	Homestead Rd.	Santa Clara	SC County
5422	San Tomas Exp.	Saratoga Av.	Santa Clara	SC County
5429	San Tomas Exp.	Hamilton Av.	Campbell	SC County

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction
5611	Lawrence Exp.	Arques Av.	Sunnyvale	SC County
5613	Lawrence Exp.	Reed Av.	Sunnyvale	SC County
5625	Lawrence Exp.	Homestead Rd.	Sunnyvale	SC County
5633	Lawrence Exp.	Bollinger Rd./Moorpark Av.	San Jose	SC County
5723	Capitol Exp.	Silver Creek Rd.	San Jose	SC County
5732	Capitol Exp.	Story Rd.	San Jose	SC County
5802	Montague Exp.	Trade Zone Blvd./McCandless	Milpitas	SC County
5805	Montague Exp.	Mission College Blvd.	Santa Clara	SC County
5807	Montague Exp.	First St.	San Jose	SC County

TABLE 3.8 | INTERSECTIONS OPERATING AT LOS E IN 2014 AND D OR BETTER IN 2012

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction
1003	El Camino Real (Rte. 82)	Hwy 237/Grant Rd.	Mountain View	State
3088	Camden Avenue	Union Av.	San Jose	San Jose
3095	Monterey Hwy. (Rte. 82)	Curtner Av.	San Jose	San Jose
5408	San Tomas Exp.	Scott Blvd.	Santa Clara	SC County
5720	Capitol Exp.	Senter Rd.	San Jose	SC County
5725	Capitol Exp.	Quimby Rd.	San Jose	SC County
5806	Montague Exp.	De la Cruz Blvd.	Santa Clara	SC County

Intersections Improving From LOS F

Of the seven intersections operating at LOS F in 2014, two intersections shown in Table 3.9 improved to LOS E operations for 2016. The improvements were the result of demand changes at the intersections since geometry and signal timing remained consistent with 2014.

TABLE 3.9 | INTERSECTIONS IMPROVING FROM LOS F OPERATIONS IN 2014

ID	CMP System Roadway	Cross-Street	Location	2016 LOS	Reason (s) for Change
5215	Foothill Exp.	El Monte Av.	Los Altos	E	Decrease in demand
5801	Montague Exp.	Main St./Old Oakland Rd.	Milpitas	E	Decrease in demand

Intersections That Changed Two Levels of Service

In 2016, no intersections were found to have changed by two or more LOS grades since 2014.

LOS Results

This technical memorandum documented the data collection and analysis efforts used to evaluate the Level of Service (LOS) for the Congestion Management Program (CMP) intersections located in Santa Clara County. These evaluations were performed as part of the 2016 Monitoring

& Conformance Report for the Santa Clara Valley Transportation Authority (VTA). A summary of our findings includes:

- 242 of the 252 current CMP intersections were analyzed. Ten intersections were not analyzed due to ongoing construction activities during the data collection period.
- Six intersections were found to operate below the CMP LOS Standard (LOS E). This is one fewer than the 2014 report.
- One of the six intersections, Central Expressway & De La Cruz Boulevard (5335) was not exempt since it operated at LOS E or better in 1991 rather than F. This intersection has been consistently operating at LOS F since 1996.

Comparing the 2016 findings versus the previous 10 years shows that 2016 was consistent with previous monitoring years. The number of intersections operating at LOS D, E, and F are within the range reported since 2006. The number of intersections operating at LOS B and C are at the lowest level since 2006 but this is likely due to the ten intersections not counted in this monitoring study due to construction. Finally, the number of intersections operating at LOS A (11) is the highest it has been since 2006.

Table 3.10 - Intersection LOS, 1991 - 2016

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	1991	1992	1993	1994/5	1996	1997	1998	2000	2001	2002	2004	2006	2008	2010	2012	2014	2016	
101	S. Bascom Av.	Campbell Av.	Campbell	Campbell	E	C	NM	B	B	D-	C	C	C	C	C	C-	C-	C	C	C	C	
102	Hamilton Av.	Winchester Blvd.	Campbell	Campbell	E	D	NM	D	E	E	D-	D-	D	D	D	D	E+	E+	D	D	D	
103	Hwy 17 (NB)	Hamilton Av.	Campbell	State	A	A	NM	C	C	B	C+	C+	C	B-	B-	C	C	C+	C	C+	C	
104	Hwy 17 (SB)	Hamilton Av.	Campbell	State	F	F	E	E	E	E	E	E	E	E-	E	E	E	E	E	E	D	D-
105	Hamilton Av.	Bascom Av.	Campbell	Campbell	D	D	NM	E	E	E	E	E-	E	E	D	D-	E+	E+	D-	D	D-	
202	Hwy 280 NB Ramps	Wolfe Rd.	Cupertino	Cupertino					NM	B-	B	B+	B	B	A	B+	B	B	B	B	B+	B
203	Hwy 280 SB Ramps	Wolfe Rd.	Cupertino	Cupertino					NM	B	B+	A	A	B+	A	B+	A	A	A	A	A	A
204	Stevens Creek Blvd.	Wolfe Rd./Miller Av.	Cupertino	Cupertino	D	D	D	C	D	C	D+	D+	D+	C	C	D+	D+	D+	D+	D	D	
206	Sara-Sunny Rd/De Anza Blvd.	Prospect Rd.	Cupertino	Cupertino	NM	NM	NM	D	D	C-	C	C	D+	D	C	D	C	B-	C	C	C	
208	Hwy 85 SB Ramps	Sara-Sunny Rd/De Anza Blvd.	Cupertino	Cupertino	NM	NM	NM	D	D	C+	C	C	C	C-	C-	C	C-	C	C	C	B	B
209	Hwy 85 NB Ramps	Sara-Sunny Rd/De Anza Blvd.	Cupertino	Cupertino	NM	NM	NM	C	C	C+	C	C+	C+	C-	B	C	D	B	B	B+	B	
210	De Anza Blvd. (Rte. 85)	Bollinger Rd.	Cupertino	Cupertino	E	D	D	D	C	C	C	C	C	C	B-	C	C	C	C	C	C	
211	De Anza Blvd. (Rte. 85)	Stevens Creek Blvd.	Cupertino	Cupertino	E	D	D	D	D	D	D	D	E	D	C-	D	D-	D	D	D	D	
212	Hwy 280 SB Ramps	De Anza Blvd.	Cupertino	Cupertino	D	C	C	C	C	C	D	C	C	C-	B	C	B-	B	B-	C+	C+	
213	Hwy 280 NB Ramps	De Anza Blvd.	Cupertino	Cupertino	F	E	D	C	D	C	D+	C-	C	D+	C	C	C+	C+	C-	C	D+	
214	De Anza Blvd. (Rte. 85)	Homestead Rd.	Cupertino	Cupertino	E	D	D	D	D	D-	D	D	E+	D+	C-	D+	D+	D+	D+	D+	D+	
217	Stevens Creek Blvd.	Stelling Rd.	Cupertino	Cupertino	D	D	D	D	D	D	C	D+	D	D+	D	D	D	D	C-	D	D-	
219	Stevens Creek Blvd.	Hwy 85 SB Ramp	Cupertino	Cupertino	C	C	B	C	C	C	B	B-	C+	C+	C	C	C	C	C	C	C	
220	Stevens Creek Blvd.	Hwy 85 NB Ramp	Cupertino	Cupertino	B	B	B	C	D	B-	B-	C+	B-	C	C	C-	C-	C	B-	C+	C	
301	Monterey Hwy. (Rte. 152)	Leavesley Rd.	Gilroy	State	C	C	NM	D	D	C	C	C	C	C	C	C	C	C	C	C	C	

Table 3.10 - Intersection LOS, 1991 - 2016

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	1991	1992	1993	1994/5	1996	1997	1998	2000	2001	2002	2004	2006	2008	2010	2012	2014	2016	
601	Saratoga-Los Gatos (Hwy. 9)	University Av.	Los Gatos	State	C	C	NM	C	C	D	D	C	C-	D	C-	C	C	C	C	C	C	C
602	Saratoga-Los Gatos (Hwy. 9)	Santa Cruz Av.	Los Gatos	State	D	D	NM	D	D	D	D	D	E+	D	D	D	D	D+	D+	D+	D+	D+
603	Los Gatos Blvd.	Lark Av.	Los Gatos	Los Gatos	C	NM	NM	B	C	C-	D	C-	D	D	D+	C-	E+	D+	D+	C-	D+	D+
701	Calaveras Blvd. (Rte. 237)	Abel St.	Milpitas	Milpitas	E	F	D	E	D	D	D-	D-	D-	D	D	D	D	E+	E	E	E	E
702	Calaveras Blvd. (Rte. 237)	Milpitas Blvd.	Milpitas	Milpitas	F	F	D	D	D	E+	E+	E	D	D	D+	E+	D	E	D	D	D	D
1001	El Camino Real (Rte. 82)	Castro St.	Mountain View	State	D	D	D	D	D	E	E+	D	D	D	D	C	D	D+	D	D	D	D
1002	El Camino Real (Rte. 82)	El Monte Av.	Mountain View	State	C	B	B	B	C	C	D	C-	D+	C-	D+	C	C	C	C-	D	D	D
1003	El Camino Real (Rte. 82)	Hwy 237/Grant Rd.	Mountain View	State	E	D	D	D	D	F	F	D-	D-	D-	D	D	D-	D-	E+	D	D	E+
1004	El Camino Real (Rte. 82)	Miramonte Av./Shoreline Blvd.	Mountain View	State	D	D	D	D	C	E	E-	D	D	D	D	D	D-	D	D	D	D	D-
1005	El Camino Real (Rte. 82)	Rengstorff Av.	Mountain View	State	C	D	D	C	C	D-	C-	C	C	C	C	C+	C	C+	C	C	C	C
1006	El Camino Real (Rte. 82)	San Antonio Rd.	Mountain View	State	E	D	D	D	D	D-	E	D-	D-	D	D	D	D	D	D	D	D	D-
1100	El Camino Real (Rte. 82)	Alma Av.	Palo Alto	State	B	B	NM	B	B	B	B	C	D	D+	D	D	D+	D+	D+	C-	C-	C-
1102	El Camino Real (Rte. 82)	Embarcadero Rd./Galvez	Palo Alto	State	D	D	NM	D	D	D	D	D	E	D-	D	D+	D	D	D+	D+	D+	D+
1104	El Camino Real (Rte. 82)	Page Mill Rd./Oregon Exp.	Palo Alto	State	E	D	NM	E	D	E	E	E+	E+	E+	D	D	D	D	D	D	D	D
1106	El Camino Real (Rte. 82)	Charleston Rd./Arastradero	Palo Alto	State	D	D	NM	D	D	E+	E+	D-	D	D	D	D	D	D	D	D	D	D
1108	San Antonio Rd.	Charleston Rd.	Palo Alto	Palo Alto	D	D	NM	D	D	D	D	D	D	D	D	D+	D	D	D	D	D	D

Table 3.10 - Intersection LOS, 1991 - 2016

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	1991	1992	1993	1994/5	1996	1997	1998	2000	2001	2002	2004	2006	2008	2010	2012	2014	2016
1110	San Antonio Rd.	Middlefield Rd.	Palo Alto	Palo Alto	D	D	NM	E	E	E	E+	E	E	D-	D	D+	D	E	D+	D+	D
1112	El Camino Real (Rte. 82)	Palm Dr. (San Mateo Co.)	Palo Alto	Palo Alto	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	C	C	C	C	C	C
1114	El Camino Real (Rte. 82)	University Av. (San Mateo Co.)	Palo Alto	Palo Alto	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	C	C+	C	C-	C	C
1200	Bowers Av.	Scott Blvd.	Santa Clara	Santa Clara	D	D	D	C	C	D+	D	E+	D	D	C-	C	C	C	C	C	C-
1201	El Camino Real (Rte. 82)	Kiely Blvd./Bowers Av.	Santa Clara	State	D	D	NM	D	D	D	D	D	D	D	D	C-	D	C-	C	C-	C
1202	El Camino Real (Rte. 82)	Lafayette St.	Santa Clara	Santa Clara	D	D	D	C	D	D	D+	D+	D	D	D+	D	D+	D+	D	D	D+
1203	El Camino Real (Rte. 82)	Lincoln Av.	Santa Clara	Santa Clara	B	B	NM	B	B	C+	C+	C+	C+	C+	C+	C	C+	C+	C	C	C
1204	El Camino Real (Rte. 82)	Monroe St.	Santa Clara	Santa Clara	B	C	NM	B	C	C	D+	C	D+	D+	C	C-	C-	C-	C	C-	D+
1205	El Camino Real (Rte. 82)	Scott Blvd.	Santa Clara	Santa Clara	D	C	NM	C	C	C-	C-	D+	D	D	D	D+	D	D+	D+	D+	D+
1206	Great America Pkwy.	Mission College Blvd.	Santa Clara	Santa Clara	E	D	D	E	E	E	E	F	E	E-	D-	D-	D-	D	D	D	D
1207	Great America Pkwy.	Tasman Dr.	Santa Clara	Santa Clara	B	B	NM	B	C	C	C	C-	D+	D	C	C	C-	C	C	C	C
1208	Hwy 101 (SB)	Bowers Av.	Santa Clara	State	B	A	NM	A	A	B+	B	B	B-	B	B	B+	A	A	A	A	A
1209	Hwy 101 (NB)	Great America Pkwy.	Santa Clara	State	C	B	NM	B	C	B	B	B	C+	C	B-	A	A	A	A	A	A
1210	Hwy 280 (SB)	Stevens Creek Blvd.	Santa Clara	State	E	D	D	E	D	C	C	C	C-	D	D+	D+	E+	C	C	C	B-
1211	Stevens Creek Blvd.	Lawrence Exp. (E side)	Santa Clara	Santa Clara	B	B	NM	C	B	C+	C	C	D+	D+	D+	C-	C	C	C	C	NM
1212	Stevens Creek Blvd.	Lawrence Exp. (SB ramp)	Santa Clara	Santa Clara	B	A	NM	B	C	C	C	C+	D+	B	C	C	C	C	C	C	C
1213	The Alameda (Rte 82)	El Camino Real (Rte 82)	Santa Clara	State	A	B	NM	B	B	B	C	C+	B-	B	C+	B	C	B	B	B	B
1214	Lawrence Exp.	El Camino Real (Rte 82)	Santa Clara	State	NM	NM	NM	NM	NM	B	C-	D	D+	D	C-	C	C	C	C	C	C

Table 3.10 - Intersection LOS, 1991 - 2016

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	1991	1992	1993	1994/5	1996	1997	1998	2000	2001	2002	2004	2006	2008	2010	2012	2014	2016	
1301	Big Basin Way (Hwy 9)	Saratoga-Los Gatos Rd.	Saratoga	State	E	D	NM	C	D	D	D+	D	D	D	C-	D	D+	D+	D+	D+	D+	D+
1401	Saratoga-Sunnyvale Rd.	Fremont Av.	Sunnyvale	Sunnyvale	D	D	NM	D	D	D	D	D	D-	D	D	NM	D	D	D	D	D	D
1402	Saratoga-Sunnyvale Rd.	Remington Dr.	Sunnyvale	Sunnyvale	E	C	NM	D	D	D	D	D	D	D	D	NM	D	C-	D	D	D	D
1404	El Camino Real (Rte. 82)	Fair Oaks Av.	Sunnyvale	State	D	E	D	E	D	E+	D-	D	D	D	D	D	D+	D	D	D	D	D
1405	El Camino Real (Rte. 82)	Wolfe Rd.	Sunnyvale	State	E	E	E	E	E	E	E	E	E	D	D	D-	E-	D	D	D	D	D
1406	El Camino Real (Rte. 82)	Mary Av.	Sunnyvale	State	D	D	NM	D	D	D	D	D	D	D	D+	D+	D	D	D	D	D+	D
1407	El Camino Real (Rte. 82)	Mathilda Av.	Sunnyvale	State	D	E	E	D	E	E+	E	F	E+	E+	C-	D	D	D	D	D	D	D
1412	Mathilda Av.	Java Dr.	Sunnyvale	Sunnyvale	B	B	NM	C	C	C+	NM	C-	C	C	C+	C	C-	C	C	C	C	C-
1413	Mathilda Av.	Maude Av.	Sunnyvale	Sunnyvale	D	D	NM	C	D	D	D	D	D	D+	C	D+	D+	C-	D+	D+	D+	NM
2001	Saratoga-Los Gatos (Hwy. 9)	Quito Rd.	SC County	State	A	A	NM	A	B	B	B	B	B	B	B+	B+	B+	B+	B+	B+	B+	B
3001	Hwy 85	Bascom Av.(North)	San Jose	San Jose	NM	NM	NM	C	B	B	B	B	B	B-	B	C+	C+	C+	C+	C+	C+	C+
3002	Hwy 85	Bascom Av.(South)	San Jose	San Jose	NM	NM	NM	C	B	B	B	B	B	B	B	C+	C+	C	C	C	C	C
3003	Hwy 85	Bernal Rd.	San Jose	San Jose	NM	NM	NM	C	C	C	D	D-	D+	D+	C	C	C	C	B	B-	B-	
3004	Hwy 85	Blossom Hill Rd. (North)	San Jose	San Jose	NM	NM	NM	C	C	C+	C	D	D+	C-	C	C	C	C	C	C	C-	C
3005	Hwy 85	Blossom Hill Rd. (South)	San Jose	San Jose	NM	NM	NM	D	E	F	E+	D-	D-	D-	D	F	D-	E+	E+	D	D-	
3006	Hwy 85	Camden Av. (North)	San Jose	San Jose	E	NM	C	D	D	D+	C	C	C	C	C	C	C	C	C	C	C	C
3007	Hwy 85	Camden Av. (South)	San Jose	San Jose	NM	NM	NM	D	D	E	E+	E	D-	E+	D-	D-	E+	E+	D	D	D	D
3008	Hwy 85	Cottle Rd. (North)	San Jose	San Jose	NM	NM	NM	B	C	C+	B	B-	B	B	B+	B	B	A	B	B+	B	
3009	Hwy 85	Cottle Rd. (South)	San Jose	San Jose	NM	NM	NM	C	D	C-	C	C	C	C	C	C	C-	C-	D	C-	D+	

Table 3.10 - Intersection LOS, 1991 - 2016

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	1991	1992	1993	1994/5	1996	1997	1998	2000	2001	2002	2004	2006	2008	2010	2012	2014	2016	
3010	Hwy 85	Santa Teresa Blvd. (North)	San Jose	San Jose	NM	NM	NM	C	C	D	D	D	D	NM	NM	C	C	C	C	C	C	C
3011	Hwy 85	Santa Teresa Blvd. (South)	San Jose	San Jose	NM	NM	NM	C	C	C+	C	C	C	C	B	B	B	C+	B-	B-	B-	C+
3012	Hwy 87	Coleman Av.	San Jose	San Jose	C	B	NM	B	B	B	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
3013	Hwy 87	Julian St. (East)	San Jose	San Jose	D	D	NM	D	D	E	D-	D	D+	D	D+	NM	D	D	D	D	D	NM
3014	Hwy 87	Julian St. (West)	San Jose	San Jose	B	B	NM	C	C	B	B	B-	B	B	B	B	B	B	B	B	B-	NM
3015	Hwy 87	E. Santa Clara St. (NB Off)	San Jose	San Jose	NM	NM	NM	C	C	B	B	B	B	B	B	NM	B	B	B	B	B	B
3016	Hwy 101	Santa Clara (East)	San Jose	State	B	NM	B	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B
3017	Hwy 101	Bernal Rd.	San Jose	State	A	A	NM	A	B	B	B	B	B	B	B+	B+	B+	B+	B+	B	B	B
3018	Hwy 101	Blossom Hill Rd. (East)	San Jose	State	D	D	NM	D	D	D+	C-	D-	D	D	C-	C	C	C	C	C	C	C-
3019	Hwy 101	Blossom Hill Rd. (West)	San Jose	State	B	B	NM	B	B	C+	B-	C+	C	C	C+	B	B	C	B	B	B	C+
3020	Hwy 101	Brokaw Rd.	San Jose	San Jose	B	NM	B	B	C	C	C-	C-	C	C	C	C+	C	C+	C+	C+	B-	C+
3021	Hwy 101	Oakland Rd. (North)	San Jose	State	B	NM	B	C	C	C	C	C	C	C	C+	C+	C	C+	C+	C+	C	C+
3022	Hwy 101	Oakland Rd. (South)	San Jose	State	C	NM	C	C	C	D+	D+	D+	D+	D	C	C-	C	C	C	C	C-	C-
3023	Hwy 101	Santa Clara St. (West)	San Jose	State	C	NM	C	D	C	B	B	B	B	B	B	B	B	B	B	B	B	B
3024	Hwy 101	Yerba Buena Rd.(East)	San Jose	State	B	C	NM	C	B	B-	B	C+	C+	C+	C+	B	B	C+	C+	C+	C+	B-
3025	Hwy 101	Yerba Buena Rd.(West)	San Jose	State	C	D	NM	C	C	C	C	C	C	C	C	C+	C	C+	C+	C	C	C
3026	Hwy 237	First St. (North)	San Jose	State	F	D	NM	NM	C	B-	C+	B	B	B	B	B	B-	B-	B-	B-	B-	B
3027	Hwy 237	First St. (South)	San Jose	State	F	D	NM	NM	C	C	D+	C	C	C+	C+	C+	C+	B-	C+	C+	C+	C+
3028	Hwy 237	Great America Pkwy. (N.)	San Jose	State	F	F	C	NM	B	C	C	C	C	C	C	B	B	B	B	B	B	B
3029	Hwy 237	Great America Pkwy. (South)	San Jose	State	F	F	C	NM	A	B	B	B	B-	C+	B	B	B+	A	B+	B+	B+	B+
3030	Hwy 237	Zanker Rd. (North)	San Jose	State	F	F	NM	NM	B	B	C+	B	B	B	B+	B+	B+	B	B	B	B+	B+
3031	Hwy 237	Zanker Rd. (South)	San Jose	State	F	F	NM	NM	B	B	C+	B	B	B	B+	B	B+	B	B	B	B	B+
3032	Hwy 280	Bird Av. North	San Jose	San Jose	C	C	NM	C	C	C	C-	C	C	C-	C	C-	C	C	C	C	C	C

Table 3.10 - Intersection LOS, 1991 - 2016

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	1991	1992	1993	1994/5	1996	1997	1998	2000	2001	2002	2004	2006	2008	2010	2012	2014	2016	
3033	Hwy 280	Bird Av. South	San Jose	San Jose	B	B	NM	B	C	B	C+	C	C	C	C-	C-	C	C	C	C	C+	C+
3034	Hwy 280	11th St. North	San Jose	San Jose	B	B	NM	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
3035	Hwy 280	11th St. South	San Jose	San Jose	B	B	NM	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B
3036	Hwy 280	McLaughlin Av.	San Jose	San Jose	B	B	NM	B	B	B-	B	B	B	B	B	B	B	B	B	B	B	B
3037	Hwy 280	Moorpark Av.	San Jose	San Jose	B	B	NM	C	C	C	C	C	C	C	C	C	C	B+	B	B	B	B+
3038	Hwy 280	Saratoga Av. North	San Jose	San Jose	B	C	NM	B	C	C+	E	B	B-	C+	B-	C	B-	B-	C+	C+	C	C
3039	Hwy 280	Saratoga Av. South	San Jose	San Jose	B	B	NM	C	E	F	F	C-	D+	D	D+	D	D	D	C-	C	C	D+
3040	Hwy 280	10th St. North	San Jose	San Jose	B	B	NM	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
3041	Hwy 280	10th St. South	San Jose	San Jose	B	B	NM	B	B	B	B-	B	B	B	B	B	B	B	B	B-	B	B
3042	Hwy 680	Alum Rock Av. (East)	San Jose	State	B	B	NM	B	B	C	B-	C	C	C	C+	C	C-	C	C	C	C	NM
3043	Hwy 680	Alum Rock Av. (West)	San Jose	State	B	B	NM	B	B	C+	C+	C	C	C+	C+	C	C	C	C	C	C	NM
3044	Hwy 680	King Rd. N	San Jose	San Jose	C	C	NM	C	C	C	C-	D+	D+	D+	C-	C-	C	C-	C-	C	C	C
3045	Hwy 680	King Rd. S	San Jose	San Jose	A	B	NM	B	B	C	C+	D+	D+	C	C-	C	C	C	C	C	C	C
3046	Hwy 880	The Alameda N	San Jose	San Jose	A	A	NM	B	A	B+	B+	B+	B+	B+	A	B	B	B	B	B	B	B
3047	Hwy 880	The Alameda S	San Jose	San Jose	A	A	NM	B	B	B+	B	B	B	B+	A	B-	B	C+	B-	C+	C+	C+
3048	Hwy 880	Bascom Av. N	San Jose	San Jose	B	B	NM	B	B	B	B	B	B	B	A	A	A	B+	A	B+	A	A
3049	Hwy 880	Bascom Av. S	San Jose	San Jose	B	C	NM	B	C	B+	C	A	B	B	B+	A	B+	B+	A	A	A	A
3050	Hwy 880	Brokaw Rd. E	San Jose	San Jose	B	B	NM	C	C	C+	C+	B-	B	B	C	C-	D+	C	C	C	C	B+
3051	Hwy 880	Brokaw Rd. W	San Jose	San Jose	D	D	NM	D	D	C-	C-	C	C	C-	D	D	D	D+	D	C-	D	D
3052	Hwy 880	Coleman Av. N	San Jose	San Jose	B	B	NM	B	B	B	B	B	B	B	B+	NM	A	B+	B+	B+	B+	B-
3053	Hwy 880	Coleman Av. S	San Jose	San Jose	B	B	NM	B	D	B	B-	B	B	B	B	NM	B-	C+	C+	C	C	C
3054	Hwy 880	N. First St. N	San Jose	San Jose	A	A	NM	A	A	B+	B+	B	B	B	B	B	B-	B	C	C	C	C
3055	Hwy 880	N. First St. S	San Jose	San Jose	C	B	NM	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
3056	Hwy 880	Stevens Creek Blvd.	San Jose	San Jose	C	B	NM	C	C	C+	C	C+	B-	C+	C+	C+	C+	C+	B	NM	C	C
3057	The Alameda (Rte 82)	Hedding St.	San Jose	San Jose	D	C	NM	C	C	D	D	D	C-	C-	C	C-	C-	C-	D+	D+	D	D

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3058	The Alameda (Rte 82)	Naglee Av.	San Jose	San Jose	D	C	NM	C	C	D	C	D	D+	D+	D+	D	D	D	D	D	D	D
3059	The Alameda (Rte 82)	Race St.	San Jose	San Jose	C	C	NM	C	C	D	C	C	C	C	C	C-	D+	C	C-	D	D+	D+
3060	Monterey Hwy/First St. (SR 82)	Alma Av.	San Jose	San Jose	D	D	NM	D	D	D	D	D	D	D	D+	D	D	D	D	D	D	D
3061	E. San Carlos St. (Rte 82)	Almaden Blvd.	San Jose	San Jose	D	D	NM	D	D	E	D	D	D+	D+	C-	C-	D	D+	D+	C-	C-	C-
3062	Alum Rock Av. (Rte. 130)	Capitol Av.	San Jose	State	D	D	NM	D	E	D+	D	D+	D+	NM	NM	D+	D	C-	C-	C	C	NM
3063	Alum Rock Av. (Rte. 130)	Jackson Av.	San Jose	State	D	E	D	D	E	D	D	D+	D+	D	D+	D	D-	D	D	D	D	NM
3064	Alum Rock Av. (Rte. 130)	King Rd.	San Jose	State	C	C	NM	D	D	D+	D+	D+	D+	D+	C-	C-	D	C-	C-	C-	C-	C-
3065	Alum Rock Av. (Rte. 130)	White Rd.	San Jose	State	D	D	NM	D	D	E+	E+	D	D	D	D	D	D	D	D	D	D	C-
3066	Autumn St.	Santa Clara St.	San Jose	San Jose	B	B	NM	B	B	B-	B-	B-	B-	B-	B	C	C+	B-	C+	C+	C+	B
3067	S. Bascom Av.	Camden Av.	San Jose	San Jose	D	D	NM	D	D	E	D-	D-	D	D-	D	D	D	D	D	D	D	D
3068	S. Bascom Av.	Curtner Av.	San Jose	San Jose	C	C	NM	C	B	C	C+	C	D+	C	C-	D+	D	D	D+	D+	D+	D+
3069	S. Bascom Av.	Samaritan Dr.	San Jose	San Jose	D	NM	C	D	D	D	D	D+	C	C+	C	C	D+	C-	D+	D	D	C-
3070	S. Bascom Av.	Stokes St.	San Jose	San Jose	D	D	NM	D	D	C-	C	C	C	C	C	C	C-	C	C	C	C	C
3071	S. Bascom Av.	Union Av.	San Jose	San Jose	E	D	NM	D	D	C	D+	C-	D	D	D	C-	D+	D+	D	D	D	D+
3072	Monterey Hwy. E	Bernal Rd.	San Jose	San Jose	B	B	NM	A	B	E	B	B	B	B-	B	B	B	A	B	B	B	B+
3073	Monterey Hwy. N	Bernal Rd.	San Jose	San Jose	C	C	NM	B	C	D+	C-	C-	C-	C	C	C	C	C	C	C	C	C
3074	Monterey Hwy. S	Bernal Rd.	San Jose	San Jose	A	A	NM	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A
3075	Santa Teresa Blvd.	Bernal Rd.	San Jose	San Jose	E	D	NM	D	D	D+	D	D	D	D+	C-	D+	D	D	D	D	D	D+

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3076	Berryessa Rd.	Lundy Av.	San Jose	San Jose	E	E	E	D	D	D	D	D	D-	D	D	D	D	D	D	D	D	D
3077	Bird Av. (Rte 82)	E. San Carlos St. (Rte 82)	San Jose	San Jose	C	C	NM	D	D	D+	D	D+	D	D	D+	D	D+	D+	D	D	D	D+
3078	Monterey Hwy. (Rte. 82) N	Blossom Hill Rd.	San Jose	San Jose	C	NM	B	B	C	B	B	B	C+	B	B-	B-	B-	B	C+	C	C	C
3079	Monterey Hwy. (Rte. 82) S	Blossom Hill Rd.	San Jose	San Jose	D	D	NM	C	C	C	C+	C+	C	B	C	C+	C	C+	C	C	C	C+
3080	Blossom Hill Rd.	Santa Teresa Blvd.	San Jose	San Jose	D	D	NM	D	D	D	D	D	D	D	D+	D+	D	D	D	D	D	D+
3081	Blossom Hill Rd.	Snell Avenue	San Jose	San Jose	D	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
3082	Monterey Hwy. (Rte. 82)	Branham Ln.	San Jose	San Jose	D	NM	D	D	C	D	C-	C	C-	C-	C-	C-	D+	D+	D+	C-	D	D
3083	Brokaw Rd.	First St.	San Jose	San Jose	F	NM	D	D	E	D	E+	D	D	D	D	D	D-	D-	D	D	D	D
3084	Brokaw Rd.	Old Oakland Rd.	San Jose	San Jose	D	D	NM	C	D	D	D	D	D	D	D	NM	D	D	D	D	D	D
3085	Brokaw Rd.	Zanker Rd.	San Jose	San Jose	D	D	NM	D	D	E	E+	E+	D	NM	NM	D+	D	D	D	D	D	D
3086	Hillsdale Av.	Camden Av.	San Jose	San Jose	D	C	NM	C	C	C	C-	C+	C	D+	C+	C+	C	C	C	C	B-	C
3087	Camden Av.	Leigh Av.	San Jose	San Jose	D	D	NM	D	D	D	D	D	D	D-	E+	D	D	D	D	D	D	D
3088	Camden Av.	Union Av.	San Jose	San Jose	E	E	E	D	D	D-	D-	D-	E	E	D	E	E	E	E	E+	D	E+
3089	Hamilton Av.	Campbell Av.	San Jose	San Jose	D	C	NM	C	C	C	C	C	B-	C	C	B-	B	B	B	B	C+	C
3090	Campbell Av.	Saratoga Av.	San Jose	San Jose	F	F	D	D	D	D	D	D	D	D	D	D-	D-	D-	D-	D	D	D
3091	Monterey Hwy. (Rte. 82)	Capitol Exp. N	San Jose	San Jose	B	NM	B	B	B	B	B	B	B	B	B	B	B-	B	B	B	B	B
3092	Monterey Hwy. (Rte. 82)	Capitol Exp. S	San Jose	San Jose	B	NM	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B
3093	Santa Teresa Blvd.	Coleman Rd.	San Jose	San Jose	D	C	NM	C	C	B	C	C	C	C	C	C	C	C	C	C	C	C
3094	Santa Teresa Blvd.	Cottle Rd.	San Jose	San Jose	E	E	D	D	D	D	D	D	D+	D+	D+	D	D+	D+	D+	D+	D+	D+

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3095	Monterey Hwy. (Rte. 82)	Curtner Av.	San Jose	San Jose	F	NM	D	D	D	D	D	D	D	D	D	D	E	E+	E	D-	E+
3096	Trimble Rd.	De la Cruz Blvd.	San Jose	San Jose	E	E	E	F	F	D+	E	D-	D	D	D	D	D	C-	C	C-	D
3097	S. First Street (Rte 82)	Keyes St./Goodyear	San Jose	San Jose	C	C	NM	C	C	D	C	C-	C-	C	C	C	C	C	C	C	D+
3098	Trimble Rd.	First St.	San Jose	San Jose	F	E	E	E	E	E	E+	D-	D	D	D	D	D	D	D	D	D
3099	S. First St. (Rte 82)	Willow St.	San Jose	San Jose	A	A	NM	A	A	A	A	B+	A	B+	A	A	A	A	A	A	A
3100	Guadalupe Pkwy.	Hedding St.	San Jose	San Jose	E	E	D	D	D	C-	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
3101	Guadalupe Pkwy.	Taylor St.	San Jose	San Jose	F	F	E	F	F	F	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
3102	Hillsdale Av.	Meridian Av.	San Jose	San Jose	E	E	D	D	D	D-	D	D-	D-	D-	D	D	D	D	D	D-	D
3103	Saratoga Av.	Kiely Blvd.	San Jose	San Jose	D	D	NM	D	D	D	D	D	D	D	D	D	E	D	D	D+	D
3104	Stevens Creek Blvd.	Kiely Blvd.	San Jose	San Jose	E	E	E	E	D	E	D-	D-	D-	D-	D	D	D	D	D	D+	D+
3105	Tully Rd.	King Rd.	San Jose	San Jose	D	D	NM	D	D	E+	D	D-	D-	D-	D	D	D-	D	D	D	D
3106	Murphy Av.	Lundy Av.	San Jose	San Jose	D	D	NM	D	D	D	D	D	D	D	D	D	D	D	D	D	C-
3107	E. San Carlos St. (Rte 82)	Market St.	San Jose	San Jose	D	D	NM	D	D	D	D	D	D+	D	C-	C-	D+	C-	D+	D+	C
3108	Tully Rd.	McLaughlin Av.	San Jose	San Jose	F	D	NM	D	E	D	E	E	D-	D-	D-	D	D	D-	D	D	D
3109	Monterey Hwy. (Rte. 82)	Senter Rd.	San Jose	San Jose	C	NM	C	C	B	C	C	C	C	C	C	C	C	C	C	C	C
3110	Monterey Hwy. (Rte. 82)	Skyway Dr.	San Jose	San Jose	B	NM	B	B	B	B	B	B	B-	C	C	C	C	C	C	C	C
3111	Monterey Hwy. (Rte. 82)	Tully Rd.	San Jose	San Jose	B	NM	B	B	B	B-	B	C+	B	B-	C+	C	C+	C	C	C	C
3112	Santa Clara St. (Rte 82)	Montgomery St.	San Jose	San Jose	B	A	NM	B	B	A	B-	C+	B-	B-	B	B-	B	B	A	A	A
3113	Saratoga Av.	Moorpark Av.	San Jose	San Jose	D	D	NM	D	D	D	D	D	D	D	D	D	D	D	D	D	D
3114	Tully Rd.	Quimby Rd.	San Jose	San Jose	D	D	NM	D	D	D	D+	D	D	D	D	D	D	D+	D+	D+	D

