



**SANTA CLARA VALLEY TRANSPORTATION AUTHORITY
(VTA)**

2024 CMP MONITORING AND CONFORMANCE REPORT

Santa Clara County, California

Final Draft Report

June 2025



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EXECUTIVE SUMMARY

The Santa Clara Valley Transportation Authority (VTA), as the Congestion Management Agency (CMA) for Santa Clara County, is required by state statute to analyze all Congestion Management Program (CMP) roadways every two years. The purpose is to ensure its Member Agencies (all the cities and towns in Santa Clara County, as well as the County of Santa Clara) are developing in a manner consistent with the CMP standards. VTA conducts this analysis on an annual basis and prepares the annual Monitoring and Conformance Report, which documents the CMP conformance findings.

Typically, the scope of data collection is reduced to freeway monitoring every other year, during odd-numbered years, to minimize the ongoing cost of analyzing the CMP network. This 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 during even-numbered years (typically in the fall) as part of the full scope.

Due to the COVID-19 pandemic, in 2020 monitoring cycle, VTA reduced the data collection scope to only include mixed flow freeway monitoring using INRIX big data. The full data collection scope resumed for the 2022 CMP Monitoring and Conformance Report. To bring the monitoring cycle back on track with a full report during even numbered years, the 2024 CMP Monitoring and Conformance Report includes the full scope of data collection in the fall of 2024. Overall, traffic volumes have increased since the lows documented during quarantine in 2021, however, it is not yet back to pre-Covid levels.

Land Use

VTA's Member Agencies submit land use data to VTA in the form of residential, commercial, and industrial project approvals for the prior fiscal year. The data reflects changes in residential dwelling units for approvals as well as estimated changes in commercial and industrial project approvals. Job change estimates are determined by applying employee density values to building square footage and land use type of commercial and industrial projects in order to estimate how many jobs are likely created or lost (in the case of a redevelopment project) as a result of the land use approval.

In 2024, a total of 7,260 dwelling units were approved, a significant decrease of 24 percent from 2023. The estimated number of jobs created by commercial and industrial approvals totaled 3,993, which is an 80 percent decrease from 2023 where the number of added jobs was over 20,000. However, in prior years, the number of jobs added ranged from 11,212 to 20,412.

CMP Intersections

VTA collected intersection vehicular, pedestrian, and bicycle data for all CMP locations.

Nine (9) intersections were observed to operate below the CMP LOS Standard of LOS E or better, four of which are exempt from the CMP LOS standard. This is the same trend that were observed at LOS F in the 2022 monitoring cycle. Five intersections have degraded to LOS F since 2022, while five intersections have improved from LOS F since 2022.



Twenty-eight (28) intersections degraded by one LOS grade between the 2022 and 2024 monitoring cycle, while one intersection degraded by two and three LOS grades during this same time.

One (1) intersection improved by two LOS grades between the 2022 and 2024 monitoring cycle, while twenty-six (26) intersections improved by one LOS grade during the same time.

The 2024 monitoring report findings are consistent with the 2022 monitoring year, however, it is inconsistent with the 2018 monitoring year and prior due to the differences in analysis methodologies between TRAFFIX™ and VISTRO. At some intersections where the LOS is at the borderline, this result can easily swing due to this change in methodology as well as the generalized reduction in traffic volumes due to the pandemic.

Although the five intersections that are non-exempt that were observed to operate at LOS F would trigger the requirement of a Multi-Modal Improvement (MMIP) Plan, or Deficiency Plan. VTA recommends providing a grace period to monitor traffic conditions until the next CMP Intersection Monitoring cycle, conduct additional analysis, and reach consensus with Systems Operations and Management Working group members prior to requiring MMIPs.

Freeway

LOS monitoring of the mixed-flow traffic lanes (non-HOV) was performed using commercially-available vehicle speed data from INRIX. In the 2024 reporting year, there were 91 and 111 directional miles operating at LOS F during the AM and PM peak periods, respectively, without consideration of the CMP exemption.