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3115	Santa Teresa Blvd.	Snell Av.	San Jose	San Jose	E	D	NM	D	D	D	D	C-	C-	C-	C-	C	C	C-	D+	D+	D+	
3116	Stevens Creek Blvd.	Saratoga Av.	San Jose	San Jose	E	E	D	D	D	D	D	D	D	D	D+	D	D+	D+	D+	D+	D+	D
3117	Tully Rd.	Senter Rd.	San Jose	San Jose	D	D	NM	D	D	NM	D-	D-	D-	D	D	D	D	D-	D	D	D	D
3118	Stevens Creek Blvd.	Winchester Blvd.	San Jose	San Jose	E	E	D	D	D	D	D	D-	D	D	D	D	D	D	D	D-	D	D
3119	Trimble Rd.	Zanker Rd.	San Jose	San Jose	D	D	NM	C	D	D	D	E+	NM	NM	NM	C-	C-	C-	D+	D+	D+	
3120	Capitol Exp.	Pearl Av.	San Jose	San Jose	D	D	NM	D	D	D	NM	D+	D+	D	C-	D+	C-	C-	D+	C-	D+	
5009	S. Bascom Av.	Fruitvale Av.	San Jose	SC County	B	C	NM	C	C	D	D-	D	D	D+	D+	D+	D+	D	D	D+	D	
5012	S. Bascom Avenue	Moorpark Av.	San Jose	SC County	C	D	NM	D	E	E+	D	D	E	E+	D	D	D	D-	D	E	E	
5108	Page Mill/Oregon Exp.	Middlefield Rd.	Palo Alto	SC County	E	E	E	E	E	E	E	E-	E	E	E	E	E	E	E+	E+	E+	E+
5120	Page Mill/Oregon Exp.	Hanover St.	Palo Alto	SC County	D	D	NM	D	D	E	E	E	E+	E+	D	D	D+	D	D	D	D	
5205	Page Mill/Oregon Exp.	Foothill Exp.	Palo Alto	SC County	F	F	F	F	F	F	F	NM	F	F	F	F	F	F	F	E-	F	F
5207	Foothill Exp.	Arastradero Rd.	Palo Alto	SC County	E	E	E	E	E	E	E	E	E	E	D-	D-	D	D-	D	D	D	D-
5213	Foothill Exp.	Main St./Burke Rd.	Los Altos	SC County	C	C	NM	C	B	C-	C	C	C	C+	C+	C	C+	C+	C+	C+	B-	B-
5214	Foothill Exp.	San Antonio Rd.	Los Altos	SC County	B	B	NM	B	C	C+	B-	B	B-	C+	B	B	B	B	B	B	E-	E+
5215	Foothill Exp.	El Monte Av.	Los Altos	SC County	D	D	NM	D	E	E	E	F	F	E	E	E+	E+	E+	D-	E	E	
5220	Foothill Exp.	Magdalena Av./Springer Rd.	Los Altos	SC County	D	E	D	D	E	E	E	E+	E+	E+	D	D	D	D	D	E	E	
5223	Foothill Exp.	Grant Rd./St. Joseph Av.	Los Altos	SC County	C	D	NM	D	D	D-	D-	D-	E	D	D	D	D	D	D	D	D	D+
5225	Foothill Exp.	Homestead Rd.	Los Altos	SC County	C	C	NM	C	D	D	D	D	D	D	D	D+	D+	D+	C-	C	C-	
5305	Central Exp.	Rengstorff Av.	Mountain View	SC County	E	E	E	E	E	E	D-	E	E	E+	D	E+	E+	D-	D	E	E	
5308	Central Exp.	Castro St./Moffet Blvd.	Mountain View	SC County	D	D	NM	D	D	D-	D	D	D	D	D	D	D	D	D	E	E	
5310	Central Exp.	Shoreline Blvd. East	Mountain View	SC County	B	B	NM	B	B	D	D	D-	D-	B	A	A	B+	B+	A	A	A	

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5311	Central Exp.	Shoreline Blvd. West	Mountain View	SC County	B	B	NM	B	B	B	B	B	B	B	A	B+	B+	B	B+	A	A
5313	Central Exp.	Whisman Rd.	Mountain View	SC County	B	B	NM	B	B	B	B	B	B	B	B	B	B	C+	B-	D+	D-
5315	Central Exp.	Hwy 237	Mountain View	SC County	B	B	NM	B	B	B	B	B	B	B	B+	A	A	B	B+	B	A
5320	Central Exp.	Mary Av.	Sunnyvale	SC County	E	E	D	D	D	D-	D	E+	D	D	D	D	D	D	D	E	E
5325	Central Exp.	Corvin Dr./Oakmead Pkwy.	Santa Clara	SC County	C	C	NM	C	D	D	E+	D-	D-	C-	C	C	C+	C+	C	D-	D
5329	Central Exp.	Bowers Av.	Santa Clara	SC County	D	D	NM	E	E	F	F	F	F	E	E+	E	E	E	D	E	E
5332	Central Exp.	Scott Blvd.	Santa Clara	SC County	E	D	NM	D	E	E+	E+	E-	E	D	D+	D	D	D-	D	E	E
5334	Central Exp.	Lafayette St.	Santa Clara	SC County	D	D	NM	E	F	F	F	F	F	E	E+	D-	E	E	D-	E	E
5335	Central Exp.	De la Cruz Blvd.	Santa Clara	SC County	E	E	E	E	F	F	F	F	F	F	F	F	F	F	F	F	F
5405	San Tomas Exp.	Stevens Creek Blvd.	Santa Clara	SC County	F	F	F	F	F	F	F	F	F	F	F	F	F	E	E	E	E
5406	San Tomas Exp.	Moorpark Av.	San Jose	SC County	E	D	NM	D	D	E+	D-	F	E+	E+	D	D	D	D	D-	D	D-
5408	San Tomas Exp.	Scott Blvd.	Santa Clara	SC County	F	F	F	F	NM	F	F	E-	E	E	D	D	D-	D	D	D-	E+
5414	San Tomas Exp.	Monroe St.	Santa Clara	SC County	E	D	NM	D	D	E	E	D-	E+	E+	D	D	D+	D+	D+	D+	D
5416	San Tomas Exp.	El Camino Real (Rte 82)	Santa Clara	SC County	F	F	F	F	F	F	F	F	F	F	E	E	E	E+	E+	E-	F
5419	San Tomas Exp.	Homestead Rd.	Santa Clara	SC County	F	E	E	E	E	E-	F	E	F	E+	E	E	E	E+	E+	E	E+
5422	San Tomas Exp.	Saratoga Av.	Santa Clara	SC County	E	E	E	E	F	F	F	F	F	F	E+	E	E+	E+	D	E+	E
5429	San Tomas Exp.	Hamilton Av.	Campbell	SC County	E	E	E	E	E	F	F	F	F	F	E	E	E+	D	D	E	E
5430	San Tomas Exp.	Campbell Av.	Campbell	SC County	F	F	E	F	F	F	F	E-	E-	E	E+	E-	E-	E	E	F	F
5432	Hwy 17 (SB)	San Tomas Expwy./Camden Av.	Campbell	SC County	F	D	NM	E	E	E-	F	F	E	D+	D+	D	E	E+	E	E-	E
5433	Hwy 17 (NB)	San Tomas Expwy./Camden Av.	Campbell	SC County	C	C	NM	C	D	E	D	F	E+	D	D	D	E+	D	D	D	D
5505	Almaden Exp.	Koch Ln.	San Jose	SC County	B	B	NM	B	B	B+	B	B+	B	B	A	A	A	A	A	B-	B-

Table 3.10 - Intersection LOS, 1991 - 2016

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	1991	1992	1993	1994/5	1996	1997	1998	2000	2001	2002	2004	2006	2008	2010	2012	2014	2016	
5512	Almaden Exp.	Branham Ln.	San Jose	SC County	F	E	E	D	D	E+	D-	E+	D-	D-	D	D	D	D	D	D-	D-	
5513	Almaden Exp.	Blossom Hill Rd.	San Jose	SC County	F	E	E	E	E	E	E	F	F	F	E	E-	E	E	E+	E+	D-	
5516	Almaden Exp.	Coleman Rd.	San Jose	SC County	F	F	F	D	E	E	D-	D-	E+	E	D	D-	D	D	D	D	D	
5520	Almaden Exp.	Camden Av.	San Jose	SC County	E	D	NM	D	E	E+	E	D-	E	E	D	D	D	D	D	D	D	
5522	Almaden Exp.	Hwy 85 N. ramp	San Jose	SC County	NM	NM	NM	C	B	C+	C	C+	C	D-	E	D	E	D	D	D	D	
5523	Almaden Exp.	Hwy 85 S. ramp	San Jose	SC County	NM	NM	NM	B	C	C	F	D-	C-	D	C	C	C	C	C	C	B-	B-
5603	Lawrence Exp.	Tasman Dr.	Sunnyvale	SC County	D	D	NM	D	NM	E+	NM	F	D-	D	D	D-	E+	D-	D-	E+	D-	
5611	Lawrence Exp.	Arques Av.	Sunnyvale	SC County	E	D	NM	E	NM	D-	E+	F	F	F	E	D	D-	E+	E+	E	E	
5613	Lawrence Exp.	Reed Av.	Sunnyvale	SC County	E	E	E	D	NM	E	E-	E	F	F	D	D	D-	D+	D	E	E	
5625	Lawrence Exp.	Homestead Rd.	Sunnyvale	SC County	F	F	F	E	NM	E+	E+	E+	E+	E	D	D-	D	D	D	E	E	
5633	Lawrence Exp.	Bollinger Rd./Moorpark Av.	San Jose	SC County	D	D	NM	D	D	D	E+	E	E	E+	E+	E+	E+	D	D	E	E+	
5635	Lawrence Exp.	Prospect Rd.	San Jose	SC County	E	E	E	D	D	D-	D-	D-	E+	E+	D	D-	D	D	D	D	D	
5636	Lawrence Exp.	Calvert Dr. (I-280 on-ramp)	San Jose	SC County	NM	NM	NM	C	NM	C	D+	C	D	D	D	D	D+	C-	C-	C	D+	
5640	Lawrence Exp.	Saratoga Av.	San Jose	SC County	F	F	F	E	E	E+	F	E+	E	E+	D	D	D	D	D	D-	D	
5711	Capitol Exp.	Narvaez Av.	San Jose	SC County	NM	NM	NM	D	D	D	D+	D	D+	D+	C-	D	D	D	D	D	D	
5713	Capitol Exp.	Hwy 87 on/off ramp	San Jose	SC County	NM	NM	NM	D	D	D-	D	E-	D-	D	C-	D	D-	D	D	D	D	
5715	Capitol Exp.	Snell Rd.	San Jose	SC County	D	D	NM	D	D	D	D	D	D	D	D+	D+	D+	D	D	D	D	
5720	Capitol Exp.	Senter Rd.	San Jose	SC County	F	F	E	E	E	E	E	E	E+	E+	D	D-	D	D	D	D-	E+	
5721	Capitol Exp.	McLaughlin Av.	San Jose	SC County	D	D	NM	D	E	E	E	D	D	D	D	D	D-	D	D	E+	D-	
5723	Capitol Exp.	Silver Creek Rd.	San Jose	SC County	F	D	NM	D	E	D	F	F	F	F	F	E	E+	E	E+	E+	E+	
5724	Capitol Exp.	Aborn Rd.	San Jose	SC County	F	F	F	E	E	D	E	D	E	E+	D	E	E-	E	E	F	F	
5725	Capitol Exp.	Quimby Rd.	San Jose	SC County	E	E	E	E	E	D-	D	E	E+	E-	D-	E-	E-	E	E	D-	E+	
5727	Capitol Exp.	Tully Rd.	San Jose	SC County	D	E	D	E	E	D	D	E+	D	D-	D	D	D-	D	D	D	D	

Table 3.10 - Intersection LOS, 1991 - 2016

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	1991	1992	1993	1994/5	1996	1997	1998	2000	2001	2002	2004	2006	2008	2010	2012	2014	2016	
5732	Capitol Exp.	Story Rd.	San Jose	SC County	F	F	E	E	F	F	F	F	F	F	E+	E	E	E	E+	E	E	
5734	Capitol Exp.	Excalibur Dr. (Capitol Av.)	San Jose	SC County	F	D	NM	D	D	F	D-	F	E+	E	F	E+	E+	E+	D-	D	D	
5801	Montague Exp.	Main St./Old Oakland Rd.	Milpitas	SC County	F	F	E	E	E	F	F	F	F	E	F	NM	E+	D	D-	F	E	
5802	Montague Exp.	Trade Zone Blvd./McCandless	Milpitas	SC County	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	E-	E+	E
5803	Montague Exp.	Capitol Av.	Milpitas	SC County	F	E	E	E	F	F	F	F	F	E	E	E+	E+	D-	D-	E+	NM	
5804	Montague Exp.	Milpitas Blvd.	Milpitas	SC County	F	E	E	E	F	F	F	F	F	F	D+	D	D+	D	D+	C-	NM	
5805	Montague Exp.	Mission College Blvd.	Santa Clara	SC County	F	D	NM	D	D	D	D+	D	D	D	D	D+	D+	D	D	E	E	
5806	Montague Exp.	De la Cruz Blvd.	Santa Clara	SC County	C	C	NM	C	D	C-	C	C	C	D	D	D+	D	D+	D	D-	E+	
5807	Montague Exp.	First St.	San Jose	SC County	F	E	E	E	F	F	F	F	F	F	E	F	F	E+	E	E+	E	
5808	Montague Exp.	Trimble Rd.	San Jose	SC County	F	F	F	F	F	F	F	F	F	E+	D	E+	E+	D	D	D-	D	
5809	Montague Exp.	McCarthy Blvd./O'Toole Av.	Milpitas	SC County	F	F	F	F	F	F	F	F	F	F	E	E	E	E	F	F	F	
5812	Montague Exp.	Zanker Rd.	San Jose	SC County	E	D	NM	D	E	D-	D-	E	E+	E	D-	E+	E	D	D-	D-	D-	



FREEWAYS

Introduction

Level of service data is collected each year for all freeway segments in Santa Clara County. Two travel directions for each freeway produce approximately 310 directional miles and multiple travel lanes in each direction yield 859 mixed-flow and 190 HOV lane miles.

Since 1991, level of service data has been collected for freeway segments in the County to identify those segments that are operating below the CMP standard of LOS E. This chapter features an analysis of traffic conditions during the AM and PM peak periods for the freeway system in Santa Clara County. For the purpose of this analysis, mixed-flow and HOV lanes are treated as separate facilities. In addition to collecting freeway level of service data, traffic counts were collected at six freeway “gateway” locations at or near the county line to measure traffic flows in and out of Santa Clara County.

Methodology

Prior to the 1997 CMP Monitoring and Conformance Report, floating vehicle techniques were used to collect the travel speed data needed to monitor freeway operations. Since 1997, VTA has used aerial photography to collect traffic data for freeway segments. This approach allows for the collection of a more comprehensive set of data that could be used to determine density, travel speed and flow rate for each freeway segment in both the AM and PM peak periods. From the aerial photographs, density is directly measured by counting vehicles in the freeway segments. Travel speeds and flow rate, or traffic volumes, are estimated using classic speed-density-volume equations calibrated for Santa Clara County conditions.

Level of Service Definitions

Table 4.1 defines the level of service thresholds used for freeway segments. Level of service is determined based on density in terms of passenger cars per mile per lane. The LOS density thresholds are based on VTA’s Level of Service Analysis Guidelines (June 2003), which adopts the Highway Capacity Manual’s (2000) values for LOS A/B, B/C and C/D. The D/E and E/F thresholds are calibrated for Santa Clara County conditions.

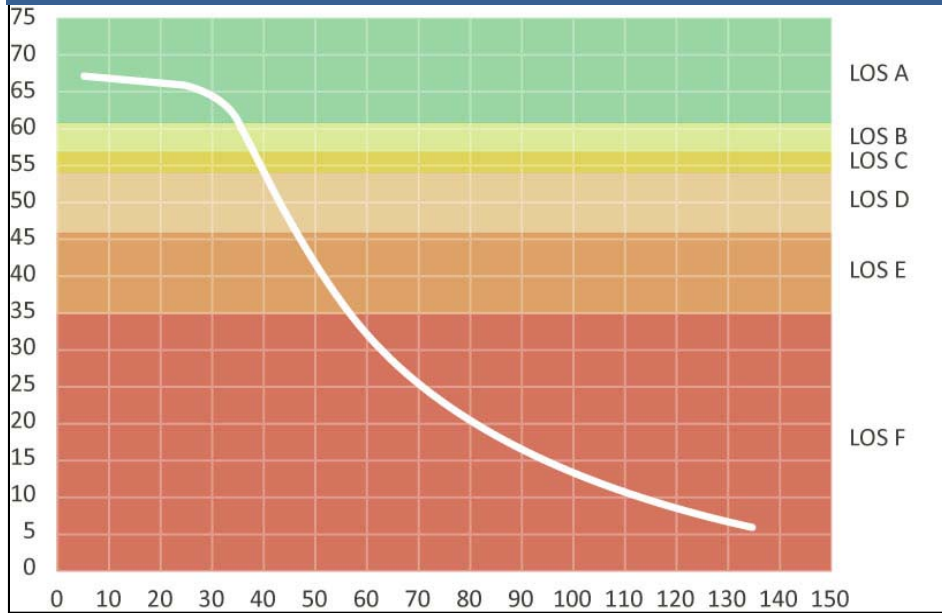
TABLE 4.1 | FREEWAY LEVEL OF SERVICE DEFINITIONS

Level of Service	Density (passenger cars/mile/lane)	Travel Speed (MPH)	Description
A	≤ 11	60 – 65	Free Flow. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. The effects of minor incidents are easily absorbed.
B	11 < density ≤ 18	57 – 60	Reasonably Free Flow. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents are easily absorbed.
C	18 < density ≤ 26	54 – 57	Stable Flow. Flows are approaching the range where small increases in traffic flows will cause substantial deterioration in service. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require additional care and vigilance by the driver. Minor incidents may still be absorbed, but the local deterioration in service will be substantial. Queues may be expected to form behind any significant blockage.
D	26 < density ≤ 46	46 – 54	Unstable Flow. Small increases in traffic flows cause substantial deterioration in service. Freedom to maneuver within the traffic stream is severely limited, and the driver experiences drastically reduced physical and psychological comfort levels. Even minor incidents can be expected to create substantial queuing because the traffic stream has little space to absorb disruptions.
E	46 < density ≤ 58	35 – 46	Capacity Flow. Operations are extremely unstable, because there are virtually no usable gaps in the traffic stream. Any incident can be expected to produce a serious breakdown with extensive queuing.
F	> 58	< 35	Forced Flow. Level of service F describes forced or breakdown flow. Such conditions generally exist within queues forming behind breakdown points. Such breakdowns occur for a number of reasons: a temporary reduction in capacity caused by a traffic incident, or a recurring point of congestion caused by a merge, a weave segment, or lane drop.

Speed Model Calibration

While research shows that there is a direct relationship between speed and density, this relationship is less straightforward than the relationship between density and speed and volume when two of the three are known. The speed density curve was re-calibrated in 2001 to account for possible travel condition differences between 2001 and 1997, when the previous curve was calibrated. Research and review of several speed-density curves resulted in a new, single regime curve based on the Van Aerde equation which is shown in Figure 4.1.

Figure 4.1 Speed Density Curve



Data Collection

Two flight patterns are used to photograph Santa Clara County’s freeway system. These patterns were defined such that each freeway segment could be photographed at a frequency of approximately one sample every 40 minutes, or four times each flight. The morning surveys were conducted approximately from 6:15 AM to 9:45 AM and the evening surveys were conducted from approximately 3:15 PM to 6:45 PM. Two morning and two evening flights were scheduled of each roadway, providing a total of 16 photographs – 8 morning and 8 evening – of each freeway segment.

Aerial photography is traditionally scheduled for September but on occasion, can extend into October depending on the weather. This year, cloudy weather was not an encumbrance during the data collection effort. Table 4.2 shows the data collection dates for the morning and evening flights.

TABLE 4.2 AERIAL PHOTOGRAPHY DATA COLLECTION SCHEDULE

AM Flights	PM Flights
Wednesday, September 7	Wednesday, September 7
Tuesday, September 27	Thursday, September 8

The density of traffic between each pair of interchanges was estimated by counting the number of vehicles between each interchange in each photo. The photo that displayed the greatest vehicle density for each freeway segment was considered to represent the peak period and was selected for analysis in the chapter. The corresponding lengths and the number of lanes were also verified from the photos. Vehicle counts were performed using four different categories: cars, buses,

trucks and tractor-trailers. The buses, trucks and tractor-trailers were assigned passenger car equivalents (PCE) by applying a 1.5 PCE for trucks and buses, and 2.0 PCE for tractor-trailers.

The AM and PM peak period densities were compared to identify the most congested time for each segment. Then, using the speed-density curve described previously, the peak density is converted to speed, level of service and volume for each freeway segment. The LOS was determined directly from the density value using the thresholds listed in Table 4.1.

Deficient Freeway Segments

Directional miles represent the number of miles of freeway for the two travel directions. For the 2016 Monitoring Program, 93 segments, with a combined length of 95 miles, are operating at LOS F in the AM peak hour and 77 segments, with a combined length of 70 miles, are at LOS F in the PM peak hour. This includes two segments observed operating at LOS F for the first time since the baseline was established in 1991. In total, 177 out of 313 directional miles of freeway segments were found to be operating at LOS F in at least one of the peak periods. This is about 6 more directional miles than the 2015 results.

Of these miles, 24 miles during the AM and 27 miles during the PM were at LOS F in the baseline 1991 year and therefore considered LOS-exempt. The remaining 71 directional miles during the AM and 67 directional miles during the PM are considered deficient.

Table 4.3 presents the mixed-flow freeway segments that were operating at LOS F in 2016 and operated at LOS F under the 1991 baseline conditions making them exempt from CMP conformance requirements. The duration of congestion, in hours, is shown in parentheses in each of these tables. Duration of congestion was determined by reviewing the data to see how long congestion lasted for each segment.

TABLE 4.3 EXEMPT MIXED-FLOW SEGMENTS OPERATING AT LOS F IN 2016

Exempt Segments at LOS F in 2016						
#	Fwy	Dir	AM/PM	Segment	Length	2016
125	I-280	WB	AM	Meridian Av. to SR 17 (I-880)	1.40	F (3.0)
124	I-280	WB	AM	SR 17 (I-880) to Winchester Blvd.	0.55	F (2.5)
123	I-280	WB	AM	Winchester Bl. to Saratoga Av.	1.37	F (2.5)
122	I-280	WB	AM	Saratoga Av. to Lawrence Expwy.	1.19	F (2.5)
121	I-280	WB	AM	Lawrence Expwy. to Wolfe Rd.	1.24	F (1.5)
40	I-680	SB	AM	Capitol Expwy. to King Rd.	1.00	F (0.5)
39	I-680	SB	AM	King Rd. to US 101	0.40	F (0.5)
12	I-880	NB	AM	I-280 to Stevens Creek Blvd.	0.41	F (0.5)
11	I-880	NB	AM	Stevens Creek Blvd. to Bascom Av.	0.84	F (0.5)
10	I-880	NB	AM	Bascom Av. to The Alameda	0.82	F (0.5)
9	I-880	NB	AM	The Alameda to Coleman Av.	0.59	F (1.5)
8	I-880	NB	AM	Coleman Av. to SR 87	0.51	F (1.0)
7	I-880	NB	AM	SR 87 to N. First St.	0.40	F (1.0)
6	I-880	NB	AM	First St. to US 101	0.49	F (0.5)
17	I-880	SB	AM	Brokaw Rd. to US 101	1.29	F (1.5)
30	SR 17	NB	AM	Bear Creek to Saratoga-Los Gatos Rd.	2.90	F (1.0)

Exempt Segments at LOS F in 2016						
#	Fwy	Dir	AM/PM	Segment	Length	2016
89	SR 237	WB	AM	I-880 to McCarthy Blvd.	0.40	F (3.0)
90	SR 237	WB	AM	McCarthy Blvd. to Zanker Rd.	0.94	F (2.5)
171	SR 85	NB	AM	I-280 to Homestead Rd.	0.34	F (2.0)
170	SR 85	NB	AM	Homestead Rd. to Fremont Rd.	1.00	F (1.5)
289	US 101	NB	AM	I-280 to Santa Clara St.	0.88	F (2.0)
290	US 101	NB	AM	Santa Clara St. to McKee Rd.	0.39	F (3.5)
291	US 101	NB	AM	McKee Rd. to Old Oakland Rd.	1.58	F (2.5)
292	US 101	NB	AM	Old Oakland Rd. to I-880	0.57	F (2.5)
293	US 101	NB	AM	I-880 to Old Bayshore Rd.	0.50	F (2.0)
294	US 101	NB	AM	Old Bayshore Rd. to N. First St.	0.49	F (3.0)
295	US 101	NB	AM	N. First St. to SR 87	0.64	F (3.5)
305	US 101	NB	AM	SR 85 to Shoreline Blvd.	0.28	F (0.5)
306	US 101	NB	AM	Shoreline Blvd. To Rengstorff Av.	1.01	F (2.0)
135	I-280	EB	PM	Foothill Expwy. to SR 85	0.70	F (0.5)
136	I-280	EB	PM	SR 85 to DeAnza Blvd.	1.31	F (2.5)
137	I-280	EB	PM	DeAnza Blvd. to Wolfe Rd.	1.06	F (1.5)
138	I-280	EB	PM	Wolfe Rd. to Lawrence Expwy.	1.24	F (0.5)
139	I-280	EB	PM	Lawrence Expwy. to Saratoga Rd.	1.19	F (1.0)
140	I-280	EB	PM	Saratoga Rd. to Winchester Blvd.	1.37	F (1.5)
16	I-880	SB	PM	Montague Expwy to Brokaw Rd.	1.35	F (2.0)
17	I-880	SB	PM	Brokaw Rd. to US 101	1.29	F (2.0)
18	I-880	SB	PM	US 101 to N First St.	0.49	F (0.5)
19	I-880	SB	PM	N. First St. to SR 87	0.40	F (1.5)
20	I-880	SB	PM	SR 87 to Coleman Rd.	0.51	F (0.5)
85	SR 237	EB	PM	Middlefield Rd./Maude Ave. to US 101	0.71	F (1.0)
81	SR 237	EB	PM	Lawrence Expwy. to Great America Pkwy.	1.27	F (3.0)
79	SR 237	EB	PM	First St. to Zanker Rd.	1.61	F (1.5)
187	SR 85	SB	PM	SR 237 to El Camino Real	0.41	F (2.5)
188	SR 85	SB	PM	El Camino Real to Fremont Rd.	1.89	F (0.5)
308	US 101	NB	PM	San Antonio Rd. to Rengstorff Av.	0.71	F (3.5)
274	US 101	SB	PM	Oregon Expwy. to San Antonio Rd.	1.85	F (2.0)
273	US 101	SB	PM	S Antonio Rd. to Rengstorff Av.	0.71	F (2.5)
264	US 101	SB	PM	Great America Pkwy to Montague Exp	0.75	F (3.5)
263	US 101	SB	PM	Montague Expy to De La Cruz Blvd.	1.28	F (3.5)
261	US 101	SB	PM	SR 87 to N. First St.	0.64	F (1.0)
260	US 101	SB	PM	N. First St. to Old Bayshore Rd.	0.49	F (3.0)
259	US 101	SB	PM	Old Bayshore Rd. to I-880	0.50	F (3.5)
258	US 101	SB	PM	I-880 to Old Oakland Rd.	0.57	F (3.5)

TABLE 4.4 NON-EXEMPT MIXED-FLOW SEGMENTS OPERATING AT LOS F IN 2016

Non-Exempt Segments at LOS F in 2016						
#	Fwy	Dir	AM/PM	Segment	Length	2016
130	I-280	WB	AM	US 101 to McLaughlin Av.	0.37	F (2.5)
129	I-280	WB	AM	McLaughlin Av. to 10th St.	0.92	F (3.0)
128	I-280	WB	AM	10th St. to SR 87	1.20	F (0.5)
127	I-280	WB	AM	SR 87 to Bird Av.	0.35	F (1.5)
126	I-280	WB	AM	Bird Av. to Meridian Av.	1.07	F (1.5)
120	I-280	WB	AM	Wolfe Rd. to DeAnza Blvd.	1.06	F (1.0)
119	I-280	WB	AM	De Anza Blvd. To SR 85	1.31	F (1.0)
118	I-280	WB	AM	SR 85 to Foothill Expwy.	0.70	F (0.5)

Non-Exempt Segments at LOS F in 2016						
#	Fwy	Dir	AM/PM	Segment	Length	2016
52	I-680	NB	AM	King Rd. to Capitol Expwy	1.00	F (1.0)
53	I-680	NB	AM	Capitol Expwy to Alum Rock Av.	0.31	F (2.0)
54	I-680	NB	AM	Alum Rock Av. to McKee Rd.	0.64	F (0.5)
42	I-680	SB	AM	McKee Rd. to Alum Rock Av.	0.64	F (1.5)
41	I-680	SB	AM	Alum Rock Av. to Capitol Expwy.	0.31	F (2.0)
15	I-880	SB	AM	Great Mall Pkwy. to Montague Expwy.	0.98	F (0.5)
16	I-880	SB	AM	Montague Expwy. to E Brokaw Rd	1.35	F (1.0)
18	I-880	SB	AM	US 101 to N. First St.	0.49	F (2.0)
19	I-880	SB	AM	N. First St. to SR 87	0.40	F (2.5)
23	I-880	SB	AM	N. Bascom Av. to Stevens Cr	0.84	F (0.5)
31	SR 17	NB	AM	Summit Rd. to Bear Creek Rd.	4.06	F (2.0)
25	SR 17	NB	AM	Hamilton Av. to I-280	1.61	F (0.5)
87	SR 237	EB	AM	SR 85 to Central Expwy.	0.63	F (0.5)
91	SR 237	WB	AM	Zanker Rd. to N. First St.	1.61	F (1.5)
92	SR 237	WB	AM	N. First St. to Grt. America Pkwy.	1.00	F (2.0)
93	SR 237	WB	AM	Grt. America Pkwy. to Lawrence Expwy.	1.27	F (2.0)
94	SR 237	WB	AM	Lawrence Expwy. to N. Fair Oaks Av.	0.63	F (2.0)
95	SR 237	WB	AM	N. Fair Oaks Av. to Mathilda Av.	0.96	F (2.5)
100	SR 237	WB	AM	SR 85 to El Camino Real	0.40	F (0.5)
183	SR 85	NB	AM	Cottle Rd. to Blossom Hill Rd.	1.96	F (0.5)
182	SR 85	NB	AM	Blossom Hill Rd. to SR 87	1.27	F (2.0)
181	SR 85	NB	AM	SR 87 to Almaden Expwy.	0.94	F (2.5)
180	SR 85	NB	AM	Almaden Expwy. to Camden Av.	1.97	F (3.0)
179	SR 85	NB	AM	Camden Av. to Union Av.	1.17	F (2.5)
178	SR 85	NB	AM	Union Ave. to Bascom Av.	1.13	F (2.5)
177	SR 85	NB	AM	Bascom Av. to SR 17	0.27	F (3.0)
176	SR 85	NB	AM	SR 17 to Winchester Blvd.	0.50	F (3.0)
175	SR 85	NB	AM	Winchester Blvd. to Saratoga Av.	2.68	F (1.5)
174	SR 85	NB	AM	Saratoga Av. to De Anza Blvd.	2.19	F (0.5)
172	SB 85	NB	AM	Stevens Creek Blvd. to I-280	0.75	F (1.0)
169	SR 85	NB	AM	Fremont Ave. to El Camino Real	1.89	F (1.0)
70	SR 87	NB	AM	SR 85 to Capitol Expwy.	1.09	F (2.0)
71	SR 87	NB	AM	Capitol Expwy. to Curtner Av.	1.49	F (3.0)
72	SR 87	NB	AM	Curtner Av. to Almaden Expwy.	0.73	F (3.0)
75	SR 87	NB	AM	I-280 to Julian St.	0.96	F (1.0)
76	SR 87	NB	AM	Julian St. to Coleman St.	0.38	F (2.5)
416	SR 87	NB	AM	Taylor St. to Airport Pkwy.	1.87	F (0.5)
418	SR 87	NB	AM	Airport Pkwy. to US 101	0.67	F (3.0)
309.02	US 101	NB	AM	San Martin Av. to Tennant Av.	3.55	F (1.5)
309.01	US 101	NB	AM	Tennant Av. to E. Dunne Av.	0.96	F (2.0)
282	US 101	NB	AM	Bernal Rd. to Silver Crk Valley Rd.	1.57	F (0.5)
283	US 101	NB	AM	Silver Crk Valley Rd. to Hellyer Rd.	1.84	F (3.0)
284	US 101	NB	AM	Hellyer Rd. to Yerba Buena Rd.	0.90	F (3.0)
285	US 101	NB	AM	Yerba Buena Rd. to Capitol Expwy.	0.80	F (3.0)
286	US 101	NB	AM	Capitol Expwy. to Tully Rd.	1.33	F (3.0)
287	US 101	NB	AM	Tully Rd. to Story Rd	1.46	F (1.5)
288	US 101	NB	AM	Story Rd to I-280	0.38	F (2.0)
296	US 101	NB	AM	SR 87 (Guadalupe) to De La Cruz Blvd.	0.77	F (3.5)
297	US 101	NB	AM	De La Cruz Blvd. to Montague Expwy.	1.28	F (2.5)

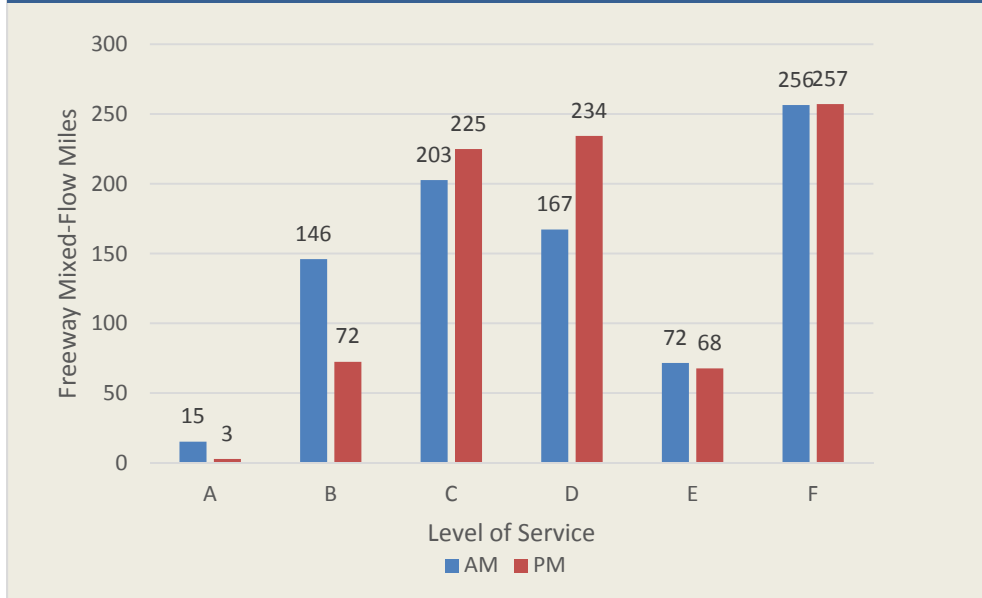
Non-Exempt Segments at LOS F in 2016						
#	Fwy	Dir	AM/PM	Segment	Length	2016
298	US 101	NB	AM	Montague to Bower Av./Great America Pkwy.	0.75	F (2.5)
299	US 101	NB	AM	Bower Av./Great America Pkwy. to Lawrence Expwy.	1.12	F (2.0)
300	US 101	NB	AM	Lawrence Expwy. to N. Fair Oaks Av.	0.98	F (2.5)
301	US 101	NB	AM	N. Fair Oaks Av. to N. Mathilda Av.	0.85	F (0.5)
303	US 101	NB	AM	SR 237 to Moffett Blvd.	1.68	F (1.0)
304	US 101	NB	AM	Moffett Blvd. to SR 85	0.33	F (2.0)
309	US 101	NB	AM	Oregon Expwy. to Embarcadero Rd.	0.15	F (0.5)
131	I-280	EB	PM	Page Mill Rd. to La Barranca Rd.	1.73	F (1.0)
132	I-280	EB	PM	La Barranca Rd. to El Monte Av.	1.60	F (1.5)
133	I-280	EB	PM	El Monte Av. to Magdalena Av.	0.95	F (3.5)
141	I-280	EB	PM	Winchester Blvd. to I-880	0.55	F (2.0)
142	I-280	EB	PM	I-880 to Meridian Av.	1.40	F (3.5)
143	I-280	EB	PM	Meridian Av. to Bird Av.	1.07	F (3.0)
144	I-280	EB	PM	Bird Av. to SR 87	0.35	F (3.0)
145	I-280	EB	PM	SR 87 to 10 th St.	1.20	F (2.0)
127	I-280	WB	PM	SR 87 to Bird Av.	0.35	F (1.0)
113.1	I-280	WB	PM	Page Mill Rd. to Alpine Rd.	2.25	F (0.5)
49	I-680	SB	PM	Jacklin Rd. to SR 237	0.85	F (0.5)
48	I-680	SB	PM	SR 237 to Yosemite Dr.	0.69	F (1.5)
47	I-680	SB	PM	Yosemite Dr. to Montague Expwy.	0.77	F (2.0)
46	I-680	SB	PM	Montague Expwy. to Capitol Av.	1.00	F (2.0)
45	I-680	SB	PM	Capitol Av. to Hostetter Rd.	0.31	F (2.5)
44	I-680	SB	PM	Hostetter Rd. to Berryessa Rd.	0.94	F (1.0)
11	I-880	NB	PM	Stevens Creek Blvd. to N. Bascom Av.	0.84	F (1.0)
10	I-880	NB	PM	N. Bascom Av. to The Alameda	0.82	F (2.0)
9	I-880	NB	PM	The Alameda to Coleman Av.	0.59	F (3.0)
8	I-880	NB	PM	Coleman Av. to SR 87	0.51	F (3.0)
7	I-880	NB	PM	SR 87 to N. First St.	0.40	F (1.0)
6	I-880	NB	PM	N. First St. to US 101	0.49	F (0.5)
14	I-880	SB	PM	SR 237/ Great Mall Pkwy.	0.72	F (0.5)
15	I-880	SB	PM	Great Mall Pkwy. to Montague Expwy.	0.98	F (1.5)
21	I-880	SB	PM	Coleman Av. to The Alameda	0.59	F (0.5)
35	SR 17	SB	PM	SR 85 to Lark Av.	0.46	F (0.5)
36	SR 17	SB	PM	Lark Av. to Saratoga Av.	1.81	F (0.5)
37	SR 17	SB	PM	Saratoga to Bear Creek Rd.	2.90	F (0.5)
38	SR 17	SB	PM	Bear Creek Rd. to Summit Rd.	4.06	F (0.5)
84	SR 237	EB	PM	US 101 to Mathilda Av.	0.53	F (2.0)
83	SR 237	EB	PM	Mathilda Av. to N. Fair Oaks Av.	0.96	F (2.0)
82	SR 237	EB	PM	N. Fair Oaks Av. to Lawrence Expwy.	0.63	F (2.5)
80	SR 237	EB	PM	Great America Pkwy. to N. First St.	1.00	F (3.0)
94	SR 237	WB	PM	Lawrence Expwy to N. Fair Oaks Av.	0.63	F (0.5)
95	SR 237	WB	PM	N. Fair Oaks Av. to Mathilda Av.	0.96	F (1.0)
96	SR 237	WB	PM	Mathilda Av. to US 101	0.53	F (0.5)
97	SR 237	WB	PM	US 101 to Middlefield Rd./Maude Av.	0.71	F (0.5)
98	SR 237	WB	PM	Maude Av. to Central Expwy.	0.53	F (1.0)
99	SR 237	WB	PM	Central Expwy. to SR 85	0.63	F (1.0)
185	SR 85	SB	PM	US 101 to Central Expwy.	1.24	F (1.0)
186	SR 85	SB	PM	Central Expwy. to SR 237	0.47	F (2.0)
191	SR 85	SB	PM	I-280 to Stevens Creek Blvd.	0.75	F (0.5)

Non-Exempt Segments at LOS F in 2016						
#	Fwy	Dir	AM/PM	Segment	Length	2016
192	SR 85	SB	PM	Stevens Creek Blvd. to Saratoga-Sunny Rd.	1.83	F (3.0)
193	SR 85	SB	PM	Saratoga-Sunny Rd. to Saratoga Av.	1.83	F (1.0)
195	SR 85	SB	PM	Winchester Blvd. to SR 17	0.50	F (1.0)
196	SR 85	SB	PM	SR 17 to Bascom Av.	0.27	F (1.5)
197	SR 85	SB	PM	Bascom Av. to Union Av.	1.13	F (3.0)
201	SR 85	SB	PM	SR 87 to Blossom Hill Rd.	1.27	F (0.5)
419	SR 87	SB	PM	US 101 to Airport Pkwy.	0.67	F (1.0)
417	SR 87	SB	PM	Airport Pkwy. to Taylor St.	1.87	F (2.5)
415	SR 87	SB	PM	Taylor St. to Coleman Av.	0.41	F (3.0)
68	SR 87	SB	PM	Julian St. to I-280	0.96	F (1.0)
67	SR 87	SB	PM	I-280 to Alma Av.	0.90	F (2.5)
66	SR 87	SB	PM	Alma Av. to Almaden Expwy.	0.69	F (1.5)
304	US 101	NB	PM	Moffett Blvd. to SR 85	0.33	F (1.0)
305	US 101	NB	PM	SR 85 to Shoreline Blvd.	0.38	F (1.0)
306	US 101	NB	PM	Shoreline Blvd. to Rengstorff Av.	1.01	F (2.5)
307	US 101	NB	PM	Rengstorff Av. to San Antonio Rd.	0.71	F (3.5)
309	US 101	NB	PM	Oregon Expwy. to Embarcadero Rd.	0.15	F (1.0)
275.08	US 101	SB	PM	Monterey Rd. to Bloomfield Av.	1.85	F (1.0)
243	US 101	SB	PM	Burnett Av. (Lane Drop) to Cochrane Rd.	0.87	F (1.0)
244	US 101	SB	PM	Sheller Av./Coyote Crk to Burnett Av. (Lane Drop)	2.57	F (0.5)
265	US 101	SB	PM	Lawrence Expwy. to Great America Pkwy	1.12	F (3.5)
266	US 101	SB	PM	N. Fair Oaks Av. to Lawrence Expwy.	0.98	F (0.5)
267	US 101	SB	PM	Mathilda Av. to N. Fair Oaks Av.	0.85	F (0.5)
268	US 101	SB	PM	SR 237 to Mathilda Av.	0.35	F (1.0)
269	US 101	SB	PM	Moffett Blvd. to SR 237	1.68	F (1.5)
270	US 101	SB	PM	SR 85 to Moffett Blvd.	0.33	F (1.0)
275	US 101	SB	PM	Embarcadero Rd. to Oregon Expwy.	0.15	F (1.5)

Mixed-Flow Level of Service Analysis

In 2016, there were 859 mixed-flow lane-miles of freeway in Santa Clara County. Figure 4.2 summarizes the overall operation of the freeway system, including lane miles operating at each LOS, regardless of CMP exemption. These values are based on the most congested time recorded for each segment during the aerial data collection.

Figure 4.2 2016 Freeway Mixed-Flow Lane Mile Operation



In total, 256 (30%) and 257 (30%) lane-miles operated at LOS F in the AM and PM time periods, respectively, in 2016. This represents a decrease of 16 lane-miles in the AM period and an increase of 29 lane-miles in the PM period from 2015. For the AM time period, LOS E increased by 4% while both LOS C and D decreased by 1 to 2%. LOS B showed minimal difference in lane-miles, and LOS A increased 1% in lane-miles. For the PM time period, lane-miles operating at LOS E increased by 1% between 2015 and 2016 while LOS D and A lane-miles decreased by 1%. LOS C showed minimal difference, and LOS B lane-miles decreased by 4%.

Figures 4.3 and 4.4 detail the percent of mixed flow lane-miles operating at each LOS over the last five (5) years for the AM and PM peak periods, respectively. Comparing 2015 AM results to the previous years, the number of lane-miles operating at LOS D, E, or F has remained in the range of 55% to 60% of all mixed flow lane-miles. The 2016 AM monitoring shows the number of mixed flow lane-miles at LOS D decreased by 14 lane-miles, LOS E increased by 35 lane-miles, and LOS F decreased by 14 lane-miles from 2015 monitoring.

During the PM peak over the last five (5) years, the number of lane-miles operating at LOS D, E, or F has remained in the range of 60% to 65% of all mixed flow lane-miles. The 2016 PM monitoring shows the number of mixed flow lane-miles at LOS D decreased by 8 lane-miles, LOS E increased by 10 lane-miles, and LOS F increased by 29 lane-miles from 2015 monitoring.

Figure 4.3 Mixed Flow Lane Miles at Each LOS, 2012-2016 (AM Peak)

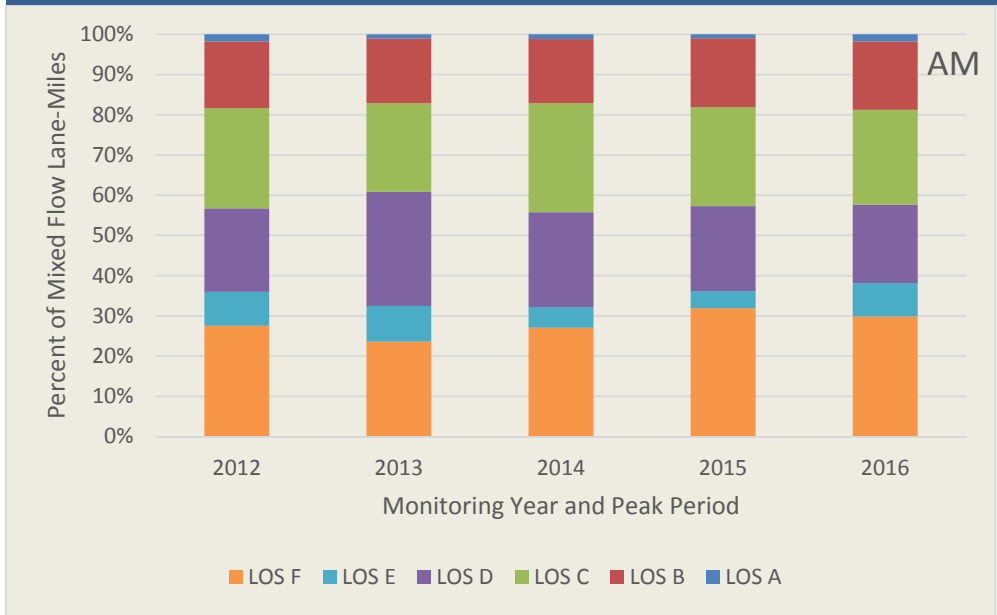


Figure 4.4 Mixed Flow Lane Miles at Each LOS, 2012-2016 (PM Peak)

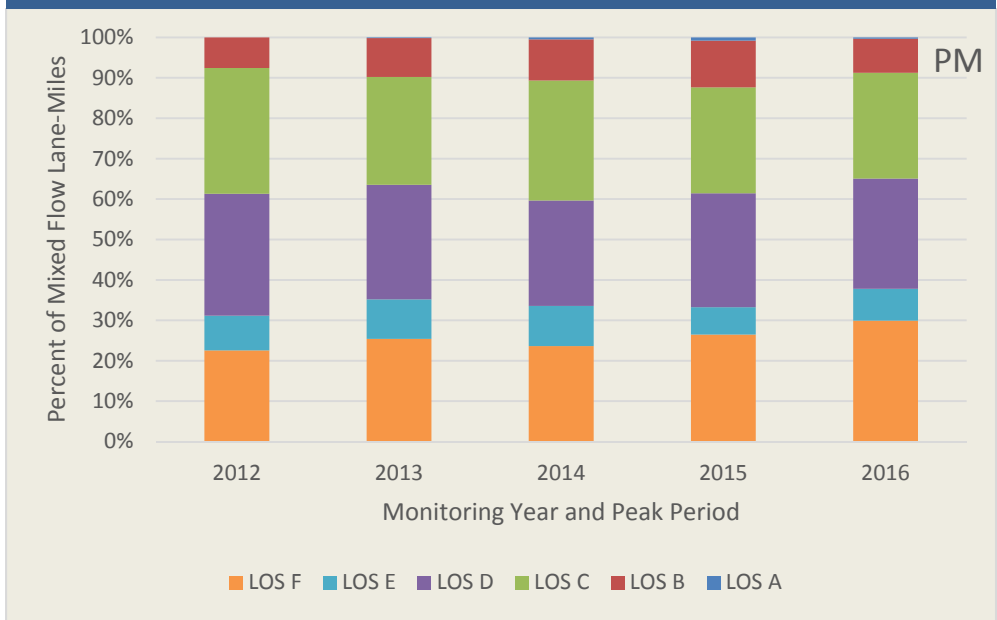


Figure 4.5 Mixed Flow Level of Service in the AM Peak Period

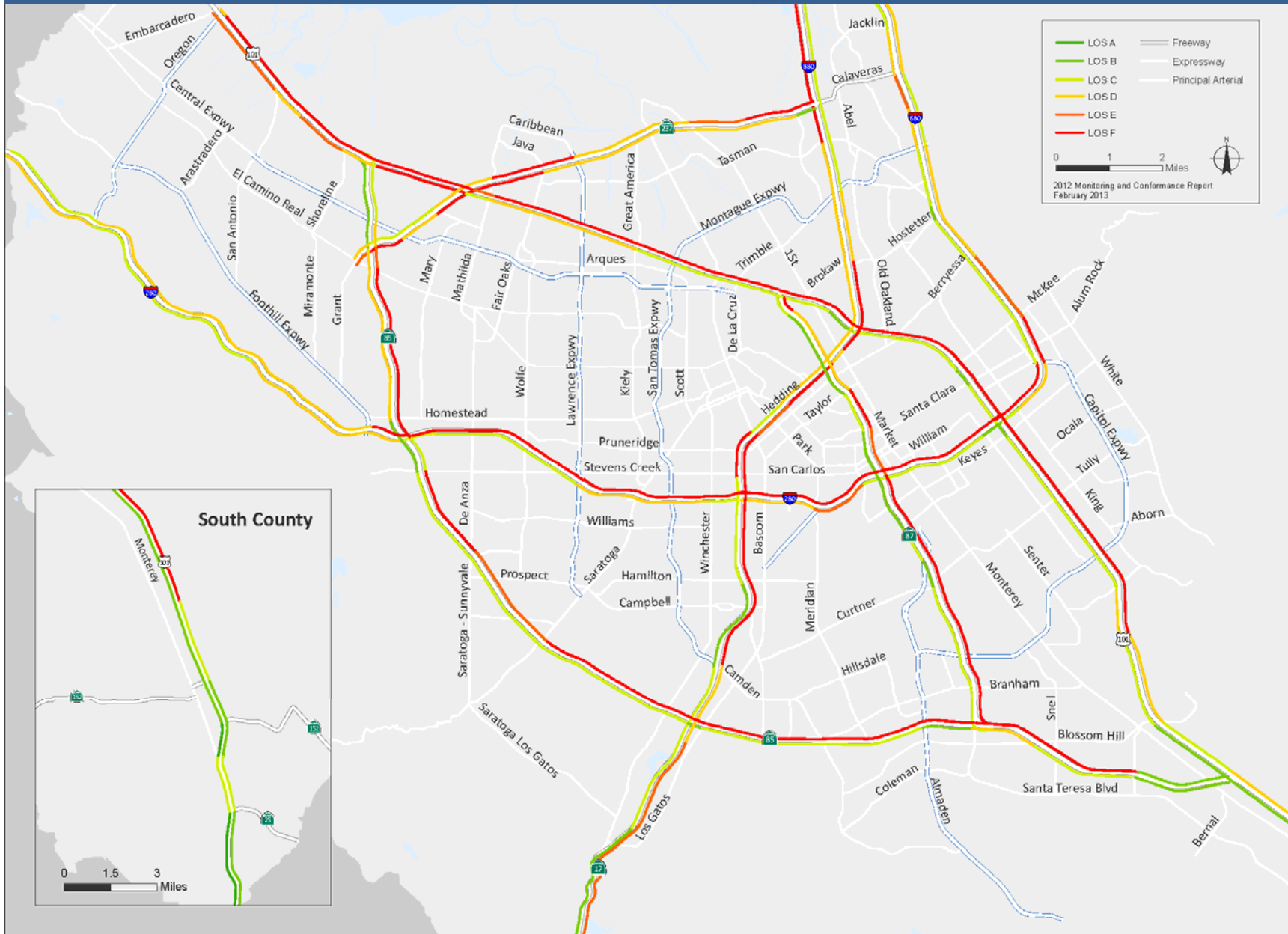
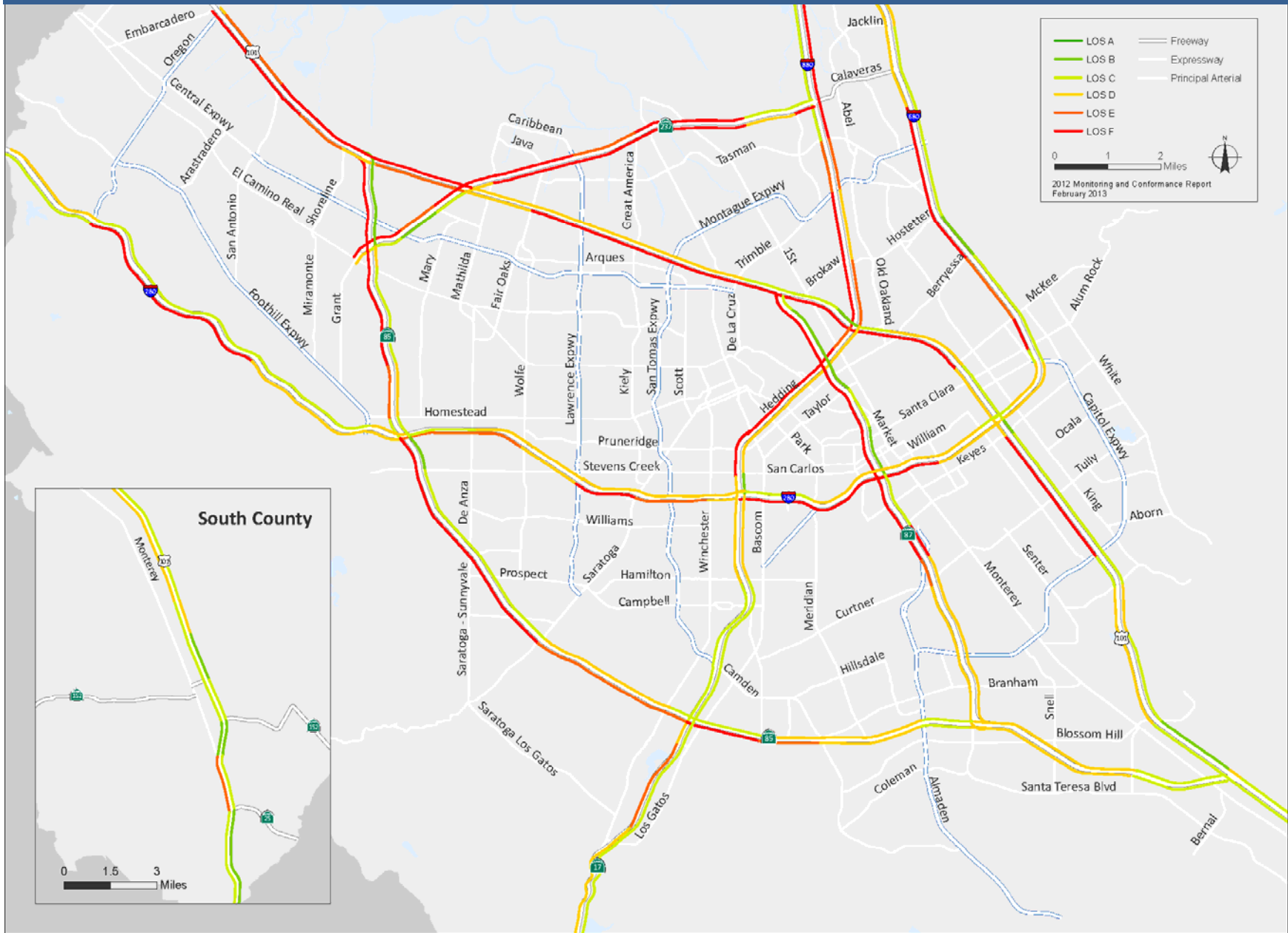
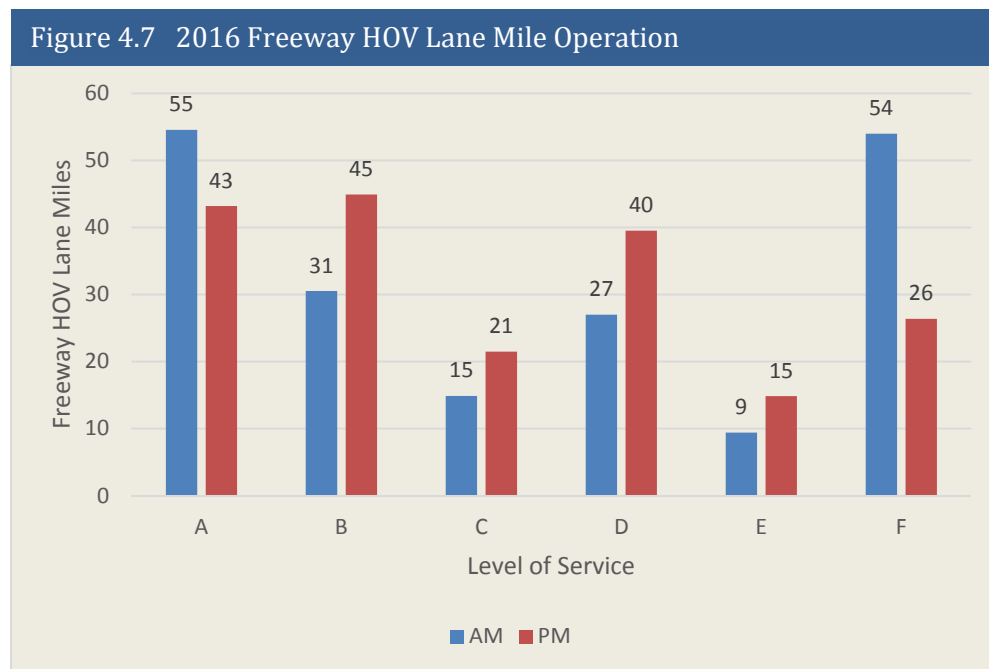


Figure 4.6 Mixed Flow Level of Service in the PM Peak Period



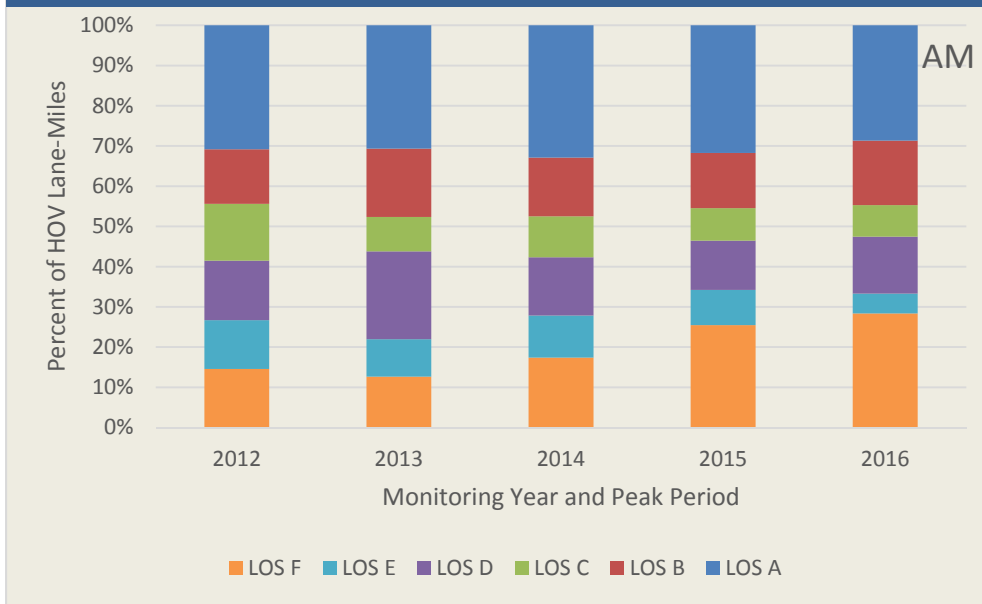
HOV Level of Service Analysis

There are 185 directional miles of HOV lanes throughout the freeway network in Santa Clara County. Figure 4.7 shows the results of the HOV lane LOS analysis for 2016. About 67% of the HOV lanes operate at LOS D or better in the AM peak down from 69% in 2015, while 78% operate at LOS D or better in the PM peak hour, down from 85% in 2015. Fewer segments operating at LOS E and LOS F in the PM peak than in the AM peak suggests that HOV lane use is more concentrated in the AM peak, resulting in slower speeds and a worse LOS during the morning. The overall decrease in HOV lanes operating at LOS D or better suggests generally higher concentrations of HOV lane use across the network, a trend observed across recent years.



HOV operates at a much higher level of service compared to mixed-flow lanes. However, some segments of the HOV system operate at LOS F. These 83 segments (16 more than in 2015) account for 54 lane-miles (10 more than in 2015) during the AM peak and 26 lane-miles (9 more than in 2015) during the PM peak. This is approximately 28% of the HOV system in the AM peak and 14% of the HOV system in the PM peak.

Figure 4.8 HOV Lane Miles at Each LOS, 2012-2016 (AM Peak)



In addition to the results for 2016, Figure 4.8 and 4.9 detail the percent of HOV lane-miles operating at each LOS grade over the last five (5) years for the AM and PM peak periods, respectively. Comparing 2016 AM results to those of the previous years, the number of lane-miles operating at LOS D, E, or F has been rising from around 40% in 2012 to 47% in 2016. The 2016 AM monitoring shows the number of HOV lane-miles at LOS D increased by 4 lane-miles, LOS E decreased by 8 lane-miles, and LOS F increased by 6 lane-miles from 2015 monitoring.

Figure 4.9 HOV Lane Miles at Each LOS, 2010-2014 (PM Peak)

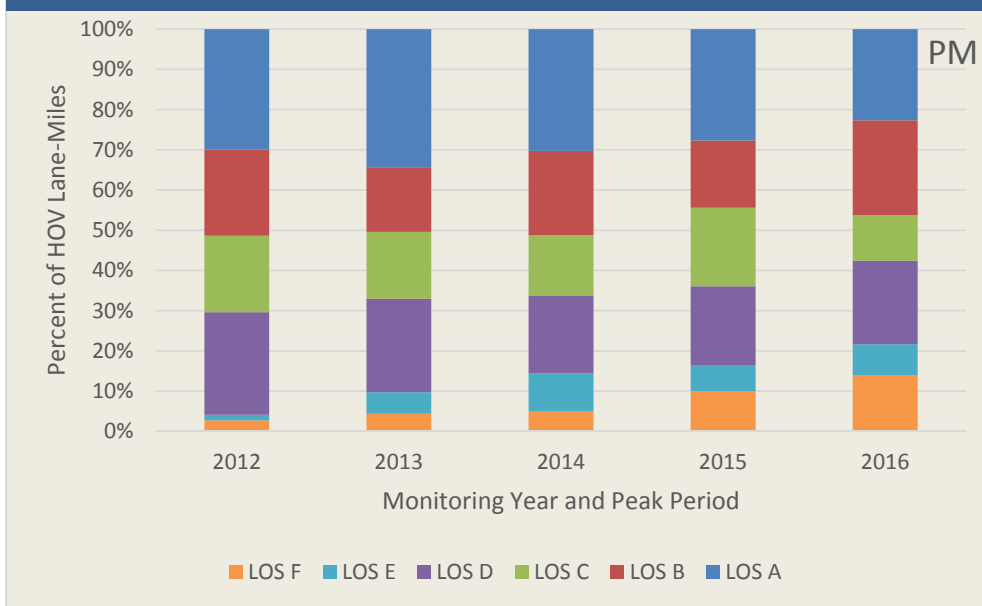


Table 4.5 and Table 4.6 present the list of HOV segments operating at LOS F in the AM and PM peaks, respectively. All segments in which the HOV lane operated at LOS F also had mixed flow operations at LOS F for 2016 except the two following segments:

- I-880 southbound – Dixon Landing to SR 237: The HOV lane operated at LOS F for 30 minutes during the AM peak due to spillback of congestion from SR 237 westbound. It is important to note however, that the intersection of I-880 and SR 237 is a freeway off-ramp and the exit freeway geometry is different versus at Dixon Landing Rd.
- US 101 northbound – Mathilda to SR 237: The HOV lane operated at LOS F for 30 minutes during the AM peak. This segment is at the end of a 12-mile section of congested mixed flow and HOV lanes. The congestion in the mixed flow lanes extends to the downstream segment (N. Fair Oaks to N. Mathilda Ave) while congestion in the HOV lane extends a little farther. Historical data show this segment has fluctuated between being congested and not congested in recent years.

HOV lanes experience two types of weaving movements: one in which drivers wishing to use the HOV lane merge from the adjacent mixed flow lanes and one in which HOV drivers wishing to exit the freeway merge into adjacent mixed flow lanes. When adjacent mixed flow lanes are congested, these merge movements can slow down vehicles in the HOV lane. The LOS F results in the HOV lanes may be the result of weaving movements rather than demand exceeding capacity. If this is the case, conditions could be improved through operational improvements such as direct interchange HOV lane connections or direct HOV-lane-to-off-ramp connections.

Figure 4.10 HOV Level of Service in the AM Peak Period

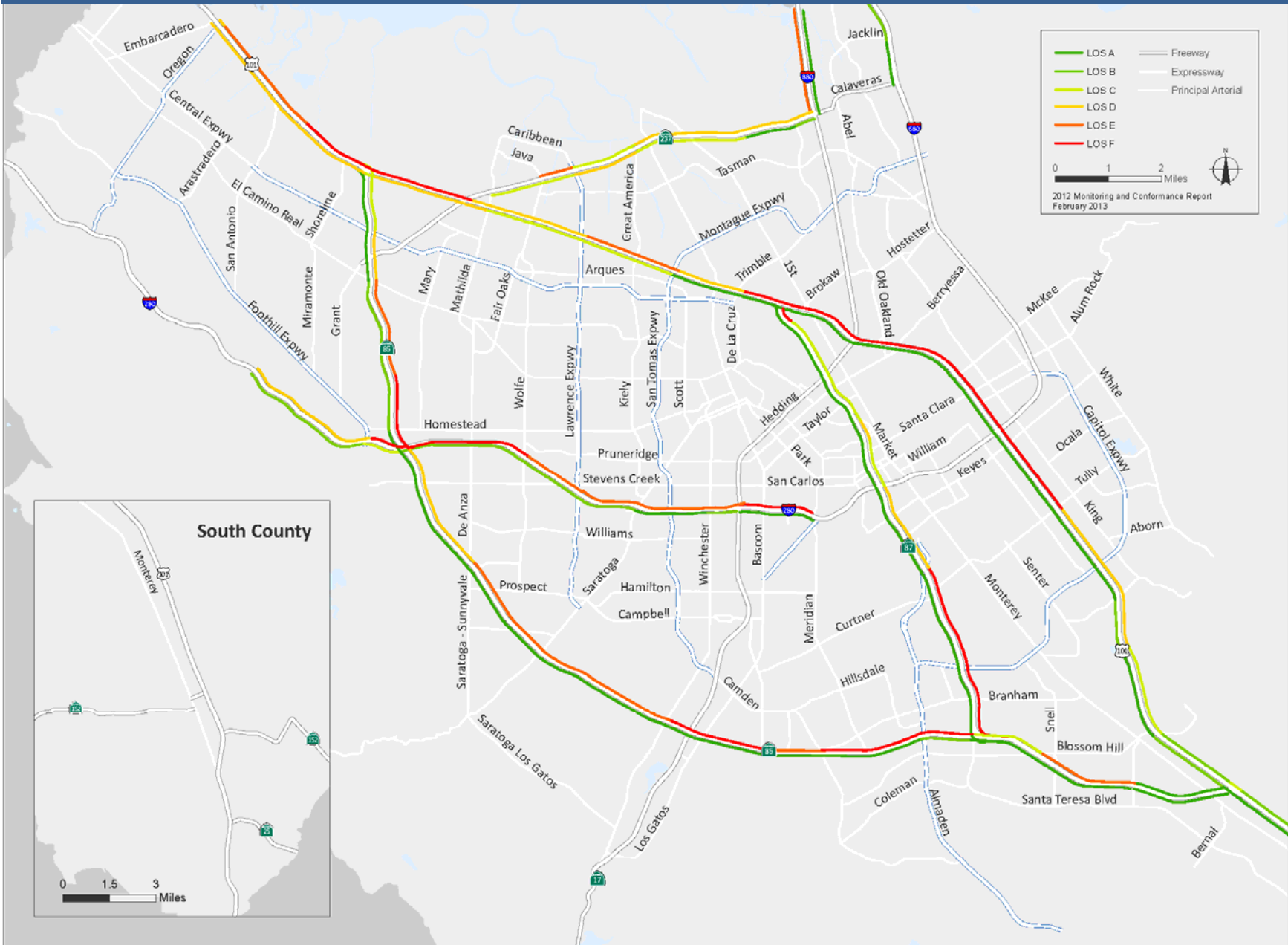


Figure 4.11 HOV Level of Service in the PM Peak Period

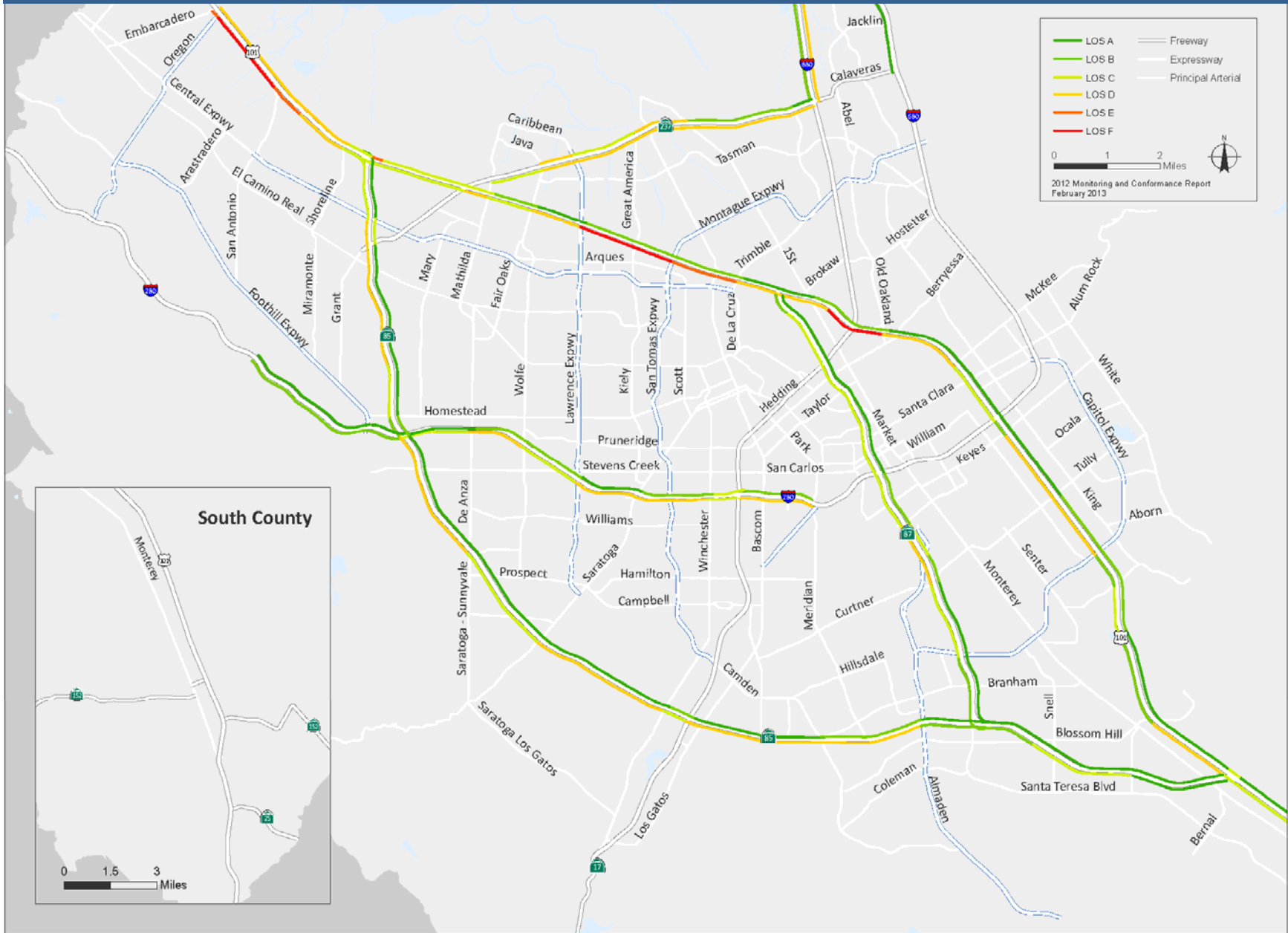


TABLE 4.5 HOV SEGMENTS AT LOS F – AM PEAK PERIOD

ID	Freeway	Dir	From	To	Length
118	I-280	WB	SR 85	Foothill Expwy.	0.7
121	I-280	WB	Lawrence Expwy.	Wolfe Rd.	1.2
122	I-280	WB	Saratoga Av.	Lawrence Expwy	1.2
123	I-280	WB	Winchester Blvd.	Saratoga Av.	1.4
124	I-280	WB	SR 17 (I-880)	Winchester Blvd.	0.6
125	I-280	WB	Meridian Av.	SR 17 (I-880)	1.4
5	I-880	NB	US 101	Brokaw Rd.	1.3
13	I-880	SB	Dixon Landing Rd.	SR 237	2.0
17	I-880	SB	Brokaw Rd.	US 101	1.3
89	SR 237	WB	I-880	McCarthy Blvd.	0.4
90	SR 237	WB	McCarthy Blvd.	Zanker Rd.	0.9
91	SR 237	WB	Zanker Rd.	N. First St	1.6
92	SR 237	WB	N. First St.	Grt. America Pkwy.	1.0
93	SR 237	WB	Grt. America Pkwy.	Lawrence Expwy	1.3
94	SR 237	WB	Lawrence Expwy.	N. Fair Oaks Av.	0.6
169	SR 85	NB	Fremont Av.	El Camino Real	1.9
170	SR 85	NB	Homestead Rd.	Fremont Rd.	1.0
171	SR 85	NB	I-280	Homestead Rd.	0.3
172	SR 85	NB	Stevens Creek Blvd.	I-280	0.8
175	SR 85	NB	Winchester Blvd.	Saratoga Av.	2.7
176	SR 85	NB	SR 17	Winchester Blvd.	0.5
177	SR 85	NB	Bascom Av.	SR 17	0.3
178	SR 85	NB	Union Av.	Bascom Av.	1.1
179	SR 85	NB	Camden Av.	Union Av.	1.2
180	SR 85	NB	Almaden Expwy.	Camden Av.	2.0
181	SR 85	NB	SR 87	Almaden Expwy.	0.9
182	SR 85	NB	Blossom Hill Rd.	SR 87	1.3
70	SR 87	NB	SR 85	Capitol Expwy.	1.1
71	SR 87	NB	Capitol Expwy.	Curtner Av.	1.5
72	SR 87	NB	Curtner Av.	Almaden Expwy.	0.7
75	SR 87	NB	I-280	Julian St.	1.0
76	SR 87	NB	Julian St.	Coleman St.	0.4
418	SR 87	NB	Airport Rd.	US 101	0.7
283	US 101	NB	Silver Crk Valley Rd.	Hellyer Rd.	1.8
284	US 101	NB	Hellyer Rd.	Yerba Buena Rd.	0.9
286	US 101	NB	Capitol Expwy.	Tully Rd.	1.3
287	US 101	NB	Tully Rd.	Story Rd.	1.5
288	US 101	NB	Story Rd.	I-280	0.4
295	US 101	NB	N. First St.	SR 87	0.6