Table 1.0: 2024 Summary of Freeway LOS Monitoring

Freeway	# of INRIX Segments	AM Peak Period	PM Peak Period
		Number of Segments at LOS F	
SR-17	71	14	6
SR-85	118	50	37
SR-87	36	9	17
US-101	243	73	85
SR-237	41	19	27
I-280	103	33	47
I-680	45	14	12
I-880	53	26	30
TOTALS	710	238	261

Segments that operated at LOS F when monitoring began in 1991 are exempt from CMP level of service standards. 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.

Rural Highways

Twelve rural highway segments were analyzed as part of the 2024 Santa Clara VTA CMP Monitoring and Conformance Report. The key findings from the 2024 study include:

Peak hour traffic volumes in 2024 have gradually increased since 2022, except at State Route 152 west of Holsclaw Road (Location #8), State Route 25 south of Bloomfield Avenue (Location#9), and State Route 152 east of State Route 156 (Location#11), which experienced a one percent decrease in peak hour volumes. In addition to this, State Route 156 south of State Route 152 (Location#10), and State Route 9 east of State Route 35 (Location#12), which experienced an 8 percent decrease in peak hour volumes.

When compared to 2022, the level of service is the same at the four segments and improved or degraded by one/two grade at seven segments. The LOS for all the rural highway segments meet the identified CMP standard for the segment as LOS E or better and thus are in conformance.

Expressway Study

Overall, travel times on the expressways increased when compared to 2022, ranging from one percent to 13 percent. Montague Expressway experienced the largest increase in travel time of 13% in the westbound direction during the AM peak period. Central Expressway experienced an increase in travel time of 11% in the westbound direction during the PM. Also, Montague Expressway experienced an increase in travel time of 11% in the eastbound direction during the PM.

Bicycle and Pedestrian

Bicycle and pedestrian counts were collected at the same 20 locations analyzed in the 2022 study. In general, significantly fewer bicyclists were counted at these 20 locations in 2024 than in 2022 during the AM and PM peak periods. The a.m. peak period saw a six percent reduction, the mid-day peak period saw a seven percent increase and the p.m. peak period saw an eight percent reduction. This is a reverse in the trend from 2018 to 2022 as that period indicated a significant increase in the number of bicyclists. The 2024 bicycle counts are even slightly lower than the counts in 2018.

However, there is also bicycle and pedestrian data collected at all 252 CMP study intersections during the 2 hour p.m. peak period of 4:30 to 6:30 p.m. This data indicates that there is a 5% decrease in bicyclists counted in 2024 compared to 2022. The data also indicates that the number of pedestrians counted is 9% increase in 2024 compared to 2022.

Conformance Findings

The 2024 Monitoring and Conformance Report finds all Member Agencies in compliance with the CMP monitoring requirements.

CHAPTER 1: INTRODUCTION

California Government Code Section 65089 mandates the development of a Congestion Management Program (CMP) for each county that includes an urbanized area 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 goal of the monitoring program is to improve the performance of the transportation system by identifying congested areas and related transportation deficiencies. This information is then used to help prioritize transportation funding decisions in light of system performance, land use factors, multimodal characteristics, and other considerations.

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 led to a decision to reduce the scope of monitoring in the “off-years”, or odd-numbered years, while still meeting the requirements of the CMP statute. In 2024, a full data collection scope was conducted to bring the CMP monitoring back on the schedule of conducting a full data collection scope on even numbered years.

1.1: Level of Service

Traffic congestion is monitored on the CMP roadway network which is comprised of freeways, state highways, expressways, and principal arterials. *Level of service* (LOS) is a qualitative term used to describe a roadway's operating condition. The LOS of a road or street is designated by a letter grade ranging from A to F, with LOS A representing free-flow conditions with little or no delay and LOS F representing forced flow with excessive delays. California Government Code Sections 65089.1 (A) and (B) require that LOS standards be established by, in this case, VTA for the roadways and intersections designated to be in the CMP Roadway System. Santa Clara County's LOS standard is LOS E. An explanation of the various levels of service is shown below in **Table 1.1**.

Table 1.1: LOS Definitions for Freeways

LOS Level	Description
A	Free-flow conditions with unimpeded maneuverability.
B	Reasonably unimpeded operations with slightly restricted maneuverability.
C	Stable operations with somewhat more restrictions. Motorists will experience appreciable tension while driving.
D	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.
E	Unstable flow at or near capacity levels with poor levels of comfort and convenience.
F	Forced traffic flow in which the amount of traffic approaching a point exceeds the amount that can be served. Characterized by stop-and-go waves and poor travel times.

Sources: *Highway Capacity Manual*

1.2: 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 (monies) withheld. If the LOS standard cannot be met, a deficiency plan, now known as Multi-Modal Improvement Plans (MIPs) must be prepared by the local agency and 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 LOS D/E and E/F thresholds which are selected by VTA for Santa Clara County conditions.

CHAPTER 2: LAND USE

2.1: Introduction

California State CMA legislation requires Congestion Management Agencies to monitor land use changes within the jurisdiction of its Member Agencies. Each year, VTA monitors land use changes in Santa Clara County by requesting land use data from Member Agencies in terms of residential, commercial, and industrial projects that have been approved. Through this process, VTA is also able to see how many approved dwelling units and estimated jobs are near VTA transit corridors.

2.2: Land Use Approvals

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. If a development is constructed then the traffic effects are expected to be accounted for when traffic counts and other types of travel data are collected.

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 building. 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
3.40	Office/Educational/Institutional/Hospital
3.10	Transportation
2.50	R&D Office
2.00	Hotel/Motel
1.75	Retail/Manufacturing
0.75	Non-Manufacturing
0.00	Park/Recreation/Agriculture/Cemetery/Urban Reserve

Notes: Density is measured in the number of jobs per 1,000 square feet of building area

The focus of VTA's land use analysis is development approvals that provide the capacity to accommodate population and employment growth. Parks, community centers, and similar land uses are not included, since they tend not to change the residential or employment numbers very much. 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:

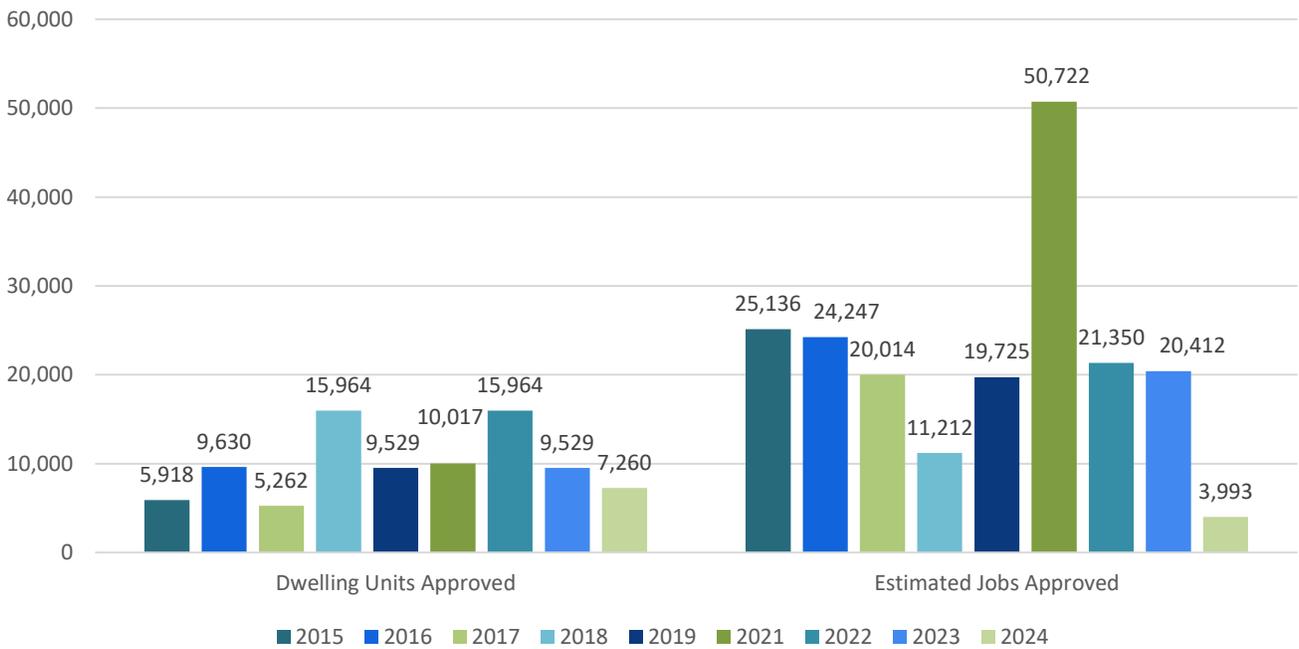
- Assumption: commercial and industrial sites were fully occupied for employment use.