297	US 101	NB	De La Cruz Blvd.	Montague Expwy.	1.3
298	US 101	NB	Montague Expwy.	Bower Av./Great American Pkwy.	0.8
300	US 101	NB	Lawrence Expwy.	N. Fair Oaks Av.	1.0
302	US 101	NB	Mathilda Av.	SR 237	0.4
304	US 101	NB	Moffett Blvd.	SR 85	0.3
309	US 101	NB	Oregon Expwy.	Embarcadero Rd.	0.2
285	US 101	NB	Yerba Buena Rd.	Capitol Expwy.	0.8
289	US 101	NB	I-280	Santa Clara St.	0.9
290	US 101	NB	Santa Clara St.	McKee Rd.	0.4
291	US 101	NB	McKee Rd.	Old Oakland Rd.	1.6
292	US 101	NB	Old Oakland Rd.	I-880	0.6
293	US 101	NB	I-880	Old Bayshore Rd.	0.5
294	US 101	NB	Old Bayshore Rd.	N. First St.	0.5
296	US 101	NB	SR 87	De La Cruz Blvd.	0.8
299	US 101	NB	Bower Av./Great American Pkwy.	Lawrence Expwy.	1.1
303	US 101	NB	SR 237	Moffett Blvd.	1.7
Total Congested Miles on I-280					6.5
Total Congested Miles on I-880					4.6
Total Congested Miles on SR 237					5.9
Total Congested Miles on SR 85					13.9
Total Congested Miles on SR 87					5.3
Total Congested Miles on US-101					19.2

TABLE 4.6 HOV SEGMENTS AT LOS F – PM PEAK PERIOD

ID	Freeway	Dir	From	To	Length
136	I-280	EB	SR 85	DeAnza Blvd.	1.3
137	I-280	EB	DeAnza Blvd.	Wolfe Rd.	1.1
140	I-280	EB	Saratoga Rd.	Winchester Blvd.	1.4
141	I-280	EB	Winchester Blvd.	I-880	0.6
142	I-280	EB	I-880	Meridian Av.	1.4
80	SR 237	EB	Great America Pkwy.	N. First St.	1.0
81	SR 237	EB	Lawrence Expwy.	Great America Pkwy.	1.3
82	SR 237	EB	N. Fair Oaks Av.	Lawrence Expwy.	0.6
83	SR 237	EB	Mathilda Av.	N. Fair Oaks Av.	1.0
185	SR 85	SB	US 101	Central Expwy.	1.2
186	SR 85	SB	Central Expwy.	SR 237	0.5
187	SR 85	SB	SR 237	El Camino Real	0.4
191	SR 85	SB	I-280	Stevens Creek Blvd.	0.8
192	SR 85	SB	Stevens Creek Blvd.	Saratoga-Sunnyvale Rd.	1.8
196	SR 85	SB	SR 17	Bascom Av.	0.3

ID	Freeway	Dir	From	To	Length
197	SR 85	SB	Bascom Av.	Union Av.	1.1
309	US 101	NB	Oregon Expwy.	Embarcadero Rd.	0.2
244	US 101	SB	Sheller Av./Coyote Crk	Burnett Av. (Lane Drop)	2.6
258	US 101	SB	I-880	Old Oakland Rd.	0.6
259	US 101	SB	Old Bayshore Rd.	I-880	0.5
260	US 101	SB	N. First St.	Old Bayshore Rd.	0.5
261	US 101	SB	SR 87	N. First St.	0.6
263	US 101	SB	Montague Expwy.	De La Cruz Blvd.	1.3
264	US 101	SB	Great America Pkwy.	Montague Expwy.	0.8
265	US 101	SB	Lawrence Expwy.	Great America Pkwy.	1.1
266	US 101	SB	N. Fair Oaks Av.	Lawrence Expwy.	1.0
267	US 101	SB	Mathilda Av.	N. Fair Oaks Av.	0.9
268	US 101	SB	SR 237	Mathilda Av.	0.4
270	US 101	SB	SR 85	Moffett Blvd.	0.3
275	US 101	SB	Embarcadero Rd.	Oregon Expwy	0.2
Total Congested Miles on I-280					5.7
Total Congested Miles on SR 237					3.9
Total Congested Miles on SR 85					6.1
Total Congested Miles on US 101					10.7

Table 4.7 2016 Freeway LOS – AM Peak Period

ID	Facility	Dir	From/To		Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
			From/To	From/To		Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV		
31	SR 17	NB	Summit Rd.	Bear Creek Rd.	4.06	2	2	0	07:40 - 08:00	92	0	F		16		2950	
30	SR 17	NB	Bear Creek Rd.	Saratoga Av.	2.90	2	2	0	08:20 - 08:40	63	0	F		31		3910	
29	SR 17	NB	Saratoga Av.	Lark Av.	1.81	2	2	0	08:20 - 08:40	50	0	E		42		4200	
28	SR 17	NB	Lark Av.	SR 85	0.46	2	2	0	07:20 - 07:40	32	0	D		64		4100	
27	SR 17	NB	SR 85	San Tomas Expwy. / Camden Av.	1.17	3	3	0	06:40 - 07:00	24	0	C		66		4760	
26	SR 17	NB	San Tomas Expwy. / Camden Av.	Hamilton Av.	1.82	3	3	0	08:20 - 08:40	52	0	E		40		6240	
25	SR 17	NB	Hamilton Av.	I-280	1.61	3	3	0	06:40 - 07:00	59	0	F		34		6020	
184	SR 85	NB	US 101	Cottle Rd.	1.79	3	2	1	07:00 - 07:20	46	44	D	D	47	50	4330	2200
183	SR 85	NB	Cottle Rd.	Blossom Hill Rd.	1.96	3	2	1	08:00 - 08:20	78	48	F	E	22	45	3440	2160
182	SR 85	NB	Blossom Hill Rd.	SR 87	1.27	3	2	1	08:00 - 08:20	103	101	F	F	13	14	2680	1420
181	SR 85	NB	SR 87	Almaden Expwy.	0.94	3	2	1	08:00 - 08:20	116	102	F	F	10	13	2320	1330
180	SR 85	NB	Almaden Expwy.	Camden Av.	1.97	3	2	1	08:40 - 09:00	107	100	F	F	12	14	2570	1400
179	SR 85	NB	Camden Av.	Union Av.	1.17	3	2	1	07:00 - 07:20	107	81	F	F	12	21	2570	1710
178	SR 85	NB	Union Av.	S. Bascom Av.	1.13	3	2	1	07:00 - 07:20	91	100	F	F	17	14	3100	1400
177	SR 85	NB	S. Bascom Av.	SR 17	0.27	3	2	1	08:40 - 09:00	114	116	F	F	10	10	2280	1160
176	SR 85	NB	SR 17	Winchester Blvd.	0.50	3	2	1	08:20 - 08:40	117	122	F	F	10	9	2340	1100
175	SR 85	NB	Winchester Blvd.	Saratoga Av.	2.68	3	2	1	07:00 - 07:20	81	65	F	F	21	29	3410	1890
174	SR 85	NB	Saratoga Av.	Saratoga-Sunnyvale Rd.	2.19	3	2	1	07:00 - 07:20	64	50	F	E	30	42	3840	2100
173	SR 85	NB	Saratoga-Sunnyvale Rd.	Stevens Creek Blvd.	1.83	3	2	1	07:00 - 07:20	49	33	E	D	43	64	4220	2120
172	SR 85	NB	Stevens Creek Blvd.	I-280	0.75	3	2	1	08:20 - 08:40	72	106	F	F	25	12	3600	1280
171	SR 85	NB	I-280	W. Homestead Rd.	0.34	3	2	1	08:40 - 09:00	111	126	F	F	11	8	2940	1010
170	SR 85	NB	W. Homestead Rd.	W. Fremont Av.	1.00	3	2	1	08:40 - 09:00	103	109	F	F	13	12	2680	1310
169	SR 85	NB	W. Fremont Av.	El Camino Real	1.89	3	2	1	09:00 - 09:20	73	78	F	F	25	22	3650	1720
168	SR 85	NB	El Camino Real	SR 237	0.41	3	2	1	08:40 - 09:00	41	42	D	D	54	52	4430	2190
167	SR 85	NB	SR 237	Central Expwy.	0.47	3	2	1	08:00 - 08:20	21	22	C	C	66	66	2780	1460
166	SR 85	NB	Central Expwy.	US 101	1.24	3	2	1	08:20 - 08:40	34	32	D	D	63	64	4290	2050

Table 4.7 2016 Freeway LOS – AM Peak Period

ID	Facility	Dir	From/To		Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
			From/To	From/To		Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV		
70	SR 87	NB	SR 85	Capitol Expwy.	1.09	3	2	1	07:40 - 08:00	95	137	F	F	15	6	2850	830
71	SR 87	NB	Capitol Expwy.	Curtner Av.	1.49	3	2	1	07:40 - 08:00	113	100	F	F	11	14	2490	1400
72	SR 87	NB	Curtner Av.	Almaden Rd.	0.73	3	2	1	07:20 - 07:40	108	80	F	F	12	21	2600	1680
73	SR 87	NB	Almaden Rd.	Alma Av.	0.69	3	2	1	08:00 - 08:20	58	49	E	E	35	43	4060	2110
74	SR 87	NB	Alma Av.	I-280	0.90	3	2	1	08:40 - 09:00	35	27	D	D	62	66	4340	1790
75	SR 87	NB	I-280	Julian St.	0.96	3	2	1	08:00 - 08:20	93	72	F	F	16	25	2980	1800
76	SR 87	NB	Julian St.	Coleman Av.	0.38	3	2	1	08:00 - 08:20	102	63	F	F	13	31	2660	1960
414	SR 87	NB	Coleman St.	Taylor St.	0.41	3	2	1	08:40 - 09:00	51	46	E	D	41	47	4190	2170
416	SR 87	NB	Taylor St.	Skyport Dr.	1.87	3	2	1	08:40 - 09:00	62	36	F	D	32	61	3970	2200
418	SR 87	NB	Skyport Dr.	US 101	0.67	3	2	1	09:00 - 09:20	128	102	F	F	8	13	2050	1330
309.1 1	US 101	NB	SR 156	SR 129	1.78	2	2	0	07:40 - 08:00	15	0	B		67		2000	
309.1	US 101	NB	SR 129	Betabel Rd.	1.61	2	2	0	07:20 - 07:40	16	0	B		67		2130	
309.0 9	US 101	NB	Betabel Rd.	Bloomfield Av.	4.15	2	2	0	06:40 - 07:00	17	0	B		67		2270	
309.0 8	US 101	NB	Bloomfield Av.	Monterey Rd.	1.85	2	2	0	08:00 - 08:20	24	0	C		66		3170	
309.0 7	US 101	NB	Monterey Rd.	Pacheco Pass Hwy.	1.11	3	3	0	08:00 - 08:20	21	0	C		66		4160	
309.0 6	US 101	NB	Pacheco Pass Hwy.	Leavesley Rd.	1.46	3	3	0	08:40 - 09:00	21	0	C		66		4160	
309.0 5	US 101	NB	Leavesley Rd.	Buena Vista Av.	1.60	3	3	0	06:20 - 06:40	22	0	C		66		4360	
309.0 4	US 101	NB	Buena Vista Av.	Masten Av.	1.16	3	3	0	07:40 - 08:00	20	0	C		66		3960	
309.0 3	US 101	NB	Masten Av.	San Martin Av.	2.17	3	3	0	06:20 - 06:40	24	0	C		66		4760	
309.0 2	US 101	NB	San Martin Av.	Tennant Av.	3.55	3	3	0	06:20 - 06:40	83	0	F		20		4980	
309.0 1	US 101	NB	Tennant Av.	East Dunne Av.	0.96	3	3	0	06:40 - 07:00	92	0	F		16		4420	
276	US 101	NB	East Dunne Av.	Cochrane Rd.	1.82	3	3	0	06:20 - 06:40	51	0	E		41		6280	
277	US 101	NB	Cochrane Rd.	Burnett Av. (Lane Drop)	0.87	4	3	1	06:40 - 07:00	32	23	D	C	64	66	6150	1520
278	US 101	NB	Burnett Av. (Lane Drop)	Sheller Av.	2.57	4	3	1	06:40 - 07:00	31	35	D	D	65	62	6050	2170
279	US 101	NB	Sheller Av.	Lane Drop (SB)	4.32	4	3	1	06:20 - 06:40	27	30	D	D	66	65	5310	1950

Table 4.7 2016 Freeway LOS – AM Peak Period

ID	Facility	Dir	From/To		Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
280	US 101	NB	Lane Drop (SB)	SR 85	1.00	4	3	1	08:20 - 08:40	23	17	C	B	66	67	4560	1140
281	US 101	NB	SR 85	Bernal Rd.	0.20	4	3	1	08:20 - 08:40	35	25	D	C	62	66	6510	1650
282	US 101	NB	Bernal Rd.	Silver Creek Valley Rd.	1.48	4	3	1	07:40 - 08:00	60	21	F	C	33	66	5940	1390
283	US 101	NB	Silver Creek Valley Rd.	Hellyer Av.	1.84	4	3	1	07:40 - 08:00	120	92	F	F	9	16	3240	1480
284	US 101	NB	Hellyer Av.	Yerba Buena Rd.	0.90	4	3	1	08:20 - 08:40	111	72	F	F	11	25	3670	1800
285	US 101	NB	Yerba Buena Rd.	Capitol Expwy.	0.80	4	3	1	08:20 - 08:40	101	63	F	F	14	31	4250	1960
286	US 101	NB	Capitol Expwy.	Tully Rd.	1.33	4	3	1	08:20 - 08:40	80	60	F	F	21	33	5040	1980
287	US 101	NB	Tully Rd.	Story Rd.	1.46	4	3	1	09:00 - 09:20	78	84	F	F	22	19	5150	1600
288	US 101	NB	Story Rd.	I-280	0.38	4	3	1	08:00 - 08:20	89	84	F	F	18	19	4810	1600
289	US 101	NB	I-280	Santa Clara St.	0.88	4	3	1	07:40 - 08:00	120	122	F	F	9	9	3240	1100
290	US 101	NB	Santa Clara St.	McKee Rd.	0.39	4	3	1	08:20 - 08:40	110	97	F	F	11	15	3630	1460
291	US 101	NB	McKee Rd.	Oakland Rd.	1.58	4	3	1	08:20 - 08:40	112	87	F	F	11	18	3700	1570
292	US 101	NB	Oakland Rd.	I-880	0.57	4	3	1	08:00 - 08:20	107	100	F	F	12	14	3860	1400
293	US 101	NB	I-880	Old Bayshore Hwy.	0.50	4	3	1	09:00 - 09:20	127	98	F	F	8	15	3050	1470
294	US 101	NB	Old Bayshore Hwy.	N. First St.	0.49	4	3	1	08:20 - 08:40	122	108	F	F	9	12	3300	1300
295	US 101	NB	N. First St.	Guadalupe Pkwy.	0.64	4	3	1	08:20 - 08:40	108	110	F	F	12	11	3890	1210
296	US 101	NB	Guadalupe Pkwy.	De La Cruz Blvd.	0.77	4	3	1	07:40 - 08:00	127	107	F	F	8	12	3050	1290
297	US 101	NB	De La Cruz Blvd.	Montague Expwy. / Santa Tomas Expwy.	1.28	4	3	1	08:00 - 08:20	76	71	F	F	23	26	5250	1850
298	US 101	NB	Montague Expwy. / Santa Tomas Expwy.	Bower Av. / Great America Pkwy.	0.75	4	3	1	07:40 - 08:00	97	86	F	F	15	19	4370	1640
299	US 101	NB	Bower Av. / Great American Pkwy.	Lawrence Expwy.	1.12	4	3	1	09:00 - 09:20	93	81	F	F	16	21	4470	1710
300	US 101	NB	Lawrence Expwy.	N. Fair Oaks Av.	0.98	4	3	1	09:00 - 09:20	84	73	F	F	19	25	4790	1830
301	US 101	NB	N. Fair Oaks Av.	N. Mathilda Av.	0.85	4	3	1	07:20 - 07:40	60	54	F	E	33	38	5940	2060
302	US 101	NB	N. Mathilda Av.	SR 237	0.35	4	3	1	07:20 - 07:40	49	71	E	F	43	26	6330	1850
303	US 101	NB	SR 237	Moffett Blvd.	1.68	4	3	1	07:40 - 08:00	67	64	F	F	28	30	5630	1920
304	US 101	NB	Moffett Blvd.	SR 85	0.33	4	3	1	08:20 - 08:40	97	67	F	F	15	28	4370	1880
305	US 101	NB	SR 85	N. Shoreline Blvd.	0.38	5	4	1	07:20 - 07:40	75	34	F	D	24	63	7200	2150
306	US 101	NB	N. Shoreline Blvd.	Rengstorff Av.	1.01	5	3	2	07:40 - 08:00	70	34	F	D	26	63	5460	4290

Table 4.7 2016 Freeway LOS – AM Peak Period

ID	Facility	Dir	From/To	From/To	Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
307	US 101	NB	Rengstorff Av.	San Antonio Av.	0.71	5	3	2	07:20 - 07:40	54	25	E	C	38	66	6160	3300
308	US 101	NB	San Antonio Av.	Oregon Expwy.	1.85	5	3	2	08:20 - 08:40	58	40	E	D	35	55	6090	3520
309	US 101	NB	Oregon Expwy.	Embarcadero Rd.	0.15	4	3	1	07:40 - 08:00	68	72	F	F	27	25	5510	1800
88	SR 237	EB	El Camino Real	SR 85	0.40	2	2	0	09:00 - 09:20	44	0	D		50		4400	
87	SR 237	EB	SR 85	Central Pkwy.	0.63	2	2	0	08:40 - 09:00	73	0	F		25		3650	
86	SR 237	EB	Central Pkwy.	Maude Av.	0.80	2	2	0	08:20 - 08:40	51	0	E		41		4190	
85	SR 237	EB	Maude Av.	US 101	0.71	2	2	0	08:00 - 08:20	23	0	C		66		3040	
84	SR 237	EB	US 101	Mathilda Av.	0.53	2	2	0	09:00 - 09:20	40	0	D		55		4400	
83	SR 237	EB	Mathilda Av.	N. Fair Oaks Av.	0.96	3	2	1	07:20 - 07:40	33	12	D	B	64	67	4230	810
82	SR 237	EB	N. Fair Oaks Av.	Lawrence Expwy.	0.63	3	2	1	07:20 - 07:40	33	19	D	C	64	66	4230	1260
81	SR 237	EB	Lawrence Expwy.	Great America Pkwy.	1.27	3	2	1	08:00 - 08:20	32	18	D	B	64	67	4100	1210
80	SR 237	EB	Great America Pkwy.	N. First St.	1.00	3	2	1	08:40 - 09:00	32	21	D	C	64	66	4100	1390
79	SR 237	EB	N. First St.	Zanker Rd.	1.61	3	2	1	08:40 - 09:00	45	15	D	B	48	67	4320	1010
78	SR 237	EB	Zanker Rd.	McCarthy Blvd.	0.94	3	2	1	08:40 - 09:00	28	15	D	B	66	67	3670	1010
77	SR 237	EB	McCarthy Blvd.	I-880	0.40	3	2	1	08:20 - 08:40	21	7	C	A	66	67	2860	470
130.1	I-280	EB	Alpine Rd.	Page Mill Rd.	2.25	4	4	0	08:00 - 08:20	29	0	D		65		7540	
131	I-280	EB	Page Mill Rd.	La Barranta Rd.	1.73	4	4	0	08:20 - 08:40	22	0	C		66		5810	
132	I-280	EB	La Barranta Rd..	El Monte Rd	1.60	4	4	0	08:00 - 08:20	15	0	B		67		3990	
133	I-280	EB	El Monte Rd.	Magdalena Av.	0.95	4	4	0	09:00 - 09:20	24	0	C		66		6340	
134	I-280	EB	Magdalena Av.	Foothill Expwy.	2.65	4	3	1	08:20 - 08:40	25	10	C	A	66	67	4950	670
135	I-280	EB	Foothill Expwy.	SR 85	0.70	4	3	1	07:40 - 08:00	23	11	C	A	66	67	4560	740
136	I-280	EB	SR 85	De Anza Blvd.	1.31	4	3	1	08:00 - 08:20	22	12	C	B	66	67	4360	810
137	I-280	EB	De Anza Blvd.	Wolfe Rd.	1.06	4	3	1	07:40 - 08:00	22	22	C	C	66	66	4360	1460
138	I-280	EB	Wolfe Rd.	Lawrence Expwy.	1.24	4	3	1	08:00 - 08:20	21	12	C	B	66	67	4160	810
139	I-280	EB	Lawrence Expwy.	Saratoga Av.	1.19	4	3	1	08:20 - 08:40	37	14	D	B	59	67	6550	940
140	I-280	EB	Saratoga Av.	Winchester Blvd.	1.37	4	3	1	08:00 - 08:20	34	13	D	B	63	67	6430	880
141	I-280	EB	Winchester Blvd.	I-880	0.55	4	3	1	07:40 - 08:00	22	16	C	B	66	67	4360	1080

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ID	Facility	Dir	From/To	From/To	Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
142	I-280	EB	I-880	Meridian Av.	1.40	4	3	1	08:20 - 08:40	23	12	C	B	66	67	4560	810
143	I-280	EB	Meridian Av.	Bird Av.	1.07	4	4	0	08:20 - 08:40	46	0	D		47		8650	
144	I-280	EB	Bird Av.	SR 87	0.35	4	4	0	08:20 - 08:40	21	0	C		66		5550	
145	I-280	EB	SR 87	10th St.	1.20	4	4	0	08:00 - 08:20	17	0	B		67		4530	
146	I-280	EB	10th St.	McLaughlin Av.	0.92	4	4	0	07:00 - 07:20	21	0	C		66		5550	
147	I-280	EB	McLaughlin Av.	US 101	0.37	4	4	0	08:00 - 08:20	18	0	B		67		4790	
51	I-680	NB	US 101	King Rd.	0.40	4	4	0	07:40 - 08:00	25	0	C		66		6600	
52	I-680	NB	King Rd.	Capitol Expwy.	1.00	4	4	0	07:40 - 08:00	80	0	F		21		6720	
53	I-680	NB	Capitol Expwy.	Alum Rock Av.	0.31	4	4	0	08:20 - 08:40	85	0	F		19		6460	
54	I-680	NB	Alum Rock Av.	McKee Rd.	0.64	4	4	0	08:20 - 08:40	71	0	F		26		7390	
55	I-680	NB	McKee Rd.	Berryessa Rd.	1.47	4	4	0	08:20 - 08:40	46	0	D		47		8650	
56	I-680	NB	Berryessa Rd.	Hostetter Rd.	0.94	4	4	0	08:20 - 08:40	41	0	D		54		8860	
57	I-680	NB	Hostetter Rd.	Capitol Av.	0.31	4	4	0	08:20 - 08:40	50	0	E		42		8400	
58	I-680	NB	Capitol Av.	Montague Expwy.	1.00	4	4	0	08:20 - 08:40	55	0	E		37		8140	
59	I-680	NB	Montague Expwy.	Yosemite Dr.	0.77	4	4	0	07:20 - 07:40	23	0	C		66		6080	
60	I-680	NB	Yosemite Dr.	Calaveras Blvd./ SR 237	0.69	4	4	0	06:40 - 07:00	22	0	C		66		5810	
61	I-680	NB	Calaveras Blvd./ SR 237	Jacklin Rd.	0.85	3	3	0	09:00 - 09:20	39	0	D		57		6670	
62	I-680	NB	Jacklin Rd.	Scott Creek Rd.	1.57	3	3	0	08:20 - 08:40	28	0	D		66		5510	
12	I-880	NB	I-280	Stevens Creek Blvd.	0.41	3	3	0	08:40 - 09:00	98	0	F		15		4410	
11	I-880	NB	Stevens Creek Blvd.	N. Bascom Av.	0.84	3	3	0	08:40 - 09:00	116	0	F		10		3480	
10	I-880	NB	N. Bascom Av.	The Alameda	0.82	3	3	0	08:00 - 08:20	68	0	F		27		5510	
9	I-880	NB	The Alameda	Coleman Av.	0.59	3	3	0	09:00 - 09:20	95	0	F		15		4280	
8	I-880	NB	Coleman Av.	SR 87	0.51	3	3	0	08:00 - 08:20	86	0	F		19		4910	
7	I-880	NB	SR 87	N. 1st St.	0.40	3	3	0	08:40 - 09:00	61	0	F		32		5860	
6	I-880	NB	N. 1st St.	US 101	0.49	3	3	0	09:00 - 09:20	67	0	F		28		5630	
5	I-880	NB	US 101	E. Brokaw Rd.	1.29	4	3	1	08:00 - 08:20	48	14	E	B	45	67	6480	940
4	I-880	NB	E. Brokaw Rd.	Montague Expwy.	1.35	4	3	1	08:20 - 08:40	24	18	C	B	66	67	4760	1210

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ID	Facility	Dir	From/To	From/To	Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
3	I-880	NB	Montague Expwy.	Great Mall Pkwy.	0.98	4	3	1	06:40 - 07:00	22	17	C	B	66	67	4360	1140
2	I-880	NB	Great Mall Pkwy.	SR 237	0.72	4	3	1	06:20 - 06:40	27	27	D	D	66	66	5310	1790
1	I-880	NB	SR 237	Dixon Landing Rd.	1.99	4	3	1	08:00 - 08:20	24	11	C	A	66	67	5390	740
32	SR 17	SB	I-280	Hamilton Av.	1.61	3	3	0	08:20 - 08:40	32	0	D		64		6150	
33	SR 17	SB	Hamilton Av.	San Tomas Expwy. / Camden Av.	1.82	3	3	0	08:20 - 08:40	20	0	C		66		4490	
34	SR 17	SB	San Tomas Expwy / Camden Av.	SR 85	1.17	3	3	0	08:40 - 09:00	19	0	C		66		3770	
35	SR 17	SB	SR 85	Lark Av.	0.46	2	2	0	08:40 - 09:00	19	0	C		66		2510	
36	SR 17	SB	Lark Av.	Saratoga Av.	1.81	2	2	0	08:00 - 08:20	54	0	E		38		4110	
37	SR 17	SB	Saratoga Av.	Bear Creek Rd.	2.90	2	2	0	09:20 - 09:40	21	0	C		66		2780	
38	SR 17	SB	Bear Creek Rd.	Summit Rd.	4.06	2	2	0	08:20 - 08:40	19	0	C		66		2510	
185	SR 85	SB	US 101	Central Expwy.	1.24	3	2	1	07:20 - 07:40	16	5	B	A	67	67	2130	340
186	SR 85	SB	Central Expwy.	SR 237	0.47	3	2	1	07:20 - 07:40	15	7	B	A	67	67	2000	470
187	SR 85	SB	SR 237	EL Camino Real	0.41	4	3	1	07:20 - 07:40	31	14	D	B	65	67	5040	940
188	SR 85	SB	EL Camino Real	W. Fremont Av.	1.89	3	2	1	08:00 - 08:20	38	16	D	B	58	67	4410	1080
189	SR 85	SB	W. Fremont Av.	W. Homestead Rd.	1.00	3	2	1	08:00 - 08:20	39	18	D	B	57	67	4450	1210
190	SR 85	SB	W. Homestead Rd.	I-280	0.41	3	2	1	07:00 - 07:20	17	9	B	A	67	67	2270	610
191	SR 85	SB	I-280	Stevens Creek Blvd.	0.75	3	2	1	08:40 - 09:00	14	9	B	A	67	67	2240	610
192	SR 85	SB	Stevens Creek Blvd.	Saratoga-Sunnyvale Rd.	1.83	3	2	1	07:20 - 07:40	15	7	B	A	67	67	2000	470
193	SR 85	SB	Saratoga-Sunnyvale Rd.	Saratoga Av.	2.19	3	2	1	08:40 - 09:00	18	8	B	A	67	67	2400	540
194	SR 85	SB	Saratoga Av.	Winchester Blvd.	2.68	3	2	1	08:00 - 08:20	24	7	C	A	66	67	3170	470
195	SR 85	SB	Winchester Blvd.	SR 17	0.50	3	2	1	07:20 - 07:40	12	10	B	A	67	67	1600	670
196	SR 85	SB	SR 17	S. Bascom Av.	0.27	3	2	1	08:00 - 08:20	18	11	B	A	67	67	2400	740
197	SR 85	SB	S. Bascom Av.	Union Av.	1.13	3	2	1	07:20 - 07:40	22	7	C	A	66	67	2910	470
198	SR 85	SB	Union Av.	Camden Av.	1.17	3	2	1	07:20 - 07:40	33	5	D	A	64	67	4230	340
199	SR 85	SB	Camden Av.	Almaden Expwy.	1.97	3	2	1	08:00 - 08:20	21	6	C	A	66	67	2780	410
200	SR 85	SB	Almaden Expwy.	SR 87	0.94	3	2	1	08:00 - 08:20	14	8	B	A	67	67	1870	540

Table 4.7 2016 Freeway LOS – AM Peak Period

ID	Facility	Dir	From/To		Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
			From/To	From/To		Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV		
201	SR 85	SB	SR 87	Blossom Hill Rd.	1.27	3	2	1	08:00 - 08:20	31	10	D	A	65	67	4030	670
202	SR 85	SB	Blossom Hill Rd.	Cottle Rd.	1.96	3	2	1	08:00 - 08:20	32	8	D	A	64	67	4100	540
203	SR 85	SB	Cottle Rd.	US 101	1.79	3	2	1	08:20 - 08:40	17	7	B	A	67	67	2270	470
419	SR 87	SB	US 101	Skyport Dr.	0.67	3	2	1	08:00 - 08:20	21	8	C	A	66	67	2780	540
417	SR 87	SB	Skyport Dr.	Taylor St.	1.87	3	2	1	07:00 - 07:20	23	4	C	A	66	67	3040	270
415	SR 87	SB	Taylor St.	Coleman St.	0.41	3	2	1	09:00 - 09:20	23	6	C	A	66	67	3040	410
69	SR 87	SB	Coleman Av.	Julian St.	0.38	3	2	1	07:20 - 07:40	30	7	D	A	65	67	3900	470
68	SR 87	SB	Julian St.	I-280	0.96	3	2	1	07:40 - 08:00	14	6	B	A	67	67	1870	410
67	SR 87	SB	I-280	Alma Av.	0.90	3	2	1	08:40 - 09:00	15	8	B	A	67	67	2000	540
66	SR 87	SB	Alma Av.	Almaden Av.	0.69	3	2	1	07:40 - 08:00	27	6	D	A	66	67	3540	410
65	SR 87	SB	Almaden Av.	Curtner Av.	0.73	3	2	1	08:40 - 09:00	20	8	C	A	66	67	2640	540
64	SR 87	SB	Curtner Av.	Capitol Expwy.	1.49	3	2	1	08:40 - 09:00	16	6	B	A	67	67	2130	410
63	SR 87	SB	Capitol Expwy.	SR 85	1.09	3	2	1	08:00 - 08:20	23	6	C	A	66	67	3040	410
275	US 101	SB	Embarcadero Rd.	Oregon Expwy.	0.15	4	3	1	09:20 - 09:40	27	36	D	D	66	61	5310	2200
274	US 101	SB	Oregon Expwy.	San Antonio Av.	1.85	5	3	2	08:20 - 08:40	37	19	D	C	59	66	6550	2010
273	US 101	SB	San Antonio Av.	Rengstorff Av.	0.71	5	3	2	08:20 - 08:40	50	19	E	C	42	66	6300	2510
272	US 101	SB	Rengstorff Av.	N. Shoreline Blvd.	1.01	5	3	2	08:20 - 08:40	38	22	D	C	58	66	6620	2910
271	US 101	SB	N. Shoreline Blvd.	SR 85	0.38	4	3	1	08:00 - 08:20	38	37	D	D	58	59	6620	2190
270	US 101	SB	SR 85	Moffett Blvd.	0.33	4	3	1	08:00 - 08:20	31	17	D	B	65	67	6050	1140
269	US 101	SB	Moffett Blvd.	SR 237	1.68	4	3	1	08:20 - 08:40	44	31	D	D	50	65	6600	2020
268	US 101	SB	SR 237	N. Mathilda Av.	0.35	4	3	1	08:20 - 08:40	23	40	C	D	66	55	4560	2200
267	US 101	SB	N. Mathilda Av.	N. Fair Oaks Av.	0.85	4	3	1	09:00 - 09:20	24	18	C	B	66	67	4760	1210
266	US 101	SB	N. Fair Oaks Av.	Lawrence Expwy.	0.98	4	3	1	08:00 - 08:20	28	17	D	B	66	67	5510	1140
265	US 101	SB	Lawrence Expwy.	Bower Av. / Great American Pkwy.	1.12	4	3	1	08:20 - 08:40	35	15	D	B	62	67	6510	1010
264	US 101	SB	Bower Av. / Great American Pkwy.	Montaque Expwy. / Santa Tomas Expwy.	0.75	4	3	1	06:40 - 07:00	21	14	C	B	66	67	4160	940
263	US 101	SB	Montaque Expwy. / Santa Tomas Expwy.	De La Cruz Blvd.	1.28	4	3	1	08:00 - 08:20	25	11	C	A	66	67	4950	740