- Assumption: 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 and 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 and industrial conversions, which may adversely impact job change estimates.

Despite these limitations, the analysis provides valuable information to illustrate the trend of land use development, where housing and employment trends are heading, and where growth is being targeted. **Figure 2.1** shows the number of approved dwelling units countywide, as well as an estimated number of jobs based on approved commercial and industrial square footage.

Figure 2.1: Approved Land Use Changes; 2015-2024 (Excluding 2020)



As shown in **Table 2.2**, Member Agencies approved 7,260 residential units in 2024, a 24 percent decrease from the previous year when 9,529 units were approved. This is also a decrease from the number of residential units approved in 2016, 2018, 2019, 2021, and 2022. However, it is higher than the number of units approved in 2015 and 2017. The City of San Jose approved 4,531 residential units, which accounts for 62 percent of the units approved.

Table 2.2: Approved Residential Units; 2015-2024 (Excluding 2020)

Member Agency	2015	2016	2017	2018	2019	2021	2022	2023	2024
Campbell	273	23	24	14	20	44	8	28	11
Cupertino	15	788	19	1	2,402	267	27	206	3
Gilroy	646	810	810	25	787	132	113	112	63
Los Altos	4	4	27	3	0	20	70	141	0
Los Altos Hills	3	20	0	10	0	5	0	2	4
Los Gatos	53	6	18	329	143	51	2	10	5
Milpitas	857	0	177	244	45	338	505	139	162
Monte Sereno	0	0	0	0	36	1	7	1	1
Morgan Hill	241	372	84	65	47	102	596	366	74
Mountain View	1,051	277	344	804	1,986	561	768	527	288
Palo Alto	18	38	15	96	138	30	0	176	97
San Jose	2,112	4,127	1,662	1,098	3,450	6,778	1,017	7,047	4,531
Santa Clara	572	2,512	1,117	318	605	1,051	12,556	713	1,330
Santa Clara County	0	0	0	0	0	0	1	19	0
Saratoga	0	0	13	23	20	3	6	7	17
Sunnyvale	73	653	952	492	2,061	634	288	35	674
Total	5,918	9,630	5,262	3,522	11,740	10,017	15,964	9,529	7,260

*Does not include Accessory Dwelling Units (ADUs); Sunnyvale approved 96 ADUs in 2021

As shown in **Table 2.3**, commercial and industrial approvals in 2024 resulted in an estimated total of 3,993 jobs. Compared to 2023, this is an 80 percent decrease. Job change estimates saw a decline from 2018 to 2019, followed by a record year in 2021. However, 2024 saw an uncharacteristically record decrease over prior years.

Table 2.3: Job Change Estimates Based on Commercial/Industrial Approvals (2015-2024)

Member Agency	2015	2016	2017	2018	2019	2021	2022	2023	2024
Campbell	-120	6	445	20	48	5	27	21	11
Cupertino	21	144	5	2	5,483	35	133	955	10
Gilroy	10	250	250	571	485	32	160	357	0
Los Altos	19	1	-6	1	0	19	-23	-44	0
Los Altos Hills	0	0	0	0	0	0	0	0	0
Los Gatos	12	2	9	459	178	0	0	70	301
Milpitas	0	0	18	759	406	962	164	202	25
Monte Sereno	0	0	0	0	-6	0	0	0	0
Morgan Hill	968	170	133	131	585	1,934	45	57	177
Mountain View	1,698	3,017	3,017	-107	3,549	1,437	331	963	348
Palo Alto	1,840	1,809	1,257	98	713	29	155	242	187
San Jose	3,510	6,215	6,325	6,488	6,686	39,778	12,510	17,026	2,965
Santa Clara	14,245	5,733	2,090	981	308	2,949	2,512	5	13
Santa Clara County	1,302	0	304	915	42	0	784	11	0
Saratoga	0	0	0	0	0	0	14	0	0
Sunnyvale	1,631	6,900	6,167	895	1,247	2,846	4,536	546	-44
Total	25,136	24,247	20,014	11,212	19,725	50,026	21,350	20,412	3,993



2.3: Proximity to Cores, Corridors, and Station Areas

In 2003, VTA in partnership with Member Agencies developed the Community Design and Transportation (CDT) Manual to craft best practices for land use and transportation. The CDT Manual established a framework of Cores, Corridors and Station Areas (CCSAs) 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 their location near major transit corridors and station areas.

Spatial analysis was conducted on the land use data submitted by Member Agencies to determine the proximity of approved developments to the CCSAs. Proximity is defined as being within 1/3 mile of a major transit station or 1/4 mile from the core areas or a future Bus Rapid Transit (BRT) corridor. The purpose of the spatial analysis is to illustrate where housing and employment trends are occurring and possibly where future growth may occur.

As shown in **Table 2.4**, there were 7,260 total residential units approved in 2024. Of these, 3,679 residential approvals, or 51 percent, were located within the CCSAs. This is a significant decrease from 2023 when 79% percent of the potential growth in housing was planned near the targeted areas for development.

Of the 3,993 estimated jobs in commercial and industrial development, 512 jobs or 13 percent were located within the CCSAs. This is a decrease from 2023, when 49 percent of the commercial/industrial approvals were within the CCSAs.

It is worth noting that this is based on planning approvals and not related to building permits.

Table 2.4: Land Use Approvals near CCSAs (2016-2024)

	2016	2017	2018	2019	2021	2022	2023	2024
Residential Unit Approvals within CCSAs	3,586	2,421	1,023	4,651	8,265	2,355	7,493	3,679
Total Units	9,630	5,262	3,522	11,740	10,017	15,964	9,529	7,260
% Near CCSAs	37%	46%	29%	40%	83%	15%	79%	51%
Job Change Estimates within CCSAs	9,929	5,004	2,192	7,792	42,059	13,555	10,091	512
Total Estimated Jobs	24,247	20,014	11,212	19,725	50,026	21,350	20,412	3,993
% Near CCSAs	41%	25%	20%	40%	84%	63%	49%	13%

Figure 2.2 and **Figure 2.3** show the location of approved residential units between 2018 and 2024 in relation to VTA’s established CCSAs, as well as the net change of residential units in 2024. **Figure 2.4** and **Figure 2.5** map out the same for estimated jobs, showing their proximity to VTA’s CCSAs and the net change in jobs in 2024.