Table 4.7 2016 Freeway LOS – AM Peak Period

ID	Facility	Dir	From/To	From/To	Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
262	US 101	SB	De La Cruz Blvd.	Guadalupe Pkwy.	0.77	4	3	1	08:20 - 08:40	25	6	C	A	66	67	4950	410
261	US 101	SB	Guadalupe Pkwy.	N. First St.	0.64	4	3	1	08:20 - 08:40	16	3	B	A	67	67	3200	210
260	US 101	SB	N. First St.	Old Bayshore Hwy.	0.49	4	3	1	07:40 - 08:00	13	2	B	A	67	67	2600	140
259	US 101	SB	Old Bayshore Hwy.	I-880	0.50	4	3	1	08:00 - 08:20	18	6	B	A	67	67	3600	410
258	US 101	SB	I-880	Oakland Rd.	0.57	4	3	1	06:20 - 06:40	18	7	B	A	67	67	3600	470
257	US 101	SB	Oakland Rd.	McKee Rd.	1.58	4	3	1	07:20 - 07:40	16	4	B	A	67	67	3200	270
256	US 101	SB	McKee Rd.	Santa Clara St.	0.39	4	3	1	06:40 - 07:00	19	10	C	A	66	67	3770	670
255	US 101	SB	Santa Clara St.	I-280	0.88	4	3	1	08:00 - 08:20	16	4	B	A	67	67	3200	270
254	US 101	SB	I-280	Story Rd.	0.38	4	3	1	08:00 - 08:20	14	5	B	A	67	67	2800	340
253	US 101	SB	Story Rd.	Tully Rd.	1.46	4	3	1	07:40 - 08:00	19	4	C	A	66	67	3770	270
252	US 101	SB	Tully Rd.	Capitol Expwy.	1.33	4	3	1	07:40 - 08:00	20	7	C	A	66	67	3960	470
251	US 101	SB	Capitol Expwy.	Yerba Buena Rd.	0.80	4	3	1	07:40 - 08:00	21	7	C	A	66	67	4160	470
250	US 101	SB	Yerba Buena Rd.	Hellyer Av.	0.90	4	3	1	07:40 - 08:00	28	7	D	A	66	67	5510	470
249	US 101	SB	Hellyer Av.	Silver Creek Valley Rd.	1.84	4	3	1	07:20 - 07:40	22	7	C	A	66	67	4360	470
248	US 101	SB	Silver Creek Valley Rd.	Bernal Rd.	1.48	4	3	1	07:40 - 08:00	13	8	B	A	67	67	2600	540
247	US 101	SB	Bernal Rd.	SR 85	0.20	4	3	1	07:40 - 08:00	15	5	B	A	67	67	3000	340
246	US 101	SB	SR 85	Lane Drop (SB)	1.00	5	4	1	07:40 - 08:00	15	8	B	A	67	67	3990	540
245	US 101	SB	Lane Drop (SB)	Sheller Av.	4.32	4	3	1	08:00 - 08:20	17	12	B	B	67	67	3400	810
244	US 101	SB	Sheller Av.	Burnett Av. (Lane Drop)	2.57	4	3	1	08:20 - 08:40	16	8	B	A	67	67	3200	540
243	US 101	SB	Burnett Ave (Lane Drop)	Cochrane Rd.	0.87	3	3	0	09:20 - 09:40	17	0	B		67		3400	
242	US 101	SB	Cochrane Rd.	East Dunne Av.	1.82	3	3	0	09:00 - 09:20	15	0	B		67		3000	
275.0 1	US 101	SB	East Dunne Av.	Tennant Av.	0.96	3	3	0	08:40 - 09:00	18	0	B		67		3600	
275.0 2	US 101	SB	Tennant Av.	San Martin Av.	3.55	3	3	0	07:40 - 08:00	14	0	B		67		2800	
275.0 3	US 101	SB	San Martin Av.	Masten Ave	2.17	3	3	0	08:20 - 08:40	13	0	B		67		2600	
275.0 4	US 101	SB	Masten Av.	Buena Vista Av.	1.16	3	3	0	08:40 - 09:00	16	0	B		67		3200	
275.0 5	US 101	SB	Buena Vista Av.	Leavesley Rd.	1.60	3	3	0	08:20 - 08:40	13	0	B		67		2600	

Table 4.7 2016 Freeway LOS – AM Peak Period

ID	Facility	Dir	From/To	From/To	Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
275.06	US 101	SB	Leavesley Rd.	Pacheco Pass Hwy.	1.46	3	3	0	07:40 - 08:00	12	0	B		67		2400	
275.07	US 101	SB	Pacheco Pass Hwy.	Monterey Rd.	1.11	3	3	0	07:20 - 07:40	10	0	A		67		2010	
275.08	US 101	SB	Monterey Rd.	Bloomfield Av.	1.85	2	2	0	08:40 - 09:00	18	0	B		67		2400	
275.09	US 101	SB	Bloomfield Av.	Betabel Rd.	4.15	2	2	0	06:40 - 07:00	11	0	A		67		1480	
275.1	US 101	SB	Betabel Rd.	SR 129	1.61	2	2	0	08:20 - 08:40	30	0	D		65		3900	
275.11	US 101	SB	SR 129	SR 156	1.78	2	2	0	06:40 - 07:00	9	0	A		67		1210	
89	SR 237	WB	I-880	McCarthy Blvd.	0.40	3	2	1	07:20 - 07:40	113	65	F	F	11	29	2490	1890
90	SR 237	WB	McCarthy Blvd.	Zanker Rd.	0.94	3	2	1	09:00 - 09:20	115	74	F	F	10	24	2760	1780
91	SR 237	WB	Zanker Rd.	N. 1st St.	1.61	3	2	1	09:00 - 09:20	98	70	F	F	15	26	2940	1820
92	SR 237	WB	N. 1st St.	Great America Pkwy.	1.00	3	2	1	09:00 - 09:20	92	84	F	F	16	19	2950	1600
93	SR 237	WB	Great America Pkwy.	Lawrence Expwy.	1.27	3	2	1	09:00 - 09:20	103	82	F	F	13	20	2680	1640
94	SR 237	WB	Lawrence Expwy.	N. Fair Oaks Av.	0.63	3	2	1	08:20 - 08:40	95	93	F	F	15	16	2850	1490
95	SR 237	WB	N. Fair Oaks Av.	Mathilda Av.	0.96	3	3	0	08:20 - 08:40	89	0	F		18		4810	
96	SR 237	WB	Mathilda Av.	US 101	0.53	2	2	0	09:00 - 09:20	51	0	E		41		4190	
97	SR 237	WB	US 101	Maude Av.	0.71	2	2	0	08:40 - 09:00	36	0	D		61		4400	
98	SR 237	WB	Maude Av.	Central Pkwy.	0.80	2	2	0	08:00 - 08:20	39	0	D		57		4450	
99	SR 237	WB	Central Pkwy.	SR 85	0.63	2	2	0	08:00 - 08:20	28	0	D		66		3670	
100	SR 237	WB	SR 85	El Camino Real	0.40	2	2	0	08:00 - 08:20	65	0	F		29		3770	
130	I-280	WB	US 101	McLaughlin Av.	0.37	4	4	0	09:00 - 09:20	112	0	F		11		4930	
129	I-280	WB	McLaughlin Av.	10th St.	0.92	4	4	0	07:00 - 07:20	89	0	F		18		6410	
128	I-280	WB	10th St.	SR 87	1.20	4	4	0	08:00 - 08:20	83	0	F		20		6640	
127	I-280	WB	SR 87	Bird Av.	0.35	4	4	0	08:00 - 08:20	102	0	F		13		5310	
126	I-280	WB	Bird Av.	Meridian Av.	1.07	4	4	0	07:00 - 07:20	102	0	F		13		5310	
125	I-280	WB	Meridian Av.	I-880	1.40	4	3	1	08:00 - 08:20	114	103	F	F	10	13	3880	1340
124	I-280	WB	I-880	Winchester Blvd.	0.55	4	3	1	07:40 - 08:00	107	95	F	F	12	15	3860	1430
123	I-280	WB	Winchester Blvd.	Saratoga Av.	1.37	4	3	1	07:40 - 08:00	90	82	F	F	17	20	4590	1640

Table 4.7 2016 Freeway LOS – AM Peak Period

ID	Facility	Dir	From/To	From/To	Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
122	I-280	WB	Saratoga Av.	Lawrence Expwy.	1.19	4	3	1	07:40 - 08:00	78	70	F	F	22	26	5150	1820
121	I-280	WB	Lawrence Expwy.	Wolfe Rd.	1.24	4	3	1	09:00 - 09:20	72	70	F	F	25	26	5400	1820
120	I-280	WB	Wolfe Rd.	De Anza Blvd.	1.06	4	3	1	08:00 - 08:20	75	48	F	E	24	45	5400	2160
119	I-280	WB	De Anza Blvd.	SR 85	1.31	4	3	1	08:00 - 08:20	76	46	F	D	23	47	5250	2170
118	I-280	WB	SR 85	Foothill Expwy.	0.70	4	3	1	08:20 - 08:40	70	60	F	F	26	33	5460	1980
117	I-280	WB	Foothill Expwy.	Magdalena Av.	2.65	4	3	1	09:00 - 09:20	48	56	E	E	45	36	6480	2020
116	I-280	WB	Magdalena Av.	El Monte Rd.	0.95	4	4	0	09:00 - 09:20	51	0	E		41		8370	
115	I-280	WB	El Monte Rd.	La Barranta Rd.	1.60	4	4	0	08:20 - 08:40	50	0	E		42		8400	
114	I-280	WB	La Barranta Rd.	Page Mill Rd.	1.73	4	4	0	09:00 - 09:20	35	0	D		62		8680	
113.1	I-280	WB	Page Mill Rd.	Alpine Rd.	2.25	4	4	0	09:00 - 09:20	21	0	C		66		5550	
50	I-680	SB	Scott Creek Rd.	Jacklin Rd.	1.57	4	3	1	08:20 - 08:40	25	18	C	B	66	67	4950	1210
49	I-680	SB	Jacklin Rd.	Calaveras Blvd. / SR 237	0.85	4	3	1	09:20 - 09:40	24	18	C	B	66	67	4760	1210
48	I-680	SB	Calaveras Blvd. / SR 237	Yosemite Dr.	0.69	4	4	0	08:00 - 08:20	24	0	C		66		6340	
47	I-680	SB	Yosemite Dr.	Montague Expwy.	0.77	4	4	0	08:00 - 08:20	29	0	D		65		7540	
46	I-680	SB	Montague Expwy.	Capitol Av.	1.00	4	4	0	08:20 - 08:40	21	0	C		66		5550	
45	I-680	SB	Capitol Av.	Hostetter Rd.	0.31	4	4	0	07:20 - 07:40	14	0	B		67		3730	
44	I-680	SB	Hostetter Rd.	Berryessa Rd.	0.94	4	4	0	08:00 - 08:20	19	0	C		66		5020	
43	I-680	SB	Berryessa Rd.	McKee Rd.	1.47	4	4	0	08:00 - 08:20	40	0	D		55		8800	
42	I-680	SB	McKee Rd.	Alum Rock Av.	0.64	4	4	0	08:00 - 08:20	91	0	F		17		6190	
41	I-680	SB	Alum Rock Av.	Capitol Expwy.	0.31	4	4	0	07:20 - 07:40	105	0	F		13		5460	
40	I-680	SB	Capitol Expwy.	King Rd.	1.00	4	4	0	09:00 - 09:20	115	0	F		10		5060	
39	I-680	SB	King Rd.	US 101	0.40	4	4	0	09:00 - 09:20	105	0	F		13		5460	
13	I-880	SB	Dixon Landing Rd.	SR 237	1.99	4	3	1	08:20 - 08:40	57	122	E	F	36	9	6980	1100
14	I-880	SB	SR 237	Great Mall Pkwy.	0.72	4	3	1	08:00 - 08:20	44	36	D	D	50	61	6600	2200
15	I-880	SB	Great Mall Pkwy.	Montague Expwy.	0.98	4	3	1	08:00 - 08:20	60	30	F	D	33	65	5940	1950
16	I-880	SB	Montague Expwy.	E. Brokaw Rd.	1.35	4	3	1	08:20 - 08:40	91	21	F	C	17	66	4650	1390
17	I-880	SB	E. Brokaw Rd.	US 101	1.29	4	3	1	08:20 - 08:40	92	68	F	F	16	27	4420	1840

Table 4.7 2016 Freeway LOS – AM Peak Period

ID	Facility	Dir	From/To		Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
			From/To	From/To		Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
18	I-880	SB	US 101	N. 1st St.	0.49	4	3	1	08:00 - 08:20	97	0	F		15		4370	
19	I-880	SB	N. 1st St.	SR 87	0.40	3	3	0	07:00 - 07:20	78	0	F		22		5150	
20	I-880	SB	SR 87	Coleman Av.	0.51	3	3	0	09:00 - 09:20	33	0	D		64		6340	
21	I-880	SB	Coleman Av.	The Alameda	0.59	3	3	0	08:20 - 08:40	31	0	D		65		6050	
22	I-880	SB	The Alameda	N. Bascom Av.	0.82	3	3	0	08:00 - 08:20	30	0	D		65		5850	
23	I-880	SB	N. Bascom Av.	Stevens Creek Blvd.	0.84	3	3	0	07:00 - 07:20	67	0	F		28		5630	
24	I-880	SB	Stevens Creek Blvd.	I-280	0.41	3	3	0	07:00 - 07:20	24	0	C		66		4760	

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
31	SR 17	NB	Summit Rd.	Bear Creek Rd.	4.06	2	2	0	16:00 - 16:20	22	0	C		66		2910	
30	SR 17	NB	Bear Creek Rd.	Saratoga Av.	2.90	2	2	0	15:40 - 16:00	20	0	C		66		2640	
29	SR 17	NB	Saratoga Av.	Lark Av.	1.81	2	2	0	17:40 - 18:00	24	0	C		66		3170	
28	SR 17	NB	Lark Av.	SR 85	0.46	2	2	0	16:40 - 17:00	20	0	C		66		2640	
27	SR 17	NB	SR 85	San Tomas Expwy./Camden Av.	1.17	3	3	0	15:20 - 15:40	19	0	C		66		3770	
26	SR 17	NB	San Tomas Expwy./Camden Av.	Hamilton Av.	1.82	3	3	0	17:20 - 17:40	18	0	B		67		3600	
25	SR 17	NB	Hamilton Av.	I-280	1.61	3	3	0	16:00 - 16:20	26	0	C		66		5150	
184	SR 85	NB	US 101	Cottle Rd.	1.79	3	2	1	16:40 - 17:00	16	6	B	A	67	70	2130	420
183	SR 85	NB	Cottle Rd.	Blossom Hill Rd.	1.96	3	2	1	17:20 - 17:40	29	10	D	A	65	70	3770	700
182	SR 85	NB	Blossom Hill Rd.	SR 87	1.27	3	2	1	16:40 - 17:00	25	11	C	A	66	70	3300	770
181	SR 85	NB	SR 87	Almaden Expwy.	0.94	3	2	1	16:00 - 16:20	25	17	C	B	66	70	3300	1190
180	SR 85	NB	Almaden Expwy.	Camden Av.	1.97	3	2	1	17:40 - 18:00	28	12	D	B	66	70	3670	840
179	SR 85	NB	Camden Av.	Union Av.	1.17	3	2	1	17:40 - 18:00	32	13	D	B	64	70	4100	910
178	SR 85	NB	Union Av.	S. Bascom Av.	1.13	3	2	1	17:40 - 18:00	24	14	C	B	66	70	3170	980
177	SR 85	NB	S. Bascom Av.	SR 17	0.27	3	2	1	15:20 - 15:40	16	22	B	C	67	70	2130	1540
176	SR 85	NB	SR 17	Winchester Blvd.	0.50	3	2	1	15:40 - 16:00	15	8	B	A	67	70	2000	560
175	SR 85	NB	Winchester Blvd.	Saratoga Av.	2.68	3	2	1	17:40 - 18:00	31	10	D	A	65	70	4030	700
174	SR 85	NB	Saratoga Av.	Saratoga-Sunnyvale Rd.	2.19	3	2	1	17:20 - 17:40	21	9	C	A	66	70	2780	630
173	SR 85	NB	Saratoga-Sunnyvale Rd.	Stevens Creek Blvd.	1.83	3	2	1	17:20 - 17:40	22	7	C	A	66	70	2910	490
172	SR 85	NB	Stevens Creek Blvd.	I-280	0.75	3	2	1	17:20 - 17:40	10	13	A	B	67	70	1340	910
171	SR 85	NB	I-280	W. Homestead Rd.	0.34	3	2	1	15:40 - 16:00	15	4	B	A	67	70	2400	280

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV		
170	SR 85	NB	W. Homestead Rd.	W. Fremont Av.	1.00	3	2	1	17:40 - 18:00	41	13	D	B	54	70	4430	910
169	SR 85	NB	W. Fremont Av.	El Camino Real	1.89	3	2	1	15:20 - 15:40	29	8	D	A	65	70	3770	560
168	SR 85	NB	El Camino Real	SR 237	0.41	3	2	1	15:20 - 15:40	25	10	C	A	66	70	3300	700
167	SR 85	NB	SR 237	Central Expwy.	0.47	3	2	1	15:20 - 15:40	17	7	B	A	67	70	2270	490
166	SR 85	NB	Central Expwy.	US 101	1.24	3	2	1	15:40 - 16:00	17	7	B	A	67	70	2270	490
70	SR 87	NB	SR 85	Capitol Expwy.	1.09	3	2	1	17:00 - 17:20	18	12	B	B	67	70	2400	840
71	SR 87	NB	Capitol Expwy.	Curtner Av.	1.49	3	2	1	17:00 - 17:20	29	10	D	A	65	70	3770	700
72	SR 87	NB	Curtner Av.	Almaden Rd.	0.73	3	2	1	17:00 - 17:20	31	20	D	C	65	70	4030	1400
73	SR 87	NB	Almaden Av.	Alma Av.	0.69	3	2	1	16:40 - 17:00	46	17	D	B	47	70	4330	1190
74	SR 87	NB	Alma Av.	I-280	0.90	3	2	1	15:20 - 15:40	42	15	D	B	52	70	4370	1050
75	SR 87	NB	I-280	Julian St.	0.96	3	2	1	16:20 - 16:40	15	11	B	A	67	70	2000	770
76	SR 87	NB	Julian St.	Coleman Av.	0.38	3	2	1	16:40 - 17:00	34	13	D	B	63	70	4290	910
414	SR 87	NB	Coleman Av.	Taylor St.	0.41	3	2	1	15:20 - 15:40	21	7	C	A	66	70	2780	490
416	SR 87	NB	Taylor St.	Skyport Dr.	1.87	3	2	1	17:40 - 18:00	17	4	B	A	67	70	2270	280
418	SR 87	NB	Skyport Dr.	US 101	0.67	3	2	1	17:40 - 18:00	25	8	C	A	66	70	3300	560
309.11	US 101	NB	SR 156	SR 129	1.78	2	2	0	15:40 - 16:00	16	0	B		67		2130	
309.1	US 101	NB	SR 129	Betabel Rd.	1.61	2	2	0	18:00 - 18:20	20	0	C		66		2640	
309.09	US 101	NB	Betabel Rd.	Bloomfield Av.	4.15	2	2	0	17:40 - 18:00	15	0	B		67		2000	
309.08	US 101	NB	Bloomfield Av.	Monterey Rd.	1.85	2	2	0	16:00 - 16:20	23	0	C		66		3040	
309.07	US 101	NB	Monterey Rd.	Pacheco Pass Hwy.	1.11	3	3	0	16:00 - 16:20	15	0	B		67		3000	
309.06	US 101	NB	Pacheco Pass Hwy.	Leavesley Rd.	1.46	3	3	0	16:00 - 16:20	19	0	C		66		3770	

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Mile s	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HO V		Mixed	HO V	Mixed	HO V	Mixed	HO V		
309.05	US 101	NB	Leavesley Rd.	Buena Vista Av.	1.60	3	3	0	15:20 - 15:40	15	0	B		67		3000	
309.04	US 101	NB	Buena Vista Av.	Masten Av.	1.16	3	3	0	17:20 - 17:40	19	0	C		66		3770	
309.03	US 101	NB	Masten Av.	San Martin Av.	2.17	3	3	0	18:00 - 18:20	16	0	B		67		3200	
309.02	US 101	NB	San Martin Av.	Tennant Av.	3.55	3	3	0	15:40 - 16:00	17	0	B		67		3400	
309.01	US 101	NB	Tennant Av.	East Dunne Av.	0.96	3	3	0	15:40 - 16:00	22	0	C		66		4360	
276	US 101	NB	East Dunne Av.	Cochrane Rd.	1.82	3	3	0	17:20 - 17:40	19	0	C		66		3770	
277	US 101	NB	Cochrane Rd.	Burnett Av. (Lane Drop)	0.87	4	3	1	16:40 - 17:00	23	12	C	B	66	70	4560	840
278	US 101	NB	Burnett Av. (Lane Drop)	Sheller Av.	2.57	4	3	1	15:20 - 15:40	49	12	E	B	43	70	6330	840
279	US 101	NB	Sheller Av.	Lane Drop (SB)	4.32	4	3	1	17:00 - 17:20	19	15	C	B	66	70	3770	1050
280	US 101	NB	Lane Drop (SB)	SR 85	1.00	4	3	1	16:40 - 17:00	18	7	B	A	67	70	3600	490
281	US 101	NB	SR 85	Bernal Rd.	0.20	4	3	1	15:40 - 16:00	21	25	C	C	66	70	4160	1750
282	US 101	NB	Bernal Rd.	Silver Creek Valley Rd.	1.48	4	3	1	17:00 - 17:20	20	9	C	A	66	70	3960	630
283	US 101	NB	Silver Creek Valley Rd.	Hellyer Av.	1.84	4	3	1	17:00 - 17:20	27	7	D	A	66	70	5310	490
284	US 101	NB	Hellyer Av.	Yerba Buena Rd.	0.90	4	3	1	17:00 - 17:20	33	8	D	A	64	70	6340	560
285	US 101	NB	Yerba Buena Rd.	Capitol Expwy.	0.80	4	3	1	17:00 - 17:20	25	7	C	A	66	70	4950	490
286	US 101	NB	Capitol Expwy.	Tully Rd.	1.33	4	3	1	17:00 - 17:20	35	11	D	A	62	70	6510	770
287	US 101	NB	Tully Rd.	Story Rd.	1.46	4	3	1	17:00 - 17:20	22	8	C	A	66	70	4360	560
288	US 101	NB	Story Rd.	I-280	0.38	4	3	1	16:40 - 17:00	15	7	B	A	67	70	3000	490
289	US 101	NB	I-280	Santa Clara St.	0.88	4	3	1	15:40 - 16:00	19	12	C	B	66	70	3770	840
290	US 101	NB	Santa Clara St.	McKee Rd.	0.39	4	3	1	15:40 - 16:00	21	10	C	A	66	70	4160	700
291	US 101	NB	McKee Rd.	Oakland Rd.	1.58	4	3	1	15:20 - 15:40	23	7	C	A	66	70	4560	490

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Mile s	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HO V		Mixed	HO V	Mixed	HO V	Mixed	HO V		
292	US 101	NB	Oakland Rd.	I-880	0.57	4	3	1	17:20 - 17:40	20	5	C	A	66	70	3960	350
293	US 101	NB	I-880	Old Bayshore Hwy.	0.50	4	3	1	17:00 - 17:20	16	12	B	B	67	70	3200	840
294	US 101	NB	Old Bayshore Hwy.	N. First St.	0.49	4	3	1	17:20 - 17:40	17	8	B	A	67	70	3400	560
295	US 101	NB	N. First St.	Guadalupe Pkwy.	0.64	4	3	1	15:20 - 15:40	14	9	B	A	67	70	2800	630
296	US 101	NB	Guadalupe Pkwy.	De La Cruz Blvd.	0.77	4	3	1	15:20 - 15:40	19	9	C	A	66	70	3770	630
297	US 101	NB	De La Cruz Blvd.	Montague Expwy./Santa Tomas Expwy.	1.28	4	3	1	16:40 - 17:00	24	11	C	A	66	70	4760	770
298	US 101	NB	Montague Expwy./Santa Tomas Expwy..	Bower Av. / Great America Pkwy	0.75	4	3	1	17:00 - 17:20	28	11	D	A	66	70	5510	770
299	US 101	NB	Bower Av./Great America Pkwy.	Lawrence Expwy.	1.12	4	3	1	17:00 - 17:20	29	16	D	B	65	70	5660	1120
300	US 101	NB	Lawrence Expwy.	N. Fair Oaks Av.	0.98	4	3	1	17:00 - 17:20	29	12	D	B	65	70	5660	840
301	US 101	NB	N. Fair Oaks Av.	N. Mathilda Av.	0.85	4	3	1	17:00 - 17:20	24	11	C	A	66	70	4760	770
302	US 101	NB	N. Mathilda Av.	SR 237	0.35	4	3	1	17:40 - 18:00	24	20	C	C	66	70	4760	1400
303	US 101	NB	SR 237	Moffett Blvd.	1.68	4	3	1	17:20 - 17:40	53	33	E	D	39	70	6210	2310
304	US 101	NB	Moffett Blvd.	SR 85	0.33	4	3	1	17:00 - 17:20	93	36	F	D	16	70	4470	2520
305	US 101	NB	SR 85	N. Shoreline Blvd.	0.38	5	4	1	17:00 - 17:20	68	34	F	D	27	70	7350	2380
306	US 101	NB	N. Shoreline Blvd.	Rengstorff Av.	1.01	5	3	2	17:00 - 17:20	112	18	F	B	11	70	3700	2520
307	US 101	NB	Rengstorff Av.	San Antonio Av.	0.71	5	3	2	17:00 - 17:20	91	23	F	C	17	70	4650	3220
308	US 101	NB	San Antonio Av.	Oregon Expwy.	1.85	5	3	2	16:20 - 16:40	77	45	F	D	23	50	5320	3600
309	US 101	NB	Oregon Expwy.	Embarcadero Rd.	0.15	4	3	1	17:00 - 17:20	61	66	F	F	32	30	5860	1980
88	SR 237	EB	El Camino Real	SR 85	0.40	2	2	0	15:40 - 16:00	19	0	C		66		2510	
87	SR 237	EB	SR 85	Central Pkwy.	0.63	2	2	0	16:20 - 16:40	25	0	C		66		3300	
86	SR 237	EB	Central Pkwy.	Maude Av.	0.80	2	2	0	16:20 - 16:40	33	0	D		64		4230	

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
85	SR 237	EB	Maude Av.	US 101	0.71	2	2	0	17:40 - 18:00	99	0	F		14		2780	
84	SR 237	EB	US 101	Mathilda Av.	0.53	2	2	0	17:00 - 17:20	121	0	F		9		2180	
83	SR 237	EB	Mathilda Av.	N. Fair Oaks Av.	0.96	3	2	1	17:00 - 17:20	100	96	F	F	14	20	2800	1920
82	SR 237	EB	N. Fair Oaks Av.	Lawrence Expwy.	0.63	3	2	1	17:20 - 17:40	115	62	F	F	10	40	2300	2480
81	SR 237	EB	Lawrence Expwy.	Great America Pkwy.	1.27	3	2	1	17:40 - 18:00	101	69	F	F	14	30	2830	2070
80	SR 237	EB	Great America Pkwy.	N. First St.	1.00	3	2	1	16:20 - 16:40	106	64	F	F	12	30	2550	1920
79	SR 237	EB	N. First St.	Zanker Rd.	1.61	3	2	1	17:00 - 17:20	72	47	F	E	25	50	3600	2350
78	SR 237	EB	Zanker Rd.	McCarthy Blvd.	0.94	3	2	1	18:00 - 18:20	42	28	D	D	52	70	4370	1960
77	SR 237	EB	McCarthy Blvd.	I-880	0.40	3	2	1	17:20 - 17:40	20	38	C	D	66	60	2720	2280
130.1	I-280	EB	Alpine Rd.	Page Mill Rd.	2.25	4	4	0	18:00 - 18:20	29	0	D		65		7540	
131	I-280	EB	Page Mill Rd.	La BARRANCA Rd.	1.73	4	4	0	18:00 - 18:20	83	0	F		20		6640	
132	I-280	EB	La BARRANCA Rd.	El Monte Rd.	1.60	4	4	0	17:20 - 17:40	79	0	F		22		6960	
133	I-280	EB	El Monte Rd.	Magdalena Av.	0.95	4	4	0	18:20 - 18:40	75	0	F		24		7200	
134	I-280	EB	Magdalena Av.	Foothill Expwy.	2.65	4	3	1	18:20 - 18:40	31	22	D	C	65	70	6050	1540
135	I-280	EB	Foothill Expwy.	SR 85	0.70	4	3	1	18:00 - 18:20	71	40	F	D	26	60	5540	2400
136	I-280	EB	SR 85	De Anza Blvd.	1.31	4	3	1	17:00 - 17:20	106	83	F	F	12	20	3820	1660
137	I-280	EB	De Anza Blvd.	Wolfe Rd.	1.06	4	3	1	18:00 - 18:20	74	63	F	F	24	40	5330	2520
138	I-280	EB	Wolfe Rd.	Lawrence Expwy.	1.24	4	3	1	18:20 - 18:40	61	42	F	D	32	60	5860	2520
139	I-280	EB	Lawrence Expwy.	Saratoga Av.	1.19	4	3	1	18:00 - 18:20	77	52	F	E	23	40	5320	2080
140	I-280	EB	Saratoga Av.	Winchester Blvd.	1.37	4	3	1	18:00 - 18:20	96	63	F	F	15	40	4320	2520
141	I-280	EB	Winchester Blvd.	I-880	0.55	4	3	1	18:20 - 18:40	101	67	F	F	14	30	4250	2010

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Mile s	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HO V		Mixed	HO V	Mixed	HO V	Mixed	HO V	Mixed	HOV
142	I-280	EB	I-880	Meridian Av.	1.40	4	3	1	17:20 - 17:40	102	81	F	F	13	30	3980	2430
143	I-280	EB	Meridian Av.	Bird Av.	1.07	4	4	0	17:20 - 17:40	104	0	F		13		5410	
144	I-280	EB	Bird Av.	SR 87	0.35	4	4	0	17:00 - 17:20	79	0	F		22		6960	
145	I-280	EB	SR 87	10th St.	1.20	4	4	0	17:20 - 17:40	67	0	F		28		7510	
146	I-280	EB	10th St.	McLaughlin Av.	0.92	4	4	0	18:20 - 18:40	44	0	D		50		8800	
147	I-280	EB	McLaughlin Av.	US 101	0.37	4	4	0	17:20 - 17:40	35	0	D		62		8680	
51	I-680	NB	US 101	King Rd.	0.40	4	4	0	17:40 - 18:00	29	0	D		65		7540	
52	I-680	NB	King Rd.	Capitol Expwy.	1.00	4	4	0	17:40 - 18:00	32	0	D		64		8200	
53	I-680	NB	Capitol Expwy.	Alum Rock Av.	0.31	4	4	0	17:40 - 18:00	23	0	C		66		6080	
54	I-680	NB	Alum Rock Av.	McKee Rd.	0.64	4	4	0	15:40 - 16:00	22	0	C		66		5810	
55	I-680	NB	McKee Rd.	Berryessa Rd.	1.47	4	4	0	18:20 - 18:40	23	0	C		66		6080	
56	I-680	NB	Berryessa Rd.	Hostetter Rd.	0.94	4	4	0	16:40 - 17:00	21	0	C		66		5550	
57	I-680	NB	Hostetter Rd.	Capitol Av.	0.31	4	4	0	17:40 - 18:00	20	0	C		66		5280	
58	I-680	NB	Capitol Av.	Montague Expwy.	1.00	4	4	0	17:00 - 17:20	26	0	C		66		6870	
59	I-680	NB	Montague Expwy.	Yosemite Dr.	0.77	4	4	0	16:00 - 16:20	21	0	C		66		5550	
60	I-680	NB	Yosemite Dr.	Calaveras Blvd./SR 237	0.69	4	4	0	16:40 - 17:00	28	0	D		66		7340	
61	I-680	NB	Calaveras Blvd./SR 237	Jacklin Rd.	0.85	3	3	0	16:40 - 17:00	26	0	C		66		5150	
62	I-680	NB	Jacklin Rd.	Scott Creek Rd.	1.57	3	3	0	17:00 - 17:20	22	0	C		66		4360	
12	I-880	NB	I-280	Stevens Creek Blvd.	0.41	3	3	0	15:40 - 16:00	11	0	A		67		2220	
11	I-880	NB	Stevens Creek Blvd.	N. Bascom Av.	0.84	3	3	0	17:20 - 17:40	78	0	F		22		5150	
10	I-880	NB	N. Bascom Av.	The Alameda	0.82	3	3	0	17:20 - 17:40	101	0	F		14		4250	

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Mile s	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HO V		Mixed	HO V	Mixed	HO V	Mixed	HO V	Mixed	HOV
9	I-880	NB	The Alameda	Coleman Av.	0.59	3	3	0	17:20 - 17:40	124	0	F		8		2980	
8	I-880	NB	Coleman Av.	SR 87	0.51	3	3	0	17:20 - 17:40	91	0	F		17		4650	
7	I-880	NB	SR 87	N. 1st St.	0.40	3	3	0	17:20 - 17:40	76	0	F		23		5250	
6	I-880	NB	N. 1st St.	US 101	0.49	3	3	0	16:00 - 16:20	85	0	F		19		4850	
5	I-880	NB	US 101	E. Brokaw Rd.	1.29	4	3	1	17:00 - 17:20	31	15	D	B	65	70	6050	1050
4	I-880	NB	E. Brokaw Rd.	Montague Expwy.	1.35	4	3	1	15:20 - 15:40	23	12	C	B	66	70	4560	840
3	I-880	NB	Montague Expwy.	Great Mall Pkwy.	0.98	4	3	1	16:20 - 16:40	28	13	D	B	66	70	5510	910
2	I-880	NB	Great Mall Pkwy.	SR 237	0.72	4	3	1	16:20 - 16:40	34	20	D	C	63	70	6430	1400
1	I-880	NB	SR 237	Dixon Landing Rd.	1.99	4	3	1	17:40 - 18:00	46	39	D	D	47	60	7360	2340
32	SR 17	SB	I-280	Hamilton Av.	1.61	3	3	0	17:40 - 18:00	58	0	E		35		6090	
33	SR 17	SB	Hamilton Av.	San Tomas Expwy./Camden Av.	1.82	3	3	0	16:00 - 16:20	31	0	D		65		6860	
34	SR 17	SB	San Tomas Expwy./Camden Av.	SR 85	1.17	3	3	0	17:00 - 17:20	25	0	C		66		4950	
35	SR 17	SB	SR 85	Lark Av.	0.46	2	2	0	17:00 - 17:20	74	0	F		24		3560	
36	SR 17	SB	Lark Av.	Saratoga Av.	1.81	2	2	0	17:00 - 17:20	73	0	F		25		3650	
37	SR 17	SB	Saratoga Av.	Bear Creek Rd.	2.90	2	2	0	16:00 - 16:20	65	0	F		29		3770	
38	SR 17	SB	Bear Creek Rd.	Summit Rd.	4.06	2	2	0	16:40 - 17:00	64	0	F		30		3840	
185	SR 85	SB	US 101	Central Expwy.	1.24	3	2	1	18:00 - 18:20	81	84	F	F	21	20	3410	1680
186	SR 85	SB	Central Expwy.	SR 237	0.47	3	2	1	17:20 - 17:40	108	77	F	F	12	30	2600	2310
187	SR 85	SB	SR 237	EL Camino Real	0.41	4	3	1	17:20 - 17:40	124	60	F	F	8	40	2480	2400
188	SR 85	SB	EL Camino Real	W. Fremont Av.	1.89	3	2	1	17:20 - 17:40	66	47	F	E	29	50	3830	2350
189	SR 85	SB	W. Fremont Av.	W. Homestead Rd.	1.00	3	2	1	17:00 - 17:20	52	40	E	D	40	60	4160	2400

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Mile s	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HO V		Mixed	HO V	Mixed	HO V	Mixed	HO V	Mixed	HOV
190	SR 85	SB	W. Homestead Rd.	I-280	0.41	3	2	1	15:20 - 15:40	21	29	C	D	66	70	2780	2030
191	SR 85	SB	I-280	Stevens Creek Blvd.	0.75	3	2	1	17:40 - 18:00	82	108	F	F	20	20	3940	2160
192	SR 85	SB	Stevens Creek Blvd.	Saratoga-Sunnyvale Rd.	1.83	3	2	1	16:40 - 17:00	97	71	F	F	15	30	2910	2130
193	SR 85	SB	Saratoga-Sunnyvale Rd.	Saratoga Av.	2.19	3	2	1	17:20 - 17:40	73	54	F	E	25	40	3650	2160
194	SR 85	SB	Saratoga Av.	Winchester Blvd.	2.68	3	2	1	17:20 - 17:40	58	39	E	D	35	60	4060	2340
195	SR 85	SB	Winchester Blvd.	SR 17	0.50	3	2	1	18:00 - 18:20	94	46	F	D	16	50	3010	2300
196	SR 85	SB	SR 17	S. Bascom Av.	0.27	3	2	1	17:20 - 17:40	122	88	F	F	9	20	2200	1760
197	SR 85	SB	S. Bascom Av.	Union Av.	1.13	3	2	1	17:20 - 17:40	99	65	F	F	14	30	2780	1950
198	SR 85	SB	Union Av.	Camden Av.	1.17	3	2	1	15:40 - 16:00	56	41	E	D	36	60	4040	2460
199	SR 85	SB	Camden Av.	Almaden Expwy.	1.97	3	2	1	17:20 - 17:40	40	32	D	D	55	70	4400	2240
200	SR 85	SB	Almaden Expwy.	SR 87	0.94	3	2	1	16:00 - 16:20	32	21	D	C	64	70	4100	1470
201	SR 85	SB	SR 87	Blossom Hill Rd.	1.27	3	2	1	16:00 - 16:20	67	42	F	D	28	60	3760	2520
202	SR 85	SB	Blossom Hill Rd.	Cottle Rd.	1.96	3	2	1	16:40 - 17:00	29	25	D	C	65	70	3770	1750
203	SR 85	SB	Cottle Rd.	US 101	1.79	3	2	1	17:40 - 18:00	21	15	C	B	66	70	2780	1050
419	SR 87	SB	US 101	Skyport Dr.	0.67	3	2	1	17:40 - 18:00	100	36	F	D	14	70	2800	2520
417	SR 87	SB	Skyport Dr.	Taylor St.	1.87	3	2	1	18:00 - 18:20	100	28	F	D	14	70	2800	1960
415	SR 87	SB	Taylor St.	Coleman Av.	0.41	3	2	1	18:00 - 18:20	94	36	F	D	16	70	3010	2520
69	SR 87	SB	Coleman Av.	Julian St.	0.38	3	2	1	18:00 - 18:20	55	28	E	D	37	70	4070	1960
68	SR 87	SB	Julian St.	I-280	0.96	3	2	1	17:40 - 18:00	69	36	F	D	27	70	3730	2520
67	SR 87	SB	I-280	Alma Av.	0.90	3	2	1	16:40 - 17:00	82	54	F	E	20	40	3280	2160
66	SR 87	SB	Alma Av.	Almaden Rd.	0.69	3	2	1	17:00 - 17:20	81	47	F	E	21	50	3410	2350

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV		
65	SR 87	SB	Almaden Rd	Curtner Av.	0.73	3	2	1	16:00 - 16:20	48	35	E	D	45	70	4320	2450
64	SR 87	SB	Curtner Av.	Capitol Expwy.	1.49	3	2	1	17:40 - 18:00	43	28	D	D	51	70	4390	1960
63	SR 87	SB	Capitol Expwy.	SR 85	1.09	3	2	1	16:40 - 17:00	31	19	D	C	65	70	4030	1330
275	US 101	SB	Embarcadero Rd.	Oregon Expwy.	0.15	4	3	1	16:20 - 16:40	100	86	F	F	14	20	4200	1720
274	US 101	SB	Oregon Expwy.	San Antonio Av.	1.85	5	3	2	16:40 - 17:00	95	34	F	D	15	70	4280	3810
273	US 101	SB	San Antonio Av.	Rengstorff Av.	0.71	5	3	2	17:20 - 17:40	92	20	F	C	16	70	4420	2800
272	US 101	SB	Rengstorff Av.	N. Shoreline Blvd.	1.01	5	3	2	17:20 - 17:40	66	25	F	C	29	70	5750	3500
271	US 101	SB	N. Shoreline Blvd.	SR 85	0.38	4	3	1	17:20 - 17:40	68	51	F	E	27	50	5510	2550
270	US 101	SB	SR 85	Moffett Blvd.	0.33	4	3	1	17:20 - 17:40	95	84	F	F	15	20	4280	1680
269	US 101	SB	Moffett Blvd.	SR 237	1.68	4	3	1	17:20 - 17:40	76	57	F	E	23	40	5250	2280
268	US 101	SB	SR 237	N. Mathilda Av.	0.35	4	3	1	17:00 - 17:20	87	60	F	F	18	40	4700	2400
267	US 101	SB	N. Mathilda Av.	N. Fair Oaks Av.	0.85	4	3	1	17:20 - 17:40	72	68	F	F	25	30	5400	2040
266	US 101	SB	N. Fair Oaks Av.	Lawrence Expwy.	0.98	4	3	1	17:20 - 17:40	92	106	F	F	16	20	4420	2120
265	US 101	SB	Lawrence Expwy.	Bower Av./Great American Pkwy.	1.12	4	3	1	18:20 - 18:40	111	102	F	F	11	20	3670	2040
264	US 101	SB	Bower Av./Great American Pkwy.	Montaque Expwy./Santa Tomas Expwy	0.75	4	3	1	16:40 - 17:00	108	109	F	F	12	20	3890	2180
263	US 101	SB	Montaque Expwy./Santa Tomas Expwy.	De La Cruz Blvd.	1.28	4	3	1	16:40 - 17:00	111	71	F	F	11	30	3670	2130
262	US 101	SB	De La Cruz Blvd.	Guadalupe Pkwy.	0.77	4	3	1	17:20 - 17:40	52	36	E	D	40	70	6240	2520
261	US 101	SB	Guadalupe Pkwy.	N. First St.	0.64	4	3	1	17:00 - 17:20	75	73	F	F	24	30	5400	2190
260	US 101	SB	N. First St.	Old Bayshore Hwy.	0.49	4	3	1	17:20 - 17:40	160	108	F	F	6	20	2880	2160
259	US 101	SB	Old Bayshore Hwy.	I-880	0.50	4	3	1	17:20 - 17:40	136	90	F	F	6	20	2450	1800
258	US 101	SB	I-880	Oakland Rd.	0.57	4	3	1	17:20 - 17:40	109	77	F	F	12	30	3930	2310

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Mile s	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HO V		Mixed	HO V	Mixed	HO V	Mixed	HOV		
257	US 101	SB	Oakland Rd.	McKee Rd.	1.58	4	3	1	17:20 - 17:40	56	36	E	D	36	70	6050	2520
256	US 101	SB	McKee Rd.	Santa Clara St.	0.39	4	3	1	16:40 - 17:00	52	46	E	D	40	50	6240	2300
255	US 101	SB	Santa Clara St.	I-280	0.88	4	3	1	17:20 - 17:40	53	38	E	D	39	60	6210	2280
254	US 101	SB	I-280	Story Rd.	0.38	4	3	1	17:20 - 17:40	31	34	D	D	65	70	6050	2380
253	US 101	SB	Story Rd.	Tully Rd.	1.46	4	3	1	17:20 - 17:40	42	28	D	D	52	70	6560	1960
252	US 101	SB	Tully Rd.	Capitol Expwy.	1.33	4	3	1	15:20 - 15:40	38	21	D	C	58	70	6620	1470
251	US 101	SB	Capitol Expwy.	Yerba Buena Rd.	0.80	4	3	1	16:40 - 17:00	24	20	C	C	66	70	4760	1400
250	US 101	SB	Yerba Buena Rd.	Hellyer Av.	0.90	4	3	1	17:00 - 17:20	36	16	D	B	61	70	6590	1120
249	US 101	SB	Hellyer Av.	Silver Creek Valley Rd.	1.84	4	3	1	15:40 - 16:00	29	21	D	C	65	70	5660	1470
248	US 101	SB	Silver Creek Valley Rd.	Bernal Rd.	1.48	4	3	1	17:00 - 17:20	19	12	C	B	66	70	3770	840
247	US 101	SB	Bernal Rd.	SR 85	0.20	4	3	1	17:20 - 17:40	35	22	D	C	62	70	6510	1540
246	US 101	SB	SR 85	Lane Drop (SB)	1.00	5	4	1	18:20 - 18:40	19	21	C	C	66	70	5020	1470
245	US 101	SB	Lane Drop (SB)	Sheller Av.	4.32	4	3	1	15:40 - 16:00	45	48	D	E	48	50	6480	2400
244	US 101	SB	Sheller Av.	Burnett Av. (Lane Drop)	2.57	4	3	1	17:20 - 17:40	64	61	F	F	30	40	5760	2440
243	US 101	SB	Burnett Av. (Lane Drop)	Cochrane Rd.	0.87	3	3	0	16:40 - 17:00	84	0	F		19		4790	
242	US 101	SB	Cochrane Rd.	East Dunne Av.	1.82	3	3	0	17:00 - 17:20	50	0	E		42		6300	
275. 01	US 101	SB	East Dunne Av.	Tennant Av.	0.96	3	3	0	17:20 - 17:40	50	0	E		42		6300	
275. 02	US 101	SB	Tennant Av.	San Martin Av.	3.55	3	3	0	17:00 - 17:20	57	0	E		36		6160	
275. 03	US 101	SB	San Martin Av.	Masten Av.	2.17	3	3	0	17:00 - 17:20	46	0	D		47		6490	
275. 04	US 101	SB	Masten Av.	Buena Vista Av.	1.16	3	3	0	17:00 - 17:20	27	0	D		66		5310	
275. 05	US 101	SB	Buena Vista Av.	Leavesley Rd.	1.60	3	3	0	15:20 - 15:40	28	0	D		66		5510	

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Miles	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HOV		Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
275.06	US 101	SB	Leavesley Rd.	Pacheco Pass Hwy.	1.46	3	3	0	17:20 - 17:40	21	0	C		66		4160	
275.07	US 101	SB	Pacheco Pass Hwy.	Monterey Rd.	1.11	3	3	0	17:20 - 17:40	50	0	E		42		6300	
275.08	US 101	SB	Monterey Rd.	Bloomfield Av.	1.85	2	2	0	17:20 - 17:40	73	0	F		25		3650	
275.09	US 101	SB	Bloomfield Av.	Betabel Rd.	4.15	2	2	0	17:00 - 17:20	19	0	C		66		2510	
275.1	US 101	SB	Betabel Rd.	SR 129	1.61	2	2	0	16:20 - 16:40	23	0	C		66		3040	
275.11	US 101	SB	SR 129	SR 156	1.78	2	2	0	15:20 - 15:40	13	0	B		67		1730	
89	SR 237	WB	I-880	McCarthy Blvd.	0.40	3	2	1	16:20 - 16:40	20	9	C	A	66	70	2640	630
90	SR 237	WB	McCarthy Blvd.	Zanker Rd.	0.94	3	2	1	18:00 - 18:20	32	17	D	B	64	70	4920	1190
91	SR 237	WB	Zanker Rd.	N. First St.	1.61	3	2	1	17:00 - 17:20	45	11	D	A	48	70	4320	770
92	SR 237	WB	N. First St.	Great America Pkwy.	1.00	3	2	1	17:40 - 18:00	38	14	D	B	58	70	4410	980
93	SR 237	WB	Great America Pkwy.	Lawrence Expwy.	1.27	3	2	1	17:00 - 17:20	27	15	D	B	66	70	3540	1050
94	SR 237	WB	Lawrence Expwy.	N. Fair Oaks Av.	0.63	3	2	1	17:40 - 18:00	61	38	F	D	32	60	3910	2280
95	SR 237	WB	N. Fair Oaks Av.	Mathilda Av.	0.96	3	3	0	17:40 - 18:00	84	0	F		19		4790	
96	SR 237	WB	Mathilda Av.	US 101	0.53	2	2	0	17:40 - 18:00	82	0	F		20		3280	
97	SR 237	WB	US 101	Maude Av.	0.71	2	2	0	17:40 - 18:00	95	0	F		15		2850	
98	SR 237	WB	Maude Av.	Central Pkwy.	0.80	2	2	0	18:00 - 18:20	77	0	F		23		3550	
99	SR 237	WB	Central Pkwy.	SR 85	0.63	2	2	0	17:40 - 18:00	64	0	F		30		3840	
100	SR 237	WB	SR 85	El Camino Real	0.40	2	2	0	17:20 - 17:40	43	0	D		51		4390	
130	I-280	WB	US 101	McLaughlin Av.	0.37	4	4	0	17:00 - 17:20	25	0	C		66		6600	
129	I-280	WB	McLaughlin Av.	10th St.	0.92	4	4	0	17:00 - 17:20	29	0	D		65		7540	
128	I-280	WB	10th St.	SR 87	1.20	4	4	0	17:20 - 17:40	36	0	D		61		8790	

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Mile s	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HO V		Mixed	HO V	Mixed	HO V	Mixed	HO V		
																Mixed	HO V
127	I-280	WB	SR 87	Bird Av.	0.35	4	4	0	17:20 - 17:40	84	0	F		19		6390	
126	I-280	WB	Bird Av.	Meridian Av.	1.07	4	4	0	16:40 - 17:00	39	0	D		57		8900	
125	I-280	WB	Meridian Av.	I-880	1.40	4	3	1	17:20 - 17:40	21	10	C	A	66	70	4720	700
124	I-280	WB	I-880	Winchester Blvd.	0.55	4	3	1	17:20 - 17:40	43	20	D	C	51	70	6580	1400
123	I-280	WB	Winchester Blvd.	Saratoga Av.	1.37	4	3	1	17:20 - 17:40	40	16	D	B	55	70	6600	1120
122	I-280	WB	Saratoga Av.	Lawrence Expwy.	1.19	4	3	1	16:40 - 17:00	27	15	D	B	66	70	5310	1050
121	I-280	WB	Lawrence Expwy.	Wolfe Rd.	1.24	4	3	1	16:00 - 16:20	25	12	C	B	66	70	4950	840
120	I-280	WB	Wolfe Rd.	De Anza Blvd.	1.06	4	3	1	16:40 - 17:00	27	14	D	B	66	70	5310	980
119	I-280	WB	De Anza Blvd.	SR 85	1.31	4	3	1	16:00 - 16:20	27	10	D	A	66	70	5310	700
118	I-280	WB	SR 85	Foothill Expwy.	0.70	4	3	1	15:20 - 15:40	28	12	D	B	66	70	5510	840
117	I-280	WB	Foothill Expwy.	Magdalena Av.	2.65	4	3	1	16:00 - 16:20	23	13	C	B	66	70	4560	910
116	I-280	WB	Magdalena Av.	El Monte Rd.	0.95	4	4	0	16:40 - 17:00	33	0	D		64		8450	
115	I-280	WB	El Monte Rd.	La BARRANCA Rd.	1.60	4	4	0	15:40 - 16:00	20	0	C		66		5280	
114	I-280	WB	La BARRANCA Rd.	Page Mill Rd.	1.73	4	4	0	16:00 - 16:20	22	0	C		66		5810	
113.1	I-280	WB	Page Mill Rd.	Alpine Rd.	2.25	4	4	0	17:00 - 17:20	66	0	F		29		7660	
50	I-680	SB	Scott Creek Rd.	Jacklin Rd.	1.57	4	3	1	17:00 - 17:20	40	12	D	B	55	70	6600	840
49	I-680	SB	Jacklin Rd.	Calaveras Blvd./SR 237	0.85	4	3	1	15:40 - 16:00	79	16	F	B	22	70	5220	1120
48	I-680	SB	Calaveras Blvd./SR 237	Yosemite Dr.	0.69	4	4	0	15:40 - 16:00	95	0	F		15		5700	
47	I-680	SB	Yosemite Dr.	Montague Expwy.	0.77	4	4	0	15:40 - 16:00	101	0	F		14		5660	
46	I-680	SB	Montague Expwy.	Capitol Av.	1.00	4	4	0	15:40 - 16:00	98	0	F		15		5880	
45	I-680	SB	Capitol Av.	Hostetter Rd.	0.31	4	4	0	18:00 - 18:20	100	0	F		14		5600	

Table 4.8 2014 Freeway LOS – PM Peak Period

ID	Facility	Dir	From/To	From/To	Mile s	Number of Lanes			Peak Photo Time	Max Density		LOS (Density)		Speed		Flow	
						Total	Mixed	HO V		Mixed	HO V	Mixed	HO V	Mixed	HO V		
																Mixed	HO V
44	I-680	SB	Hostetter Rd.	Berryessa Rd.	0.94	4	4	0	18:20 - 18:40	75	0	F		24		7200	
43	I-680	SB	Berryessa Rd.	McKee Rd.	1.47	4	4	0	18:00 - 18:20	44	0	D		50		8800	
42	I-680	SB	McKee Rd.	Alum Rock Av.	0.64	4	4	0	17:40 - 18:00	55	0	E		37		8140	
41	I-680	SB	Alum Rock Av.	Capitol Expwy.	0.31	4	4	0	17:00 - 17:20	29	0	D		65		7540	
40	I-680	SB	Capitol Expwy.	King Rd.	1.00	4	4	0	17:00 - 17:20	26	0	C		66		7560	
39	I-680	SB	King Rd.	US 101	0.40	4	4	0	18:00 - 18:20	25	0	C		66		6600	
13	I-880	SB	Dixon Landing Rd.	SR 237	1.99	4	3	1	17:20 - 17:40	29	19	D	C	65	70	6410	1330
14	I-880	SB	SR 237	Great Mall Pkwy.	0.72	4	3	1	17:20 - 17:40	82	38	F	D	20	60	4920	2280
15	I-880	SB	Great Mall Pkwy.	Montague Expwy.	0.98	4	3	1	17:20 - 17:40	68	28	F	D	27	70	5510	1960
16	I-880	SB	Montague Expwy.	E. Brokaw Rd.	1.35	4	3	1	17:20 - 17:40	84	40	F	D	19	60	4790	2400
17	I-880	SB	E. Brokaw Rd.	US 101	1.29	4	3	1	17:40 - 18:00	75	41	F	D	24	60	5400	2460
18	I-880	SB	US 101	N. 1st St.	0.49	4	3	1	17:00 - 17:20	65	0	F		29		5660	
19	I-880	SB	N. 1st St.	SR 87	0.40	3	3	0	17:00 - 17:20	78	0	F		22		5150	
20	I-880	SB	SR 87	Coleman Av.	0.51	3	3	0	18:00 - 18:20	66	0	F		29		5750	
21	I-880	SB	Coleman Av.	The Alameda	0.59	3	3	0	17:20 - 17:40	89	0	F		18		4810	
22	I-880	SB	The Alameda	N. Bascom Av.	0.82	3	3	0	17:20 - 17:40	56	0	E		36		6050	
23	I-880	SB	N. Bascom Av.	Stevens Creek Blvd.	0.84	3	3	0	16:20 - 16:40	45	0	D		48		6480	
24	I-880	SB	Stevens Creek Blvd.	I-280	0.41	3	3	0	16:20 - 16:40	26	0	C		66		5150	

Freeway Gateway Counts

Santa Clara County has four main “gateways” through which traffic flows in and out of the County from other parts of the region. Vehicle counts are collected along these gateways during the AM and PM peak periods. The data is analyzed to determine freeway demand in terms of inflows and outflows. Inflows refer to vehicles entering Santa Clara County and outflows refer to vehicles leaving Santa Clara County.

The four main gateways are served by six freeways and they are grouped as follows:

Santa Cruz Gateway: The gateway to the southwest connects Santa Clara County with Santa Cruz County. SR 17 is the primary freeway connection.

Southern Gateway: The gateway connects Santa Clara County to the southern counties of San Benito, Monterey and Merced Counties. This connection is primarily served by US 101.

Peninsula Gateway: The gateway to the northwest connects Santa Clara County to destinations on the peninsula including San Mateo, San Francisco and Marin Counties. The freeways serving this gateway are US 101 and I-280.

East Bay Gateway: The gateway to the northeast connects Santa Clara County to the East Bay Counties of Alameda, Contra Costa, San Joaquin and Stanislaus. This connection is primarily served by I-680 and I-880.

Methodology

Direct ground traffic counts are collected each year at these six freeway gateway locations at or near the county line. Counts were collected from 6:30 to 9:30 AM and from 3:30 to 6:30 PM in each direction on October 18th, November 15th, 17th, and 30th. The one-hour period with the greatest vehicle volume recorded is considered the peak hour. The following figures and analyses in this section are based on peak hour volumes.

Gateway counts were collected at the freeway locations specified. To determine total gateway flow, a comprehensive count is needed to include urban arterials and rural roads that also carry vehicles across the countyline.

Speed-Throughput Relationship

Traffic engineering theory states that freeways carry the highest volumes of traffic, or achieve close to optimal flow when traffic speeds are around 30 to 35 miles per hour. At this speed, a combination of moderate speed and high vehicle density results in more vehicles passing given a count location. Above 35 miles per hour, the increasing gap between speeding vehicles decreases vehicle density and therefore, the flow rate. Below this speed, traffic is denser but the slower

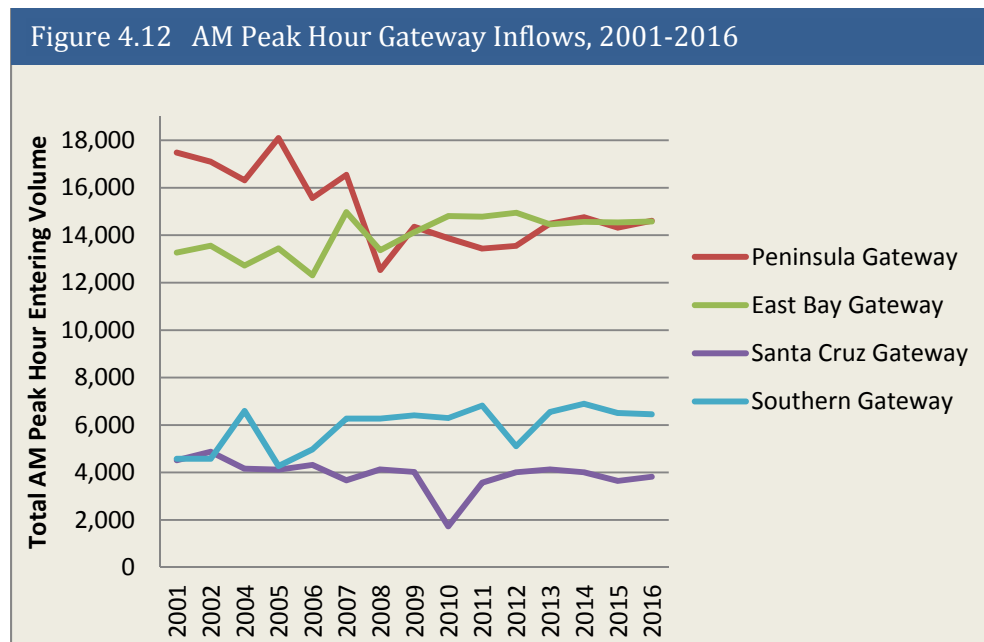
speeds mean fewer vehicles are passing the count location. This results in increased vehicle density despite lower vehicle counts.

When considering the relationship between vehicle speed and vehicle volume, it should be noted that vehicle volume alone is not indicative of a change in roadway operations. Rather, increased vehicle volumes may reflect travel speeds that are approaching optimal flow, or speeds around 30-35 miles per hour.

AM Peak Hour Inflow

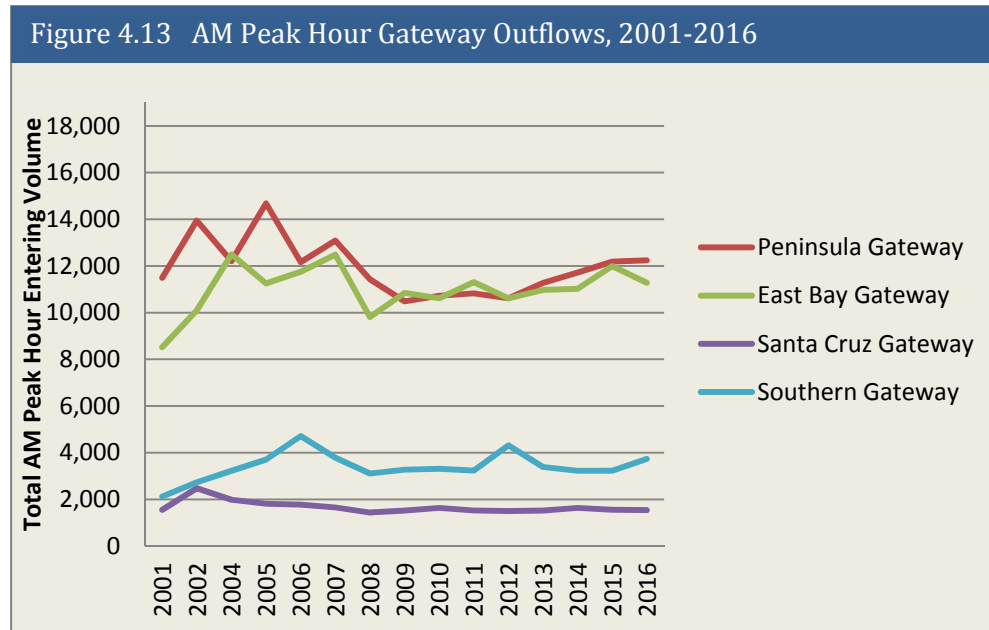
The total inflow gateway volumes during the AM peak hour increased by 1.2% over 2015 volumes. Total outflow volumes decreased by 0.6% overall. The ratio of inflow to outflow during the AM peak hour changed from 1.35 in 2015 to 1.37 in 2016. These numbers account only for the volumes on freeways at each gateway and are not intended to represent total gateway flows. A screen line of each gateway would include urban arterials and rural roads also carrying traffic to and from the county.

Figure 4.12 shows a graphical representation of how the inflows into Santa Clara County have varied over the last 16 years for each of the four gateways in the AM peak hour. As this figure shows, the Peninsula and the East Bay gateways have remained fairly consistent in recent years compared to findings before 2008. The Santa Cruz and Southern gateways have also been fairly consistent but had unusual drops in 2010 and 2012, respectively.



AM Peak Hour Outflow

The trend for the outflows over the last 16 years is shown in Figure 4.13 for each of the four gateways. Vehicle outflow counts in the AM peak hour have been consistent over the last 6 years except for the Southern gateway, which had an unusual increase in 2012. Vehicles outflows consistently increased for the Peninsula and East Bay gateways in recent years; however, in 2016, the Peninsula experienced minimal change, and the East Bay decreased modestly.

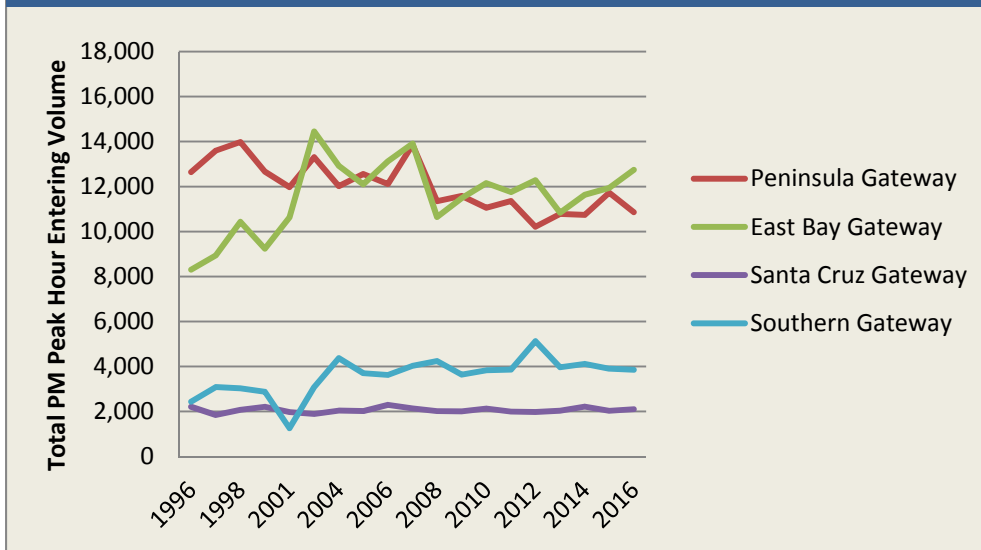


PM Peak Hour Inflow

The total inflow gateway volumes during the PM peak hour decreased by 0.2% below 2015 volumes. Total outflow volumes showed a sizable increase of 7.3% in the volume of vehicles leaving Santa Clara County via the six freeways. This has resulted in a change from about 0.82 entering vehicles for every exiting vehicle in 2015 to 0.76 in 2016. These numbers account only for the volumes on freeways at each gateway and are not representative of total gateway flows.

Figure 4.14 shows how the inflows into Santa Clara County have varied over the last 20 years for the Peninsula, East Bay and Southern gateways, and how the Santa Cruz gateway counts have remained flat. 2016 counts for these gateways generally fall somewhere in the middle compared to the previous 20 years of data. While there is variation from year to year, inflow from the Peninsula and East Bay has been trending up in the last four years; however, in 2016, the Peninsula was observed to have a decrease in inbound volume and inflow from the Southern and the Santa Cruz gateways has remained flat in the last four years.

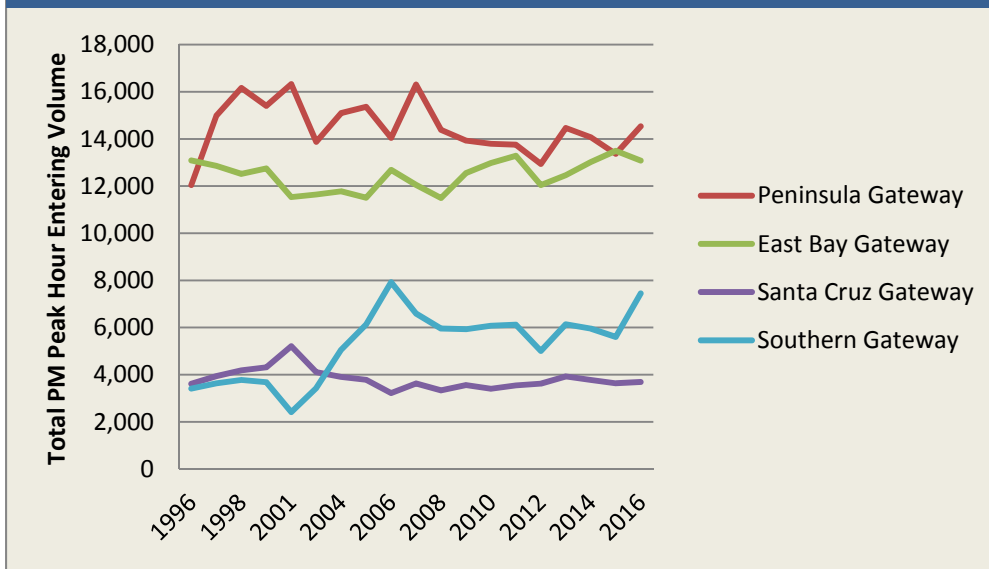
Figure 4.14 PM Peak Hour Gateway Inflows, 1996-2016



PM Peak Hour Outflow

The trend for the outflows over the last 20 years is shown in **Error! Reference source not found.5** for each of the four gateways. The Southern gateway experienced significant growth between 2001 and 2006 but was relatively consistent between 2008 and 2015 with an outlier dip in 2012. In 2016, the Southern gateway showed a substantial increase in outflow volume, reaching a level similar to the peak in 2006. The Santa Cruz gateway experienced growth until 2001. In 2005, its volume dropped to roughly 1996 levels, and it has remained constant since then. Exiting volumes to the Peninsula showed large variation until 2008 but since 2008, outflow volumes have fluctuated up and down at around 14,000 vehicles. East Bay gateway volumes have fluctuated over the 21 years that data have been collected. Between 2012 and 2015, outflow volumes increased, and in 2016 they decreased slightly. Overall, the East Bay gateway volumes have been 500 to 1,000 vehicles above the 21-year average since 2012.

Figure 4.15 PM Peak Hour Gateway Outflows, 1996-2016



Inflows vs. Outflows

Figure 4.16 shows a comparison between the total inflow and outflow from Santa Clara County at the four gateways during the AM peak hour. This figure also shows the percent difference between inflows and outflows. On average, vehicles entering Santa Clara County in the AM peak hour account for approximately 25% more vehicles than vehicles leaving Santa Clara County. The percent difference has been around 30% in recent years but decreased to 26% in 2016 due to a slight increase in inflows.

Figure 4.17 shows a comparison between the total inflow and outflow from Santa Clara County at the four gateways over the last 20 years for the PM peak hour. This figure also shows the percent difference between inflows and outflows. On average, there has been about a 23% difference between inflows and outflows over the last 20 years with outflows being higher during the PM peak hour. Results from 2016 showed outflows to be about 31% greater than inflows, which is a 9% increase from what was recorded in 2015 (28%), but only a 3% increase over what was recorded in 2014.

Figure 4.16 2014 AM Gateway Inflow vs. Outflow

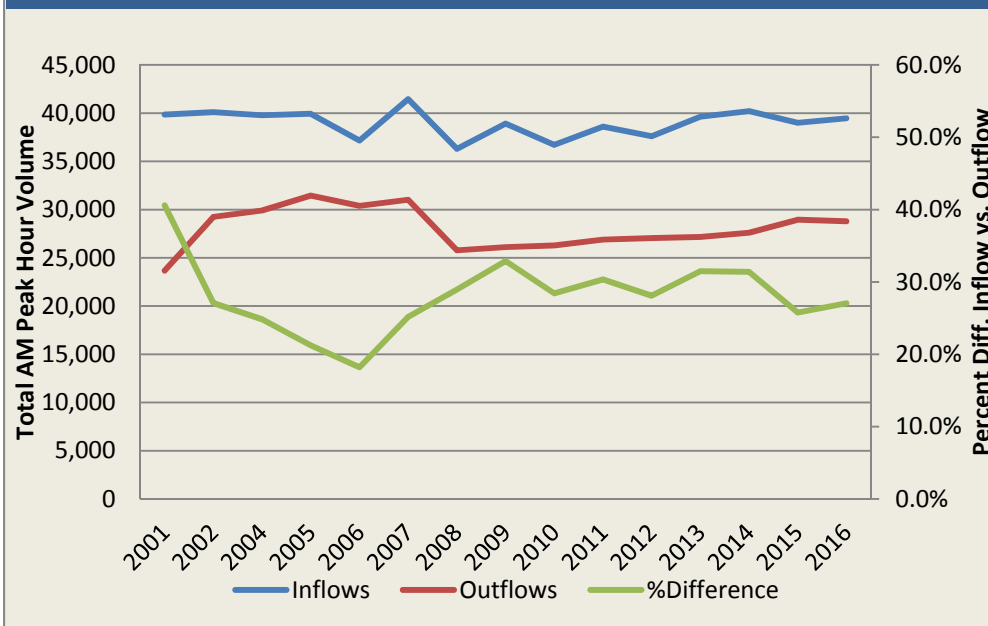
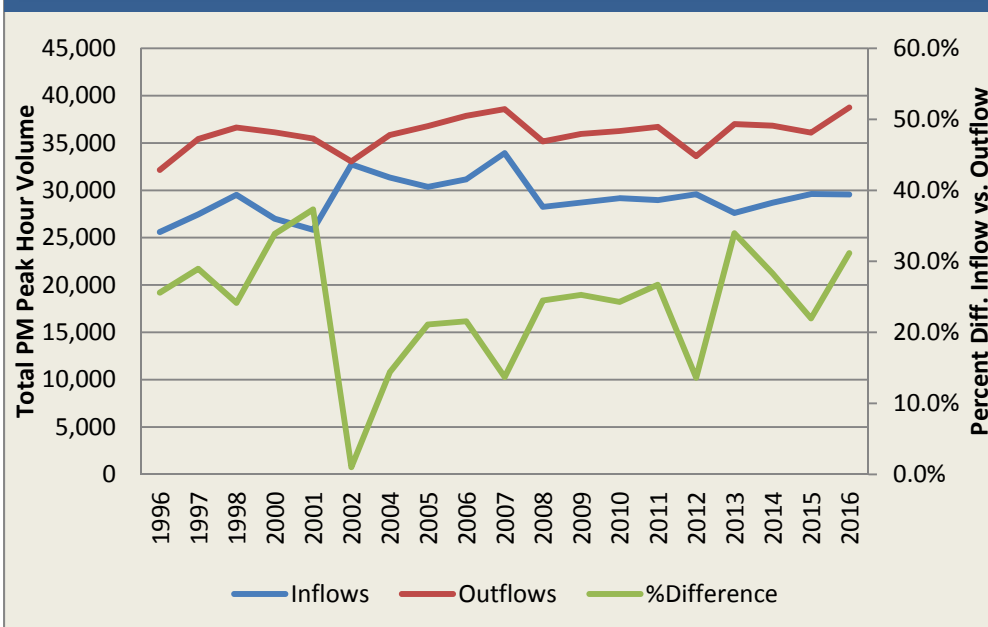


Figure 4.17 2014 PM Gateway Inflow vs. Outflow



5

RURAL HIGHWAY

Introduction

There are seven state-operated rural highways in Santa Clara County (Table 5.1). VTA monitors level of service (LOS) on these routes by measuring traffic volumes along one or more segments.