Figure 2.2: Approved Residential Units near VTA's CCSAs (2018-2024)

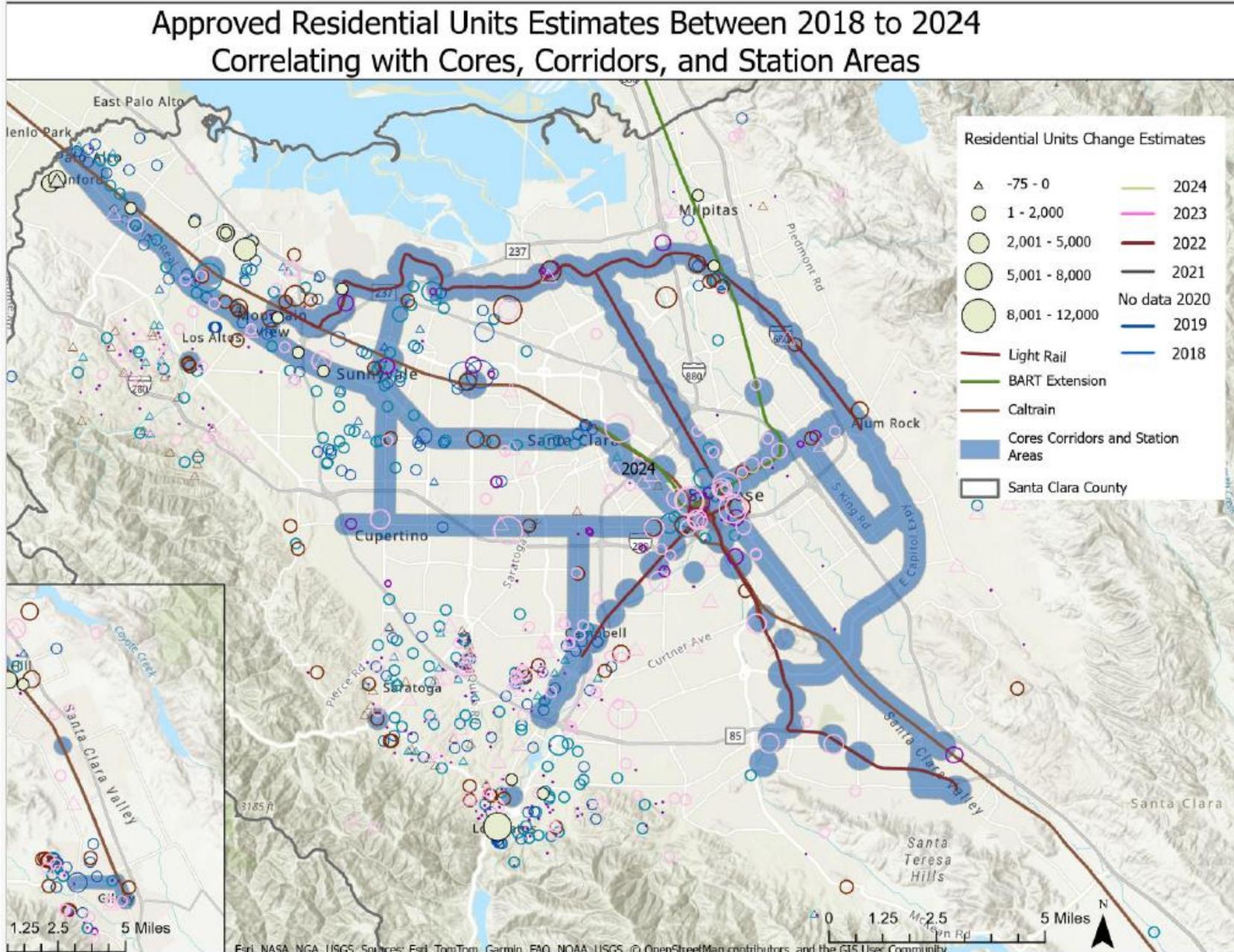


Figure 2.3: Approved Residential Units near VTA's CCSAs (2024 Net Change)