TABLE 5.1 | RURAL HIGHWAY COUNT LOCATIONS

#	Roadway	Location
1	SR 35	North of SR 9
2	SR 35	South of SR 9
3	SR 9	West of Sanborn Rd.
4	SR 9	South of Big Basin Rd.
5	Saratoga/Sunnyvale Rd*	North of Big Basin Rd.
6	SR 130 (Mt. Hamilton Rd.)	East of Clayton Rd.
7	SR 152	West of Santa Teresa Bl.
8	SR 152*	West of Holsclaw Rd.
9	SR 25	South of Bloomfield Av.
10	SR 156	South of SR 152
11	SR 152*	East of SR 156
12	SR 9	East of SR 35

*Multilane roadways

Level of Service Definitions

LOS procedures outlined in the 2000 HCM use the measures of percent time-spent following and average travel speed. These are determined using appropriate inputs for peak-hour and peak-15-minute traffic volumes, the percentage split between the two directions of traffic, the percentage of trucks in the traffic flow, and the type of terrain. LOS definitions are shown in Table 5.2. Class I highways are those on which motorists expect to travel at relatively high speeds, and include those that are primary arterials and daily commuter routes. Class II are facilities where lower speeds are expected and serve shorter routes. Additionally, there are three multilane highways and LOS is based on density and derived from inputs such as number of lanes, volume, and percent trucks.

TABLE 5.2 | RURAL HIGHWAY LEVEL OF SERVICE DEFINITIONS (CLASS I)

Level of Service	Percent Time-Spent Following	Average Travel Speed (mph)	Description
A	<=35	>55	Highest quality of traffic service, when motorists are able to travel at their desired speed. The passing frequency required to maintain these speeds has not reached a demanding level, so that passing demand is well below passing capacity, and platoons of three or more vehicles are rare.
B	>35 – 50	>50 – 55	The demand for passing to maintain desired speeds becomes significant and approximates the passing capacity at the lower boundary of LOS B. Drivers are delayed in platoons up to 50 percent of the time.
C	>50 – 65	>45 – 50	Further increases in flow exist, resulting in noticeable increases in platoon formation, platoon size, and frequency of passing impediments. Unrestricted passing demand exceeds passing capacity. At higher volumes the chaining of platoons and significant reductions in passing capacity occur. Although traffic flow is stable, it is susceptible to congestion due to turning traffic and slow-moving vehicles.
D	> 65 - 80	> 40 – 45	Unstable traffic flow. The two opposing traffic streams begin to operate separately at higher volume levels, as passing becomes extremely difficult. Passing demand is high, but passing capacity approaches zero. Mean platoon sizes of 5 to 10 vehicles are common.
E	>80	<= 40	Passing is virtually impossible, and platooning becomes intense, as slower vehicles or other interruptions are encountered.
F	Whenever flow rate exceeds capacity		Heavily congested flow with traffic demand exceeding capacity. Volumes are below capacity, and speeds are below capacity as well.

Methodology

Traffic counts were conducted at specific locations on the 12 rural highway segments. These locations are representative of the 12 overall rural highway segments shown in Table 5.1. At each location, the traffic counters recorded data on three consecutive days from Tuesday November 15, 2016 through Thursday November 17, 2016. Two-lane highway traffic counts used automatic hose counters which recorded directional traffic classification volumes in 15-minute increments. Multilane highways are too large to use tube counters, therefore, these counts were conducted using video recordings. Vehicle classification counts for multilane highways reflect the average of heavy vehicle percentages in the weekday AM (6:30 a.m. – 9:30 a.m.) and PM (4:00 p.m. – 7:00 p.m.) peak periods. Vehicle classification counts for two-lane highways reflect the average of heavy vehicle percentages for the surveyed day with the

highest daily traffic volumes. Automatic hose counters are used to measure vehicle counts by the number of times the hose is depressed by traveling vehicles. Since hose counters cannot measure the direction of a vehicle or distinguish the difference between a four-axle truck and two cars, the LOS procedure in the 2000 *Highway Capacity Manual (HCM)* is used to produce a more accurate count. Specifically, the 2000 HCM LOS procedure is used to measure the percent time-spent following and average travel speed, with appropriate inputs for peak hour and peak 15 minute traffic volumes, the percentage split between the two directions of traffic, the percentage of trucks in the traffic flow, and the type of terrain. Table 5.3 summarizes the LOS analysis inputs for the 12 rural highway segments being analyzed as part of the 2016 VTA LOS Monitoring and Conformance Study.

TABLE 5.3 | RURAL HIGHWAY ASSUMPTIONS

No.	Location	# of Lanes	Type of Terrain	Start of Peak Hour	Peak Direction ¹	Direction Split ¹	PHF ¹	Percent Trucks ²
1	SR 35 N. of SR 9	2	Rolling	4:30 PM	SB	85/15	0.99	8
2	SR 35 S. of SR 9	2	Rolling	5:00 PM	SB	79/21	0.77	9
3	SR 9 W. of Sanborn	2	Rolling	4:45 PM	WB	62/38	0.95	7
4	SR 9 S. of Big Basin	2	Level	7:45 AM	NB	73/27	0.92	5
5	Saratoga-Sunnyvale Road N. of Big Basin Way	4	Level	7:45 AM	NB	65/35	0.90	4
6	SR 130 E. of Clayton	2	Level	3:30 PM	EB	50/50	0.91	11
7	SR 152 W. of S. Teresa Bl.	2	Level	3:45 PM	EB	55/45	0.89	7
8	SR 152 W. of Holsclaw Rd.	4	Level	4:00 PM	EB	67/33	0.97	7
9	SR 25 S. of Bloomfield Av.	2	Level	3:45 PM	SB	66/34	0.98	10
10	SR 156 S. of SR 152	2	Level	4:30 PM	SB	59/41	0.98	9
11	SR 152 E. of SR 156	4	Level	4:15 PM	EB	68/32	0.93	18
12	SR 9 E. of SR 35	2	Rolling	5:00 PM	EB	70/30	0.89	6

¹These factors were calculated for the peak hour of the day with highest ADT.
²Percent of buses and trucks obtained from 3-day classification counts.

Data Analysis

The traffic volumes in Table 5.4 presents the LOS and volumes for the 12 rural highway segments analyzed as part of the VTA Level of Service Monitoring and Conformance Study between 1991 and 2016. This table is split between pages to capture 1991 – 2002 and 2004 – 2016 in order to increase readability. The volumes in Table 5 for 2016 reflect the peak hour volume as derived from an average of the three collected days.

Overall, volumes on the 12 rural highway segments are higher than they were in 2014 except at location 11 where they are about 10% lower. All locations are within the range observed since monitoring began in 1991.

The following seven rural highway study segments experienced increases in peak hour traffic volume by 10% or more:

- State Route 35 north of State Route 9 (#1) – from 169 vehicles per hour in 2014 to 241 vehicles per hour in 2016, an increase of 43%. The maximum observed since 2000 was 288.
- State Route 35 south of State Route 9 (#2) – from 70 vehicles per hour in 2014 to 117 vehicles per hour in 2016, an increase of 67%. The maximum observed since 2000 was 125.
- State Route 9 west of Sanborn Road (#3) – from 212 vehicles per hour in 2014 to 310 vehicles per hour in 2016. The maximum observed since 2000 was 367.
- Saratoga-Sunnyvale Road north of Big Basin Way (#5) – from 1,408 vehicles per hour in 2014 to 1,596 vehicles per hour in 2016, an increase of 13%. The maximum observed since 2000 was 2,316.
- Hamilton Road (State Route 30) east of Clayton Road (#6) – from 45 vehicles per hour in 2014 to 62 vehicles per hour in 2016, an increase of 38%. The maximum observed since 2000 was 72.
- State Route 152 east of State Route 156 (#10) – from 891 vehicles per hour in 2014 to 981 vehicles per hour in 2016, an increase of 10%. The maximum observed since 2000 was 1,565.
- State Route 9 east of State Route 35 (#12) – from 241 vehicles per hour in 2014 to 326 vehicles per hour in 2016, an increase of 35%. The maximum observed since 2000 was 479.

The following rural highway study segment experienced a decrease in traffic volumes of more than 10% during the peak hour since 2014:

- State Route 152 east of State Route 156 (#11) – from 2,853 vehicles per hour in 2014 to 2,558 vehicles per hour in 2016, a decrease of 10%. The minimum observed since 2000 was 1,282.

The remaining four segments only had minimal changes (less than 10%) in traffic volumes since 2014.

The following segments had a change in LOS between 2014 and 2016:

- State Route 35 north of State Route 9 (#1) went from LOS B to LOS C as a result of a 43% increase in peak hour traffic volume between 2014 and 2016.
- State Route 35 south of State Route 9 (#2) went from LOS A to LOS B as a result of a 67% increase in peak hour traffic volume between 2014 and 2016.

- State Route 152 west of Holsclaw Road (#8) went from LOS B to LOS A as a result of a decrease in truck percentage and increase in the peak hour factor between 2014 and 2016.

TABLE 5.4 | RURAL HIGHWAYS LEVEL OF SERVICE

#	Location	2000	2001	2002	2004	2005	2006	2007	2008	2009	2010	2012	2014	2016
1	State Route 35	288	160	156	143	131	134	145	129	127	121	154	169	241
	N. of SR 9	B	B	A	B	B	B	B	B	A	A	B	B	C
2	State Route 35	111	62	69	86	85	125	101	91	96	66	83	70	117
	S. of SR 9	A	A	A	A	A	A	A	A	A	A	A	A	B
3	State Route 9	362	367	332	286	259	305	278	226	291	306	246	212	310
	W. of Sanborn	C	C	B	B	B	B	B	B	B	B	B	B	B
4	State Route 9	1,986	1,528	1,499	1,441	1,432	1,720	1,588	1,397	1,539	1,537	1,342	1,255	1,341
	S. of Big Basin	E	E	E	D	E	E	E	E	E	E	D	D	D
5*	Saratoga-Sunnyvale	1,302	2,006	2,316	1,579	1,539	1,544	1,842	1,464	1,528	1,527	1,451	1,408	1,596
	N. of Big Basin	D	E	F	E	E	E	E	E	E	E	A	A	B
6	Hamilton Rd. (SR 130)	70	59	59	55	50	60	54	54	72	44	45	45	62
	E. of Clayton	A	A	A	A	A	A	A	A	A	A	A	A	A
7	State Route 152	664	754	802	707	536	831	779	748	769	699	607	680	711
	W. of Santa Teresa	C	C	C	C	C	D	D	D	C	C	C	C	C
8**	State Route 152	2,017	1,904	2,883	1,979	1,890	1,554	2,032	1,839	1,865	1,617	1,712	1,608	1,643
	W. of Holsclaw	F	E	F	E	E	E	E	E	E	E	E	B	A
9	State Route 25	2,122	2,662	3,882	1,964	1,997	1,959	2,078	2,044	1,974	1,958	2,213	1,918	2,038
	S. of Bloomfield	E	F	F	E	E	E	E	E	F	E	E	E	E
10	State Route 156	1,005	715	1,565	1,137	1,171	964	1,360	1,006	1,080	1,143	1,134	891	981
	S. of SR 152	D	D	E	D	D	D	D	D	D	D	D	D	D
11***	State Route 152	2,341	2,697	3,916	2,856	2,812	2,157	2,750	2,656	2,722	2,692	2,554	2,853	2,558
	E. of SR 156	B	B	C	C	C	B	B	C	C	B	B	B	B
12	State Route 9	406	479	446	274	273	352	296	286	288	269	260	241	326
	E. of SR 35	B	B	B	B	B	C	B	B	B	B	B	C	C

Volume is the peak hour two-way volume and 1991 is the baseline year./*Saratoga-Sunnyvale Road north of Big Basin Way was evaluated as a two-lane highway until 2012 and as a four-lane divided highway starting in 2012./**State Route 152 West of Holsclaw was evaluated as a two-lane highway until 2012 and as a four-lane divided highway starting in 2014./***State Route 152 east of SR 156 was evaluated as a two-lane highway in 1991 and as a four-lane divided highway after 1991.

Introduction

The expressway study analyzes travel times collected by the Santa Clara County Roads and Airports Department. The study measures travel time, average travel speed and the number of vehicle stops for each of the eight expressways in Santa Clara County.

Methodology

Santa Clara County Roads and Airports Department staff last year installed Bluetooth (BT) readers at selected intersections throughout all eight County expressways to collect travel times as part of the Predictive Signal Timing Coordination Project. The BT installation enables County to obtain continuous travel time data on a 24/7 basis where travel time information can be extracted for a moment in time, or an average for a period of times. Unfortunately with limited grant funds, County was not able to install BT units at all expressway signalized intersections nor was able to cover the whole length of all corridors; therefore, revised segment limits are shown to reflect 2016 study segments. In addition, the “Number of Stops” data is not available with this automated travel time collection system in 2016.

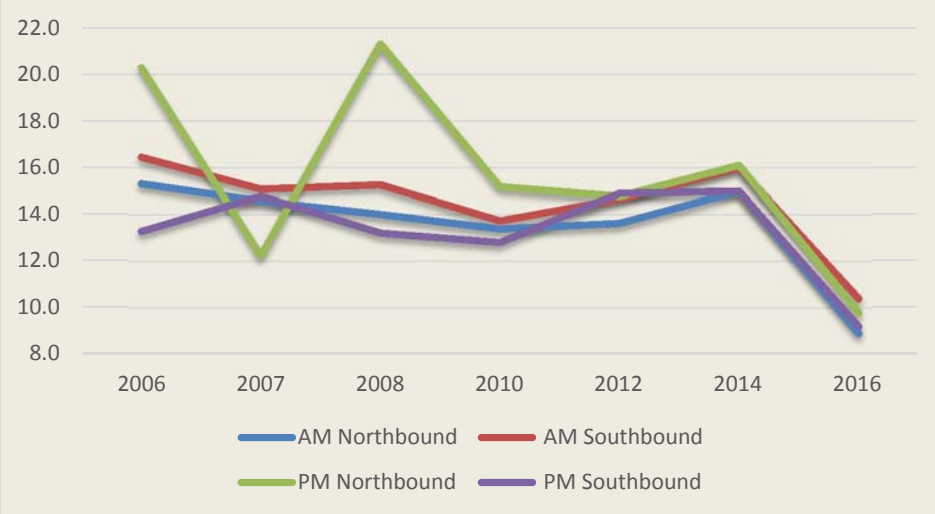
The following figures show the average travel speeds for each expressway from 2006 to 2016 (expressway data was not collected in 2003, 2009, 2011, 2013 and 2015). Table 6.1 shows the overall average travel time and average number of stops (number of times traffic came to zero miles per hour during the expressway run) for the years 2008 to 2016. Noting that the information is not reflective of a straight comparison due to the collection methodology.

It is important to note that this analysis is based on a relatively small set of samples. As such, a healthy margin of error should be applied with analyzing the data.

Almaden Expressway

As shown in Figure 6.1, travel times for Almaden Expressway decreased for both directions in the AM and PM peak period due to the revised data collection method. Almaden Expressway limits for the data collection were between Camden Avenue and Ironwood Drive.

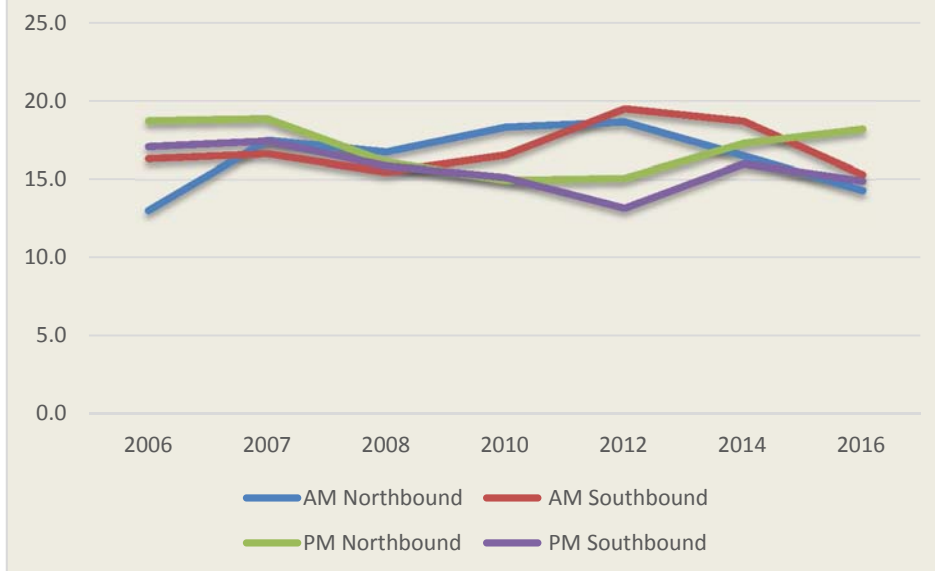
Figure 6.1 Almaden Expressway Travel Times (Minutes), 2006-2016



Capitol Expressway

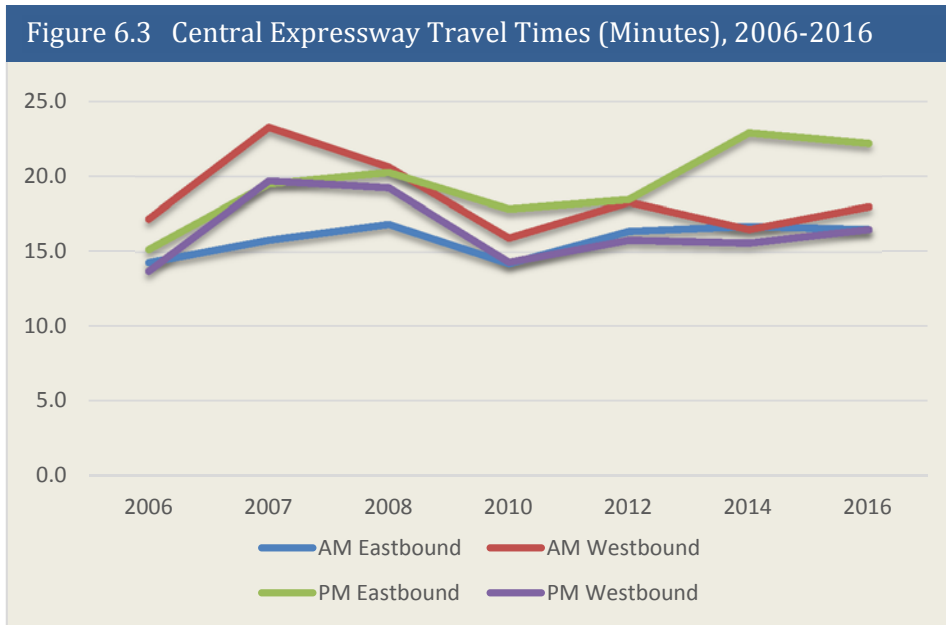
As shown in Figure 6.2, the PM northbound travel directions showed moderate increases in travel times. All other directions showed a decrease. The limits of the travel times on Capitol Expressway are between Narvaez Avenue and Excalibur Drive.

Figure 6.2 Capitol Expressway Travel Times (Minutes), 2006-2016



Central Expressway

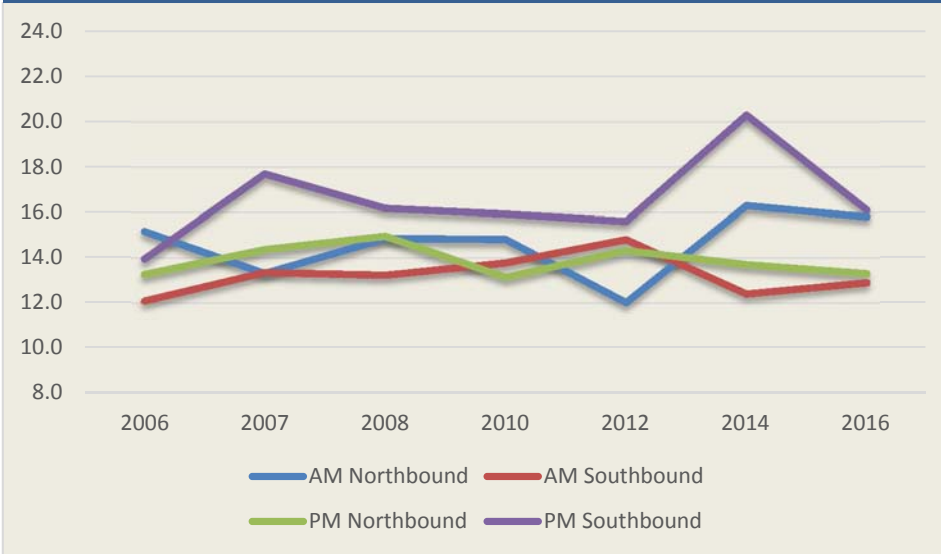
Travel times on Central Expressway in 2016 remained steady for all directions in the AM and PM peak periods. As shown in Figure 6.3, shows the travel times during the AM and PM peak periods. The limits for Central Expressway in this round of data collection are between Mayfield Avenue and De La Cruz Boulevard.



Foothill Expressway

As shown in Figure 6.4, travel times for Foothill Expressway decreased in the PM southbound direction while the other directions recorded steady travel times. Foothill Expressway's travel times were recorded between the limits of Homestead Road and Page Mill Road in Palo Alto.

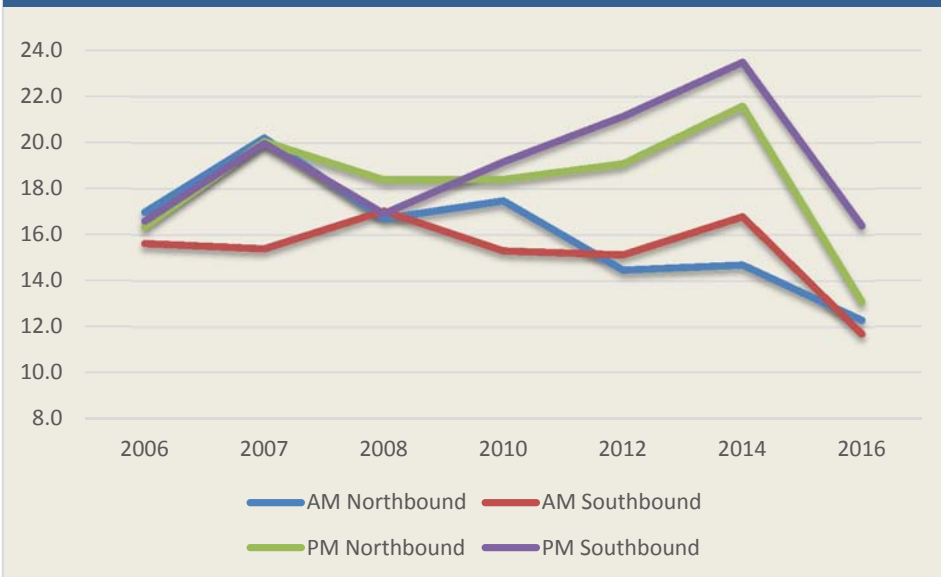
Figure 6.4 Foothill Expressway Travel Times (Minutes), 2006-2016



Lawrence Expressway

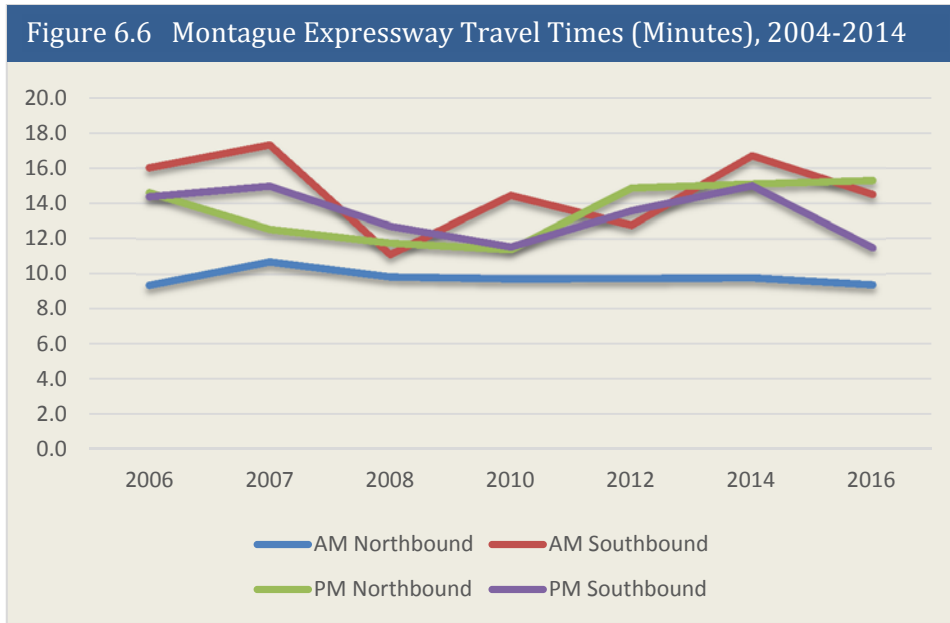
As shown in Figure 6.5, all travel directions along Lawrence Expressway recorded decreases in travel times, keeping in mind that the methodology for collection has changed. It is also likely it is showing a decrease due to the fact that the project limits collected were between Elko Drive in Sunnyvale and Moorpark Avenue in San Jose. The segment south of Moorpark towards Saratoga Avenue was not recorded.

Figure 6.5 Lawrence Expressway Travel Times (Minutes), 2006-2016



Montague Expressway

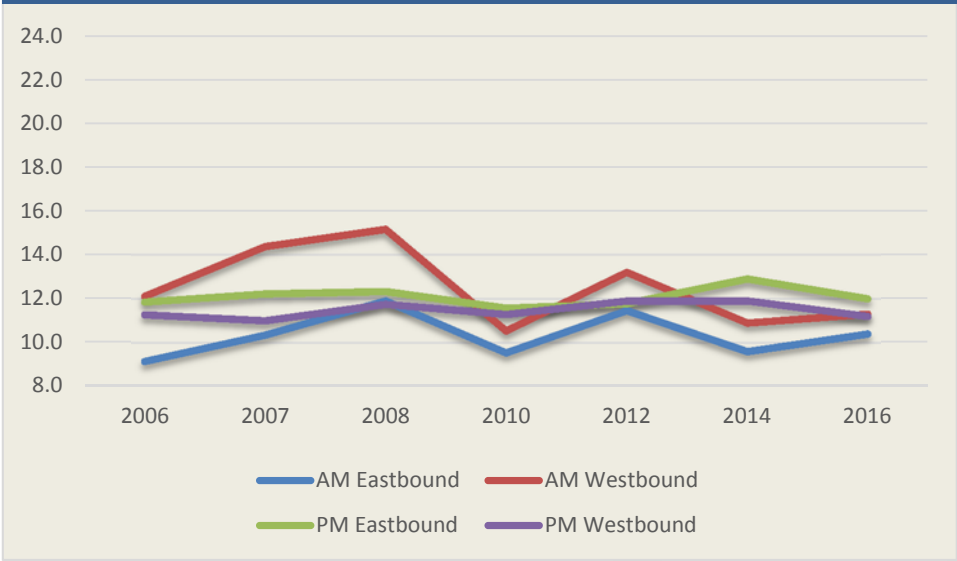
As shown in Figure 6.6, travel times remained steady even due to the change in collection methodology. The segments collected were between Pecten Court in Milpitas and Mission College Boulevard in Santa Clara.



Page Mill/Oregon Expressway

Travel times on Page Mill/Oregon Expressway remained relatively the same in 2016 as compared to 2014. Page Mill/Oregon Expressway was recorded for the segments between Deer Creek Road and West Bayshore Road in Palo Alto.

Figure 6.7 Page Mill/Oregon Expressway Travel Times (Minutes), 2004-2014



San Tomas Expressway

As shown in Figure 6.8, travel times for San Tomas Expressway decreased for all directions in both AM and PM peak periods with the new methodology. The limits of the areas that were monitored were Budd Avenue in Campbell to Walsh Avenue in Santa Clara, noting that this is not the entire length of San Tomas Expressway.

Figure 6.8 San Tomas Expressway Travel Times (Minutes), 2004-2014

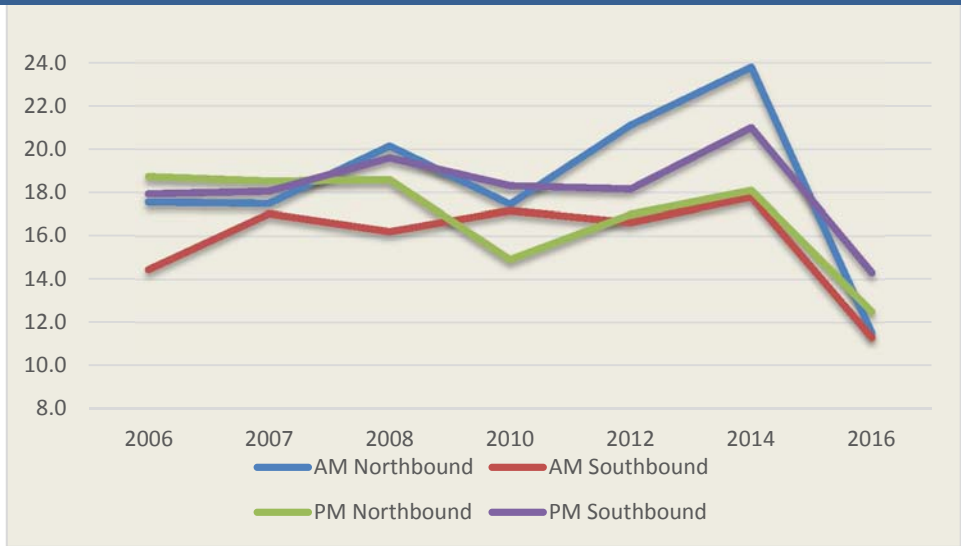


TABLE 6.1 | EXPRESSWAY TRAVEL SPEEDS, TRAVEL TIMES, AND STOPS, 2008-2016

Expressway	Direction	2008			2010			2012			2014			2016		
		Speed (mph)	Travel Time (min)	Stops	Speed (mph)	Travel Time (min)	Stops	Speed (mph)	Travel Time (min)	Stops	Speed (mph)	Travel Time (min)	Stops	Speed (mph)	Travel Time (min)	Stops
Almaden Expressway	AM NB*	36.5	14.0	3.3	36.5	13.4	3.8	37.5	13.6	3.8	34.2	15.0	4.8	33.9	8.9	N/A
	AM SB	33.5	15.3	7	33.5	13.7	4.8	34.9	14.7	6.3	32.0	16.0	7.3	28.8	10.4	N/A
	PM NB	24	21.3	8	24	15.2	6.3	34.6	14.8	4.3	31.9	16.1	6.3	30.6	9.8	N/A
	PM SB*	38.7	13.2	1.3	38.7	12.8	2.8	34.3	14.9	4.5	34.1	15.0	5.3	32.6	9.2	N/A
Capitol Expressway	AM NB*	30.2	16.7	5.3	30.2	18.3	7.7	27.1	18.7	7	30.6	16.5	6.7	33.1	14.3	N/A
	AM SB	32.7	15.5	3.6	32.7	16.6	7.3	25.9	19.5	8	27.0	18.7	7	31.0	15.3	N/A
	PM NB	31.4	16.1	3	31.4	14.9	5.3	33.5	15.1	5.3	29.2	17.3	5.7	26.0	18.2	N/A
	PM SB*	31.9	15.9	2.8	31.9	15.1	5.6	38.4	13.2	3.7	31.5	16.0	5.6	31.8	14.9	N/A
Central Expressway	AM EB*	34.4	16.8	3.5	34.4	14.2	5	35.4	16.4	4.3	34.7	16.7	7	35.1	16.5	N/A
	AM WB	28.1	20.6	6.3	28.1	15.9	5	31.7	18.3	6	35.1	16.5	4.7	32.2	18.0	N/A
	PM EB*	28.6	20.3	9.3	28.6	17.8	8.3	31.4	18.5	7	25.3	22.9	7.3	26.1	22.2	N/A
	PM WB	30.1	19.3	7.7	30.1	14.3	5.7	36.7	15.8	4.3	37.2	15.6	6.3	35.1	16.5	N/A
Foothill Expressway	AM NB*	29.3	14.9	5	29.3	14.8	5.8	36.2	12.0	5.3	26.7	16.3	7.8	25.8	15.8	N/A
	AM SB	32.9	13.2	4.7	32.9	13.8	6	29.4	14.8	6.5	35.1	12.4	6	31.6	12.9	N/A
	PM NB	29.1	15.0	7.7	29.1	13.1	5.3	30.4	14.3	5.3	31.7	13.7	5.8	30.7	13.3	N/A
	PM SB*	26.9	16.2	7.7	26.9	15.9	8	27.9	15.6	7.3	21.4	20.3	11	25.3	16.1	N/A
Lawrence Expressway	AM NB*	30.6	16.7	6.4	30.6	17.5	8.8	35.3	14.5	4.8	34.9	14.7	5.7	32.7	12.3	N/A
	AM SB	30	17.0	7.3	30	15.3	5	33.8	15.1	6	30.5	16.8	6.7	34.4	11.7	N/A
	PM NB	27.8	18.4	7.9	27.8	18.4	9	26.8	19.1	8.7	23.6	21.6	10.7	30.7	13.1	N/A
	PM SB*	30.2	16.9	4.5	30.2	19.2	9.5	24.2	21.2	10	21.8	23.5	7.7	24.5	16.4	N/A
Montague Expressway	AM NB*	36.9	9.9	3	36.9	9.7	4.3	37.3	9.8	3.3	37.1	9.8	3.3	34.1	9.4	N/A
	AM SB	32.7	11.1	3.2	32.7	14.5	7	28.5	12.8	6.8	21.7	16.7	10	22.1	14.5	N/A
	PM NB*	30.9	11.8	3	30.9	11.4	4.2	24.5	14.9	7.2	24.1	15.1	7.8	20.9	15.3	N/A
	PM SB	28.6	12.7	4	28.6	11.6	4.5	26.8	13.6	6.5	24.2	15.0	7.5	27.1	11.5	N/A
Page Mill Road/Oregon Expressway	AM EB*	26.8	11.9	6	23.3	9.5	4	24.2	11.5	7	28.9	9.6	4	22.5	10.4	N/A
	AM WB	19.3	15.2	9.3	18.3	10.5	5	21.0	13.2	7.5	25.5	10.9	5.6	20.7	11.3	N/A
	PM EB	22.7	12.3	6.3	22.5	11.6	5.6	23.5	11.8	5.5	21.6	12.9	8.2	19.5	12.0	N/A
	PM WB*	25.2	11.7	7.6	23.6	11.3	5.8	23.3	11.9	5.8	23.3	11.9	7	20.9	11.2	N/A
San Tomas Expressway	AM NB*	28.9	20.1	9.7	25.1	17.5	7.8	23.9	21.1	10	21.2	23.8	10	33.4	11.5	N/A
	AM SB	29.7	16.2	6	31.2	17.2	9.5	30.4	16.6	8	28.4	17.8	7	34.0	11.3	N/A
	PM NB	27.3	18.6	7	27.2	14.9	5	29.7	17.0	8	27.9	18.1	11	30.7	12.5	N/A
	PM SB*	28	19.6	8	25.8	18.3	8.4	27.8	18.2	7.3	24.0	21.0	10	26.9	14.3	N/A

7

Bicycle and Pedestrian Counts

Introduction

For the 2016 Monitoring and Conformance Report, VTA collected p.m. peak bicycle and pedestrian counts at 236 CMP intersections. The same effort was done for the 2012 and 2014 Monitoring and Conformance Reports. In 2014, VTA also began collecting 12-hour bicycle and pedestrian counts at twenty selected intersections, some of which are non-CMP intersections.

12-Hour Bicycle and Pedestrian Counts

In 2014, VTA selected twenty intersections for 12-hour counts. Locations were selected based on land use typology, and will assist VTA in identifying the bicyclist and pedestrian travel behavior and peak travel time in these different land use typologies. Over time, data from these locations can support countywide planning efforts and VTA’s Travel Demand Model by providing a more accurate understanding of pedestrian and bicycle activity. The twenty count locations represent the following land use typologies:

- Downtown
- Suburban residential
- Rural residential
- Office parks
- Commercial/commercial-industrial corridors

Tables 7.1 and 7.2 show the intersection locations, their associated land use typology, and the bicycle and pedestrian count numbers in 2014 and 2016.

Location	Land Use Typology	N/S Street	E/W Street	2014	2016	Difference
San Jose	Downtown	3rd Street	Santa Clara Street	187	70	-117
Palo Alto		Bryant Street	University Avenue	210	145	-65
Campbell		First Street	Campbell Avenue	42	38	-4
Gilroy		Monterey Street	5th Street	3	2	-1
Los Altos		2nd Street	Main Street	57	21	-36
Sunnyvale	Suburban Residential	Wolfe Road	Inverness Way	44	36	-8
San Jose		White Road	Mabury Road	11	30	19
San Jose		Macabee Road	Crossgates Lane	3	0	-3
Cupertino		Blaney Avenue	Rodriguez Avenue	39	20	-19
Morgan Hill	Rural Residential	Hill Road	Main Street	10	8	-2
Los Altos Hills		Purisima Road	Concepcion Road	43	17	-26
Saratoga		Pierce Road	Comer Drive	0	0	0
San Jose	Office Parks	N. First Street	Skyport Drive	7	3	-4

Table 7.1: Bicycle Counts at Twenty Intersections						
Location	Land Use Typology	N/S Street	E/W Street	2014	2016	Difference
Santa Clara		Bowers Avenue	Scott Boulevard*	56	83	27
Sunnyvale		Mary Avenue	Maude Avenue	61	324	263
Sunnyvale		Borregas Avenue	Java Drive	20	19	-1
San Jose	Commercial , Commercial- Industrial Corridors	Leland Avenue	San Carlos Street	88	60	-28
Sunnyvale		Halford Avenue	El Camino Real	40	28	-12
San Jose		7th Street	Phelan Avenue	32	21	-11
San Jose		Los Gatos Boulevard	Blossom Hill Road	74	30	-44

*CMP Count Location

Table 7.2: Pedestrian Counts at Twenty Intersections						
Location	Land Use Typology	N/S Street	E/W Street	2014	2016	Difference
San Jose	Downtown	3rd Street	Santa Clara Street	4,885	4,031	-854
Palo Alto		Bryant Street	University Avenue	9,904	8,383	-1,521
Campbell		First Street	Campbell Avenue	3,467	3,631	164
Gilroy		Monterey Street	5th Street	1,061	1,235	174
Los Altos		2nd Street	Main Street	3,879	3,886	7
Sunnyvale	Suburban Residential	Wolfe Road	Inverness Way	190	106	-84
San Jose		White Road	Mabury Road	108	81	-27
San Jose		Macabee Road	Crossgates Lane	33	106	73
Cupertino		Blaney Avenue	Rodrigues Avenue	425	336	-89
Morgan Hill	Rural Residential	Hill Road	Main Street	2	12	10
Los Altos Hills		Purissima Road	Concepcion Road	68	58	-10
Saratoga		Pierce Road	Comer Drive	22	4	-18
San Jose	Office Parks	N. First Street	Skyport Drive	588	546	-42
Santa Clara		Bowers Avenue	Scott Boulevard*	134	584	450
Sunnyvale		Mary Avenue	Maude Avenue	307	1,918	1,611
Sunnyvale		Borregas Avenue	Java Drive	833	748	-85
San Jose	Commercial , Commercial- Industrial Corridors	Leland Avenue	San Carlos Street	993	928	-65
Sunnyvale		Halford Avenue	El Camino Real	1,048	828	-220
San Jose		7th Street	Phelan Avenue	109	191	82
San Jose		Los Gatos Boulevard	Blossom Hill Road	426	371	-55

*CMP Count Location

Figure 7.1 and 7.2 show how bicycle and pedestrian counts at these twenty intersections change for three peak periods during the day. In most of these locations, pedestrian counts are in highest rate at midday peak (probably during lunch time) while bicycle counts are in the highest rate during peak morning and afternoon (probably commute time).

Figure 7.1 Line chart of AM, midday, and PM bicycle counts at twenty intersections

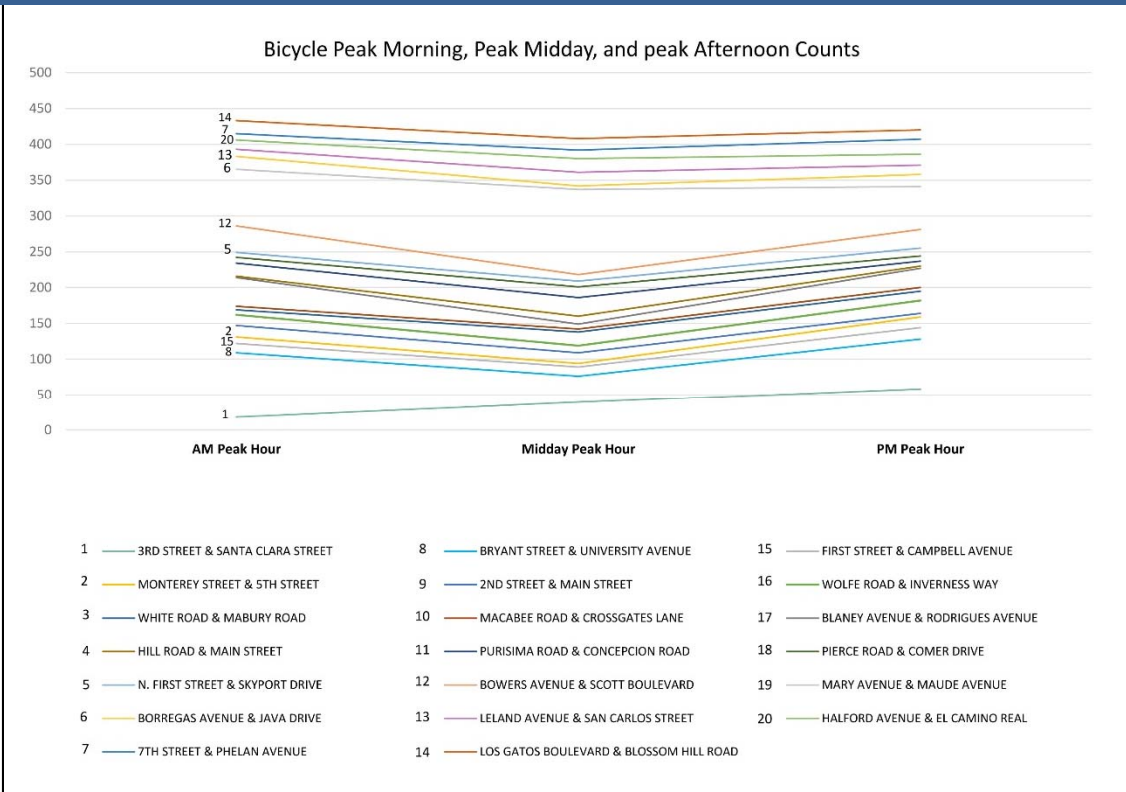
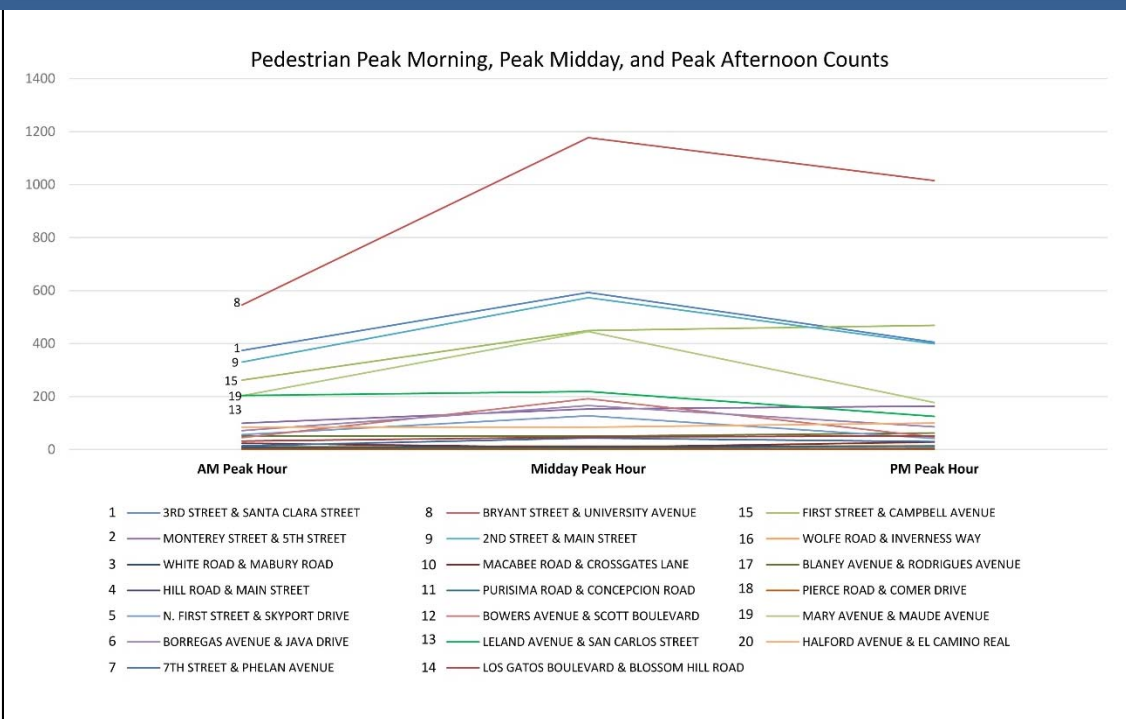


Figure 7.2 Line chart of AM, midday, and PM pedestrian counts at twenty intersections



Bicycle and Pedestrian Counts at CMP Intersections

Count Methodology

Bicyclists and pedestrians were counted per standard traffic data collection methods. All bicycle turning movements were recorded, therefore bicycle counts represent the true number of bicyclists traversing an intersection during the data collection period.

Pedestrians were counted as they crossed each leg of the intersection. This methodology is useful when estimating pedestrian risk at an intersection, but it does not reflect the true number of pedestrians at an intersection. Pedestrians that do not cross the street are not included in the count, and pedestrians that cross more than one leg of an intersection are counted more than once. Therefore, the count data may either under- or overestimate the number of pedestrians at an intersection. In the future, VTA will develop correction factors for selected intersections to provide a better estimate of pedestrian activity levels at specific locations.

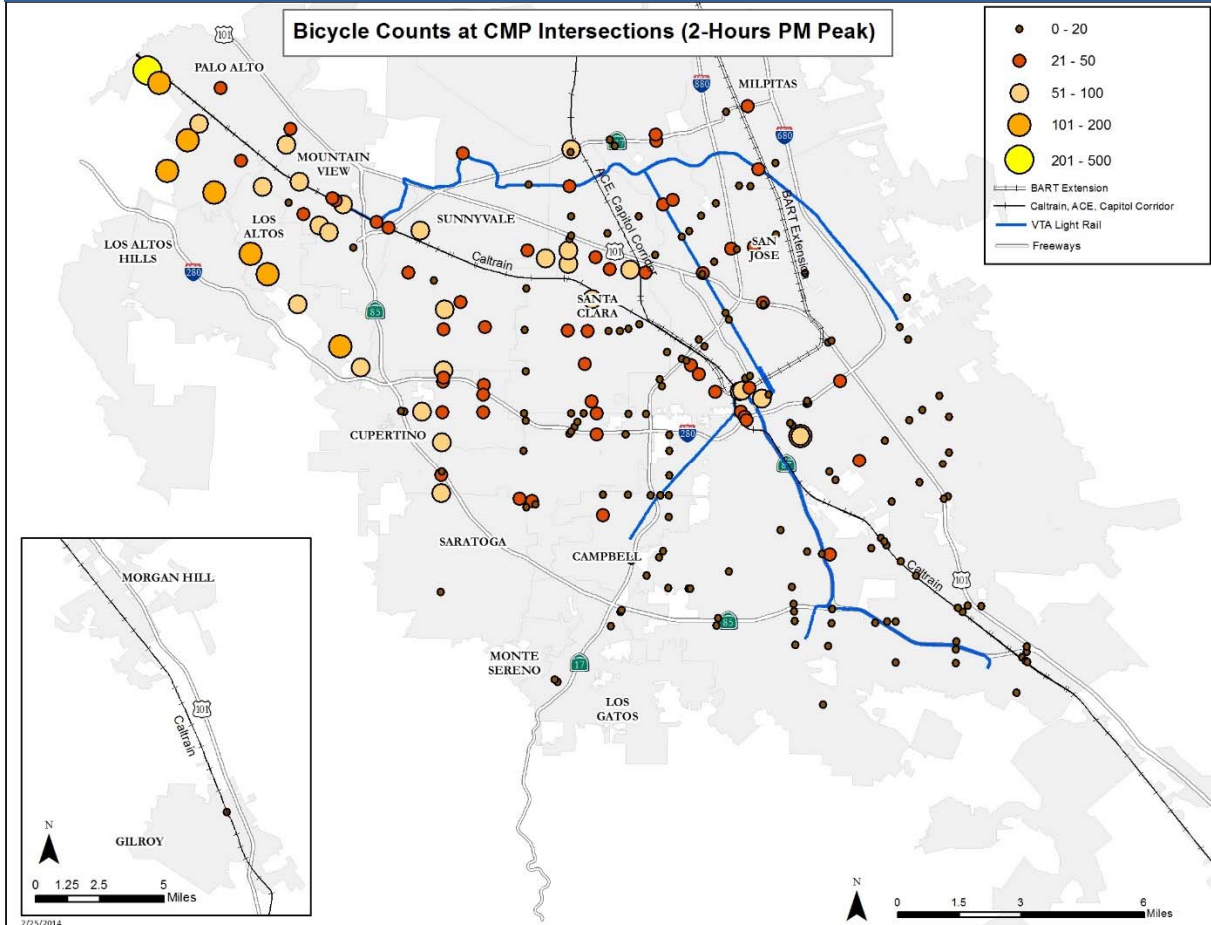
Count Times

The bicycle and pedestrian count data were collected at the 236 CMP intersections during the peak afternoon time on a weekday on September or October 2016. The peak afternoon commute period was defined as either 4:00-6:00 or 4:30-6:30 p.m.

Bicycle Counts Analysis at CMP Intersections

Figure 7.3 shows the bicycle count data collected in 2016 during 2 hours peak afternoon period. Overall, fewer bicyclists were counted in 2016 than in 2014. Total bicycle counts at CMP intersections in 2014 was 9,219. In 2016, a total of 6,291 bikes were counted at CMP intersections during the 2-hours peak afternoon period, which is a decrease from 2014. The 16 CMP intersections that were not counted in 2016 are excluded from this analysis; therefore, the decrease in bicycle counts at 236 counted intersections in 2016 is equal to 23%. However, the change varies throughout the county, with some locations seeing an increase, some seeing a decrease, and some seeing no change. The highest bicycle count during the peak afternoon hour was 448 in Palo Alto, at the intersection of El Camino Real and Palm Drive. The highest bicycle count during the peak afternoon hour in 2014 was 486 at the same location. Compared to 2014, the highest increase in afternoon peak hour bicycle counts was 66 at two locations: intersection of Hwy 237 and Great America Parkway in San Jose (Access to Bay Trail) and intersection of De Anza Boulevard and Homestead Road in Cupertino. The largest bicycle count decrease from 2014 was 139, in Los Altos, at the intersection of Foothill Expressway and Magdalena Avenue/Springer Road. Large fluctuation in counts can be due to a variety of factors, including special events, school schedule, or major land use changes.

Figure 7.3 Bicycle counts at CMP intersections during 2-hour peak afternoon time

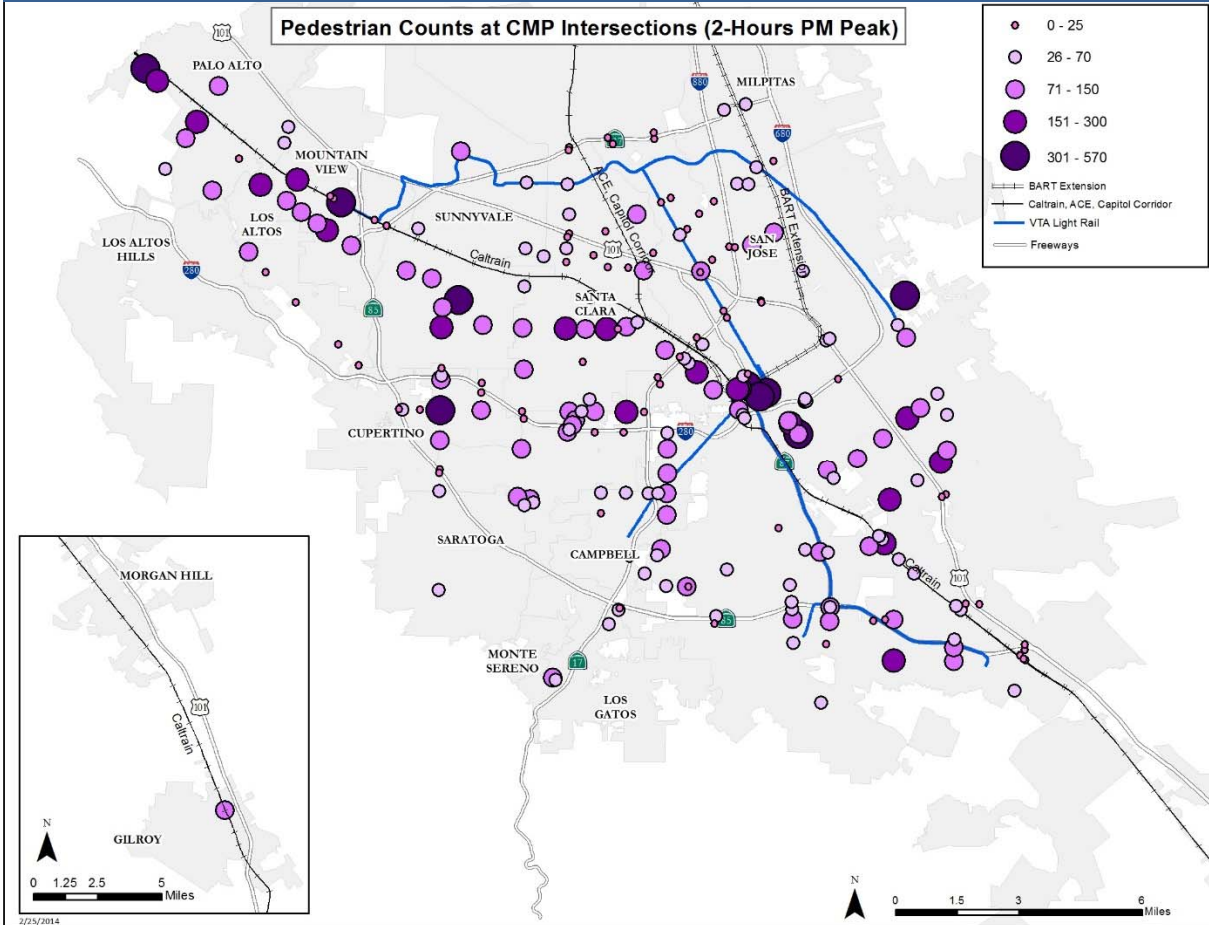


Pedestrian Counts Analysis at CMP Intersections

Figure 7.4 shows the pedestrian count data collected in 2016. The map shows pedestrian counts during 2-hours peak afternoon period. Overall, more pedestrians were counted in 2016 than in 2014. Total pedestrian counts at 252 CMP intersections in 2014 was 17,431. The 16 CMP intersections that were not counted in 2016 are excluded from this analysis. In 2016, a total of 17,234 pedestrians were counted at CMP intersections during the 2-hours peak afternoon period, which is an increase from 2014; this increase is equal to 5.5%. However, the location by location change varies throughout the county, with some locations seeing an increase, some seeing a decrease, and some seeing no change. The highest pedestrian count during the peak afternoon hour was 561 in Mountain View, at the intersection of Castro Street/Moffett Boulevard and Central Expressway. The second highest pedestrian count during peak afternoon hour was 540 in San Jose, at the intersection of East Santa Clara and Market Street.

Compared to 2014, the highest increase in afternoon peak hour pedestrian counts was 278 in San Jose, at the intersection of Monterey Hwy/First St and Alma Avenue. The second highest increase in afternoon peak hour pedestrian counts was 271 in San Jose, at the intersection of East San Carlos and Almaden Boulevard. The largest pedestrian count decrease from 2014 was 154, in Mountain View, at the intersection of El Camino Real and San Antonio Road.

Figure 7.4 Pedestrian counts at CMP intersections during 2-hour peak afternoon time



Background

The CMP legislation requires Member Agencies to prepare Deficiency Plans when CMP facilities located within their jurisdiction exceed the CMP traffic LOS standard, or when a project's Transportation Impact Analysis indicates that a violation of the LOS standard is expected to occur. In the 2013 Congestion Management Program, VTA adopted the term "Multimodal Improvement Plan (MIP)" for "Deficiency Plan" as defined in state statutes. Prior to August 2013, VTA used the term "Deficiency Plan," so this term still occurs in the Board-adopted VTA Deficiency Plan Requirements as well as two Deficiency Plans that have been prepared by cities in Santa Clara County.

Multimodal Improvement Plans identify offsetting measures to improve transportation conditions on the CMP system in lieu of making physical traffic capacity improvements such as widening an intersection or roadway. Per CMP legislation, each Multimodal Improvement Plan must include implementation of all feasible and applicable actions in the "Deficiency Action Item List," which is found in VTA's Deficiency Plan Requirements. Two Member Agencies in Santa Clara County currently have adopted Deficiency Plans: Sunnyvale has a citywide Deficiency Plan, and San José has a Deficiency Plan for North San José.

Implementation Status Reports

VTA's *Deficiency Plan Requirements* specify that Member Agencies with Deficiency Plans must submit a Deficiency Plan Implementation Status Report as part of the monitoring and conformance process for the CMP. These reports are intended to describe the progress on the implementation of all the improvements and actions in a Deficiency Plan. The status reports are to be based on the Implementation Monitoring Program contained in the Deficiency Plan. In addition to the status report provided for each action, the Member Agency must include a financial report on Deficiency Plan implementation.

While the Sunnyvale and North San José Deficiency Plans were adopted in 2005 and 2006, respectively, this is only the second year in which VTA enforced the requirement for these cities to submit Implementation Status Reports (the first year was 2011). Part of the impetus to request reports were that the economic climate has improved recently and new development is now occurring in both Deficiency Plan areas. VTA worked with Sunnyvale and San José staff to try to make the Status Reports as useful as possible, while minimizing Member Agency staff time requirements. The intent of the reporting process is to provide current information to VTA as well as neighboring cities and other stakeholders on actions that are being implemented through existing MIPs in Santa Clara County.

Both Sunnyvale and San José submitted reports during this monitoring cycle, which provide a summary of the city's progress on the implementation of the actions in their MIPs. These reports cover progress during the period from adoption (2005/2006) through the 2016 Monitoring cycle; Sunnyvale's status report includes activities through February 2016, while San José's status report extends to June 2016. Future status reports will include a brief section at the start highlighting what is new since the previous year's report. A copy of the two Deficiency Plan Implementation Status Reports is included in an appendix to this Monitoring and Conformance Report.

Sunnyvale Citywide MIP - 2016 Implementation Status Report Highlights:

The following are key highlights of the 2016 Implementation Status Report for the City of Sunnyvale's citywide MIP:

- This MIP covers the entire City of Sunnyvale, an area that contains 14 CMP intersections. Anticipated development in Sunnyvale (noted in the original Deficiency Plan document) includes build-out of the Sunnyvale General Plan; development of the Moffett Park Specific Plan; residential intensification in the Fair Oaks area; and residential intensification in Downtown.
- The Implementation Status Report notes that a traffic impact fee was implemented in Sunnyvale in 2004. (This fee predated the Deficiency Plan and covers more items than just the Deficiency Plan improvements). The traffic impact fee has been reviewed and updated annually since then. The Status Report lists the funding sources for the Deficiency Plan actions and shows that a variety of sources have been used to fund actions to date, including traffic impact fees, gas tax revenues, the City's General Fund, developer contributions, and several grant funding sources.
- The City reports progress in making improvements to several CMP intersections that were identified in the MIP as having potential future deficiencies. The actions also include work on the Mary Avenue extension, which has completed its PSR/PR, completion of conceptual engineering, and has begun the Environmental phase.
- The Implementation Status Report notes that the City has made significant progress on implementation of non-auto off-setting actions. Accomplishments include addition of bike lanes on many roadways between 2005 and 2016 (including Mary Ave between Fremont Ave and Evelyn Ave. and others); completion of conceptual design for bike lanes on other roadways (including Mary Avenue and Java Drive); Mary Ave between Evelyn Ave and Maude Ave is currently under design. Sharrow installation for bikes have been completed at various routes. Bernardo Avenue Bike/Ped Caltrain Undercrossing project had conceptual design and feasibility analysis completed in 2004. RFP for environmental review and preliminary concept design to be released in early 2017. It also includes travel lane removal to provide bike lanes, various

locations, including Evelyn Ave., Fair Oaks Ave. to Stewart Drive, and Mary Ave. between Fremont Ave. and El Camino Real.

- The City reports progress in implementing a number of policies and actions called for in the Deficiency Plan to improve transportation & land use integration, and manage travel demand from new development. These include an updated Precise Plan for El Camino Real that is currently underway and retitled as El Camino Real Corridor Specific Plan and EIR. The document will guide the development of El Camino Real within Sunnyvale to be more in line with complete streets policy; Moffett Park Specific Plan implementation has resulted in transit-friendly zoning and construction of multiple transit-oriented higher density Class A office/campus facilities along the Tasman West light rail line; Ordinance to Amend Municipal Code to enhance TDM Program which includes monitoring and penalty fees established if owner is not meeting trip reduction requirements; implementing FAR bonuses for meeting green building requirements must provide TDM reductions to the level of FAR before the bonus is factored in; and updated sidewalk standards.

North San José Deficiency Plan - 2016 Implementation Status Report Highlights:

The following are key highlights of the 2016 Implementation Status Report for the North San José Deficiency Plan:

- This Deficiency Plan accompanies the North San José Development Policy, which provides for development of up to 26.7 million square feet of industrial use, 1.7 million square feet of retail use, and 32,000 residential units. The planned development is broken into four phases, with one-fourth of the development accommodated in each phase.
- The Implementation Status Report notes that since Fiscal Year 2008, approximately \$45.43 million in traffic impact fees has been collected for development in the North San José area; \$19.10 million of this was collected in Fiscal Years 2015-16. The report states that the main expenditure from the fees collected to date has been on CMP Intersection Improvements – in particular, improvements at City intersections at Montague Expressway. During this reporting period, six projects in the Deficiency Plan area were listed as being completed. Other projects in the Deficiency Plan have been completed or are underway, using other funding sources such as City of San José Local funds; Federal, state, or regional grant funds; or City of San José staff time.
- The City reports significant progress on implementation of non-auto off-setting actions identified in the MIP, primarily bicycle/pedestrian trails and other bicycle improvements. These include the completion of the NEPA document for the Guadalupe River Trail, Hetch Hetchy Parkway, Coyote Creek Trail (SR-237 to Tasman), completion of the North San Jose Bike Master Plan, Design completion of Bay Trail 9

and 9B (near Gold Street, 1.1 miles and a pedestrian bridge), and engineering work for several other bicycle projects.

- The Implementation Status Report notes that the City has implemented a number of the policies called for in the Deficiency Plan to improve transportation & land use integration, and manage travel demand from new development. These adopted policies include site design guidelines for new development; numerous policies that promote new development within transit corridors to encourage alternate modes of transportation; implementation of two new land use designations in the General Plan, and implementation of a new Corporate Industrial Core Area along North First Street light rail corridor.

VTA staff reviewed the Implementation Status Reports submitted by the cities of Sunnyvale and San José during this reporting cycle, and found them to be in conformance with the CMP Deficiency Plan reporting requirement.

Upcoming Efforts

As noted above, the cities of Sunnyvale and San José have made substantial progress in implementing the actions and improvements called for in their respective Multimodal Improvement Plans/Deficiency Plans. However, a number of actions in each Plan have not yet been addressed. This may be due to funding constraints, competing city priorities, or the fact that development has not progressed enough to warrant certain improvements. As the Congestion Management Agency for Santa Clara County, VTA remains committed to working with these cities to monitor progress and support the implementation of the actions in their Multimodal Improvement Plans/Deficiency Plans.

It is expected that over the next few years, several additional Member Agencies in Santa Clara County will need to prepare Multimodal Improvement Plans due to growth that is projected to impact CMP facilities. These include the following:

- City of Mountain View: In July 2012, the City adopted a new General Plan through the year 2030. The EIR transportation analysis for the General Plan found that the amount of growth under the Plan would cause Significant and Unavoidable congestion impacts on a number of CMP facilities in the City, including portions of El Camino Real and San Antonio Road and a number of freeway segments. The General Plan includes a narrative and a policy stating that the City does not intend to widen streets or add traffic lanes as a means of improving traffic congestion, and that the City will place significant focus on strategies that manage roadway demand such as Complete Streets policies, Transit-Oriented Development, and TDM programs. VTA supports this approach, but at the time noted that the City will need to prepare an MIP to address the projected deficiencies identified in the EIR. Following the adoption of the 2030

General Plan, in late 2014 the City of Mountain View adopted three new Precise Plans (for North Bayshore, El Camino Real, and San Antonio Center) which specified the planning framework for growth in these change areas. In late 2015, the City began the process of preparing a city-wide MIP, to address the identified LOS impacts for CMP intersections within Mountain View. The City and VTA staff have been coordinating throughout this process, and the City has now prepared a Draft Action List with proposed actions, along with the status, source document, and responsibility noted for each. VTA and City staff are scheduled to bring an update on Mountain View's MIP as an Informational item to several VTA Board Committees in May 2017, and following that Mountain View is planning to complete its MIP including developing an Action Plan, implementation and funding framework, and inter-jurisdictional coordination. Following adoption by the Mountain View City Council, the MIP will be brought to the VTA Board for adoption.

- City of Santa Clara: In June 2016, the City approved the City Place Santa Clara project, a phased, 9.2 million-square foot development containing commercial office, retail, hotel, and residential uses. The EIR transportation analysis for City Place analyzed 37 CMP intersection; 13 within the City of San Jose, two within the City of Sunnyvale, and 19 within the City of Santa Clara. Mitigation measures were developed for significant impacts identified in the Cities of San Jose and Sunnyvale, in accordance with the existing Deficiency Plans in these cities. Within the City of Santa Clara, seven of 19 intersections could only be partially mitigated and would continue to operate below the acceptable LOS standard, triggering the requirement for a Multimodal Improvement Plan. As part of the City Place approval, the City committed to preparing a Multimodal Improvement Plan. In early 2016, the City began the process of preparing seven mini-plans to address the seven deficient CMP intersections. The City and VTA staff have been coordinating throughout this process, and the City is developing a Draft Action Plan. VTA and City staff are scheduled to bring an update on Santa Clara's MIP as an Informational item to several VTA Board Committees in May 2017, and following that Santa Clara is planning to complete its MIP including developing a Draft Action List, Draft Action Plan, implementation and funding framework, and inter-jurisdictional coordination. Following adoption by the Santa Clara City Council, the MIP will be brought to the VTA Board for adoption.
- City of San Jose: The City of San Jose is expected to finalize several Urban Villages Plans (Santana Row / Valley Fair, Winchester, Stevens Creek, South Bascom, West San Carlos) by fall 2017 to set a framework to accommodate anticipated growth within the west San Jose area. The City of San Jose expects transportation conditions to also change with such growth, and there are many efforts underway to address changing transportation conditions in west San Jose. The City of San Jose is preparing a West San Jose Multimodal Transportation Improvement Plan (WSJ MTIP), which synthesizes and advances planning efforts in order to develop a comprehensive program of actions to

address multimodal transportation needs. As part of this effort, it is the City's intention to create a MIP fully consistent with CMP requirements. Implementation and funding of projects and programs included in the WSJ MTIP is expected to be supported by an Area Development Policy (ADP) and associated impact fee and other implementation mechanisms included in the Implementation Chapters of the Urban Village Plans.

VTA is prepared to assist these cities, as well as all Member Agencies, in developing Multimodal Improvement Plans that meet the requirements of state law and help manage congestion and air quality and provide additional transportation options in Santa Clara County. The development of a Multimodal Improvement Plan can be an opportunity to identify multimodal transportation improvements that can help meet both city and VTA CMP goals. It is also worth noting that due to recent state legislation including SB 375 in 2009 and SB 743 CEQA reform in 2013, the emphasis of Multimodal Improvement Plans in coming years may shift towards reducing Vehicle-Miles-Traveled and auto trip generation in addition to managing congestion. VTA is actively involved in discussions regarding the implementation of these laws, and is working to educate and assist Member Agencies as they are implemented.

DRAFT

The conformance findings for the 2016 Monitoring Program is presented below.

Land Use Submission

All Member Agencies have complied with the CMP land use data requirement.

CMP Intersections

VTa monitored 242 CMP intersections for level of service. Six intersections, Page Mill/Oregon Expressway at Foothill Expressway, San Tomas Expressway at Campbell Avenue, SR 17 at San Tomas Expressway/Camden Avenue, Capitol Expressway at Aborn Road, Montague Expressway at McCarthy Blvd/O'Toole Avenue and Central Expressway at De La Cruz Boulevard operated at LOS F. The former intersections operated at LOS F under the 1991 baseline conditions and is exempt from the LOS standard. The latter has been deficient since 1996.

Rural Highways

All rural highway segments operated at LOS E or better in 2016.

Freeway Segments

93 freeway segments (95 miles) operated at LOS F during the AM peak period and 77 freeway segments (70 miles) operated at LOS F in the PM peak period. Of these, 24 AM and 27 PM segments operated at LOS F in the 1991 baseline year and therefore, LOS-exempt. This results in 71 deficient AM segments and 67 deficient PM miles.

Member Agencies with deficient freeway segments located within their jurisdiction are not penalized due to the regional nature of freeway congestion. However, they are encouraged to implement strategies listed in the Immediate Implementation Action List found in the *CMP Deficiency Plan Guidelines*.

Deficiency Plans

City of Sunnyvale and City of San Jose have complied with the reporting requirement for the Deficiency Plans by submitting an updated Deficiency Plan Implementation Status Report for 2016.