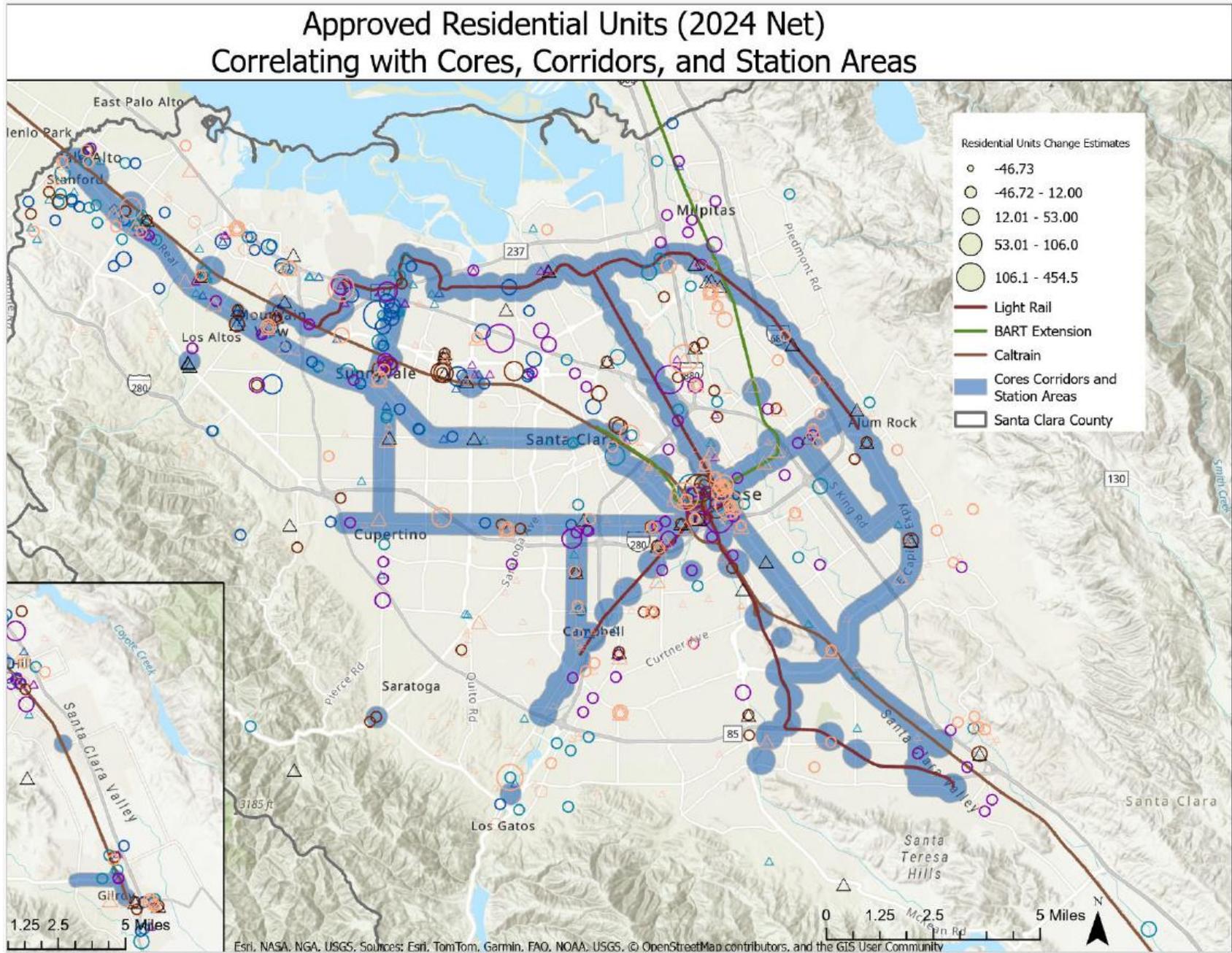


Figure 2.4: Job Change Estimates near VTA CCSAs (2018-2024)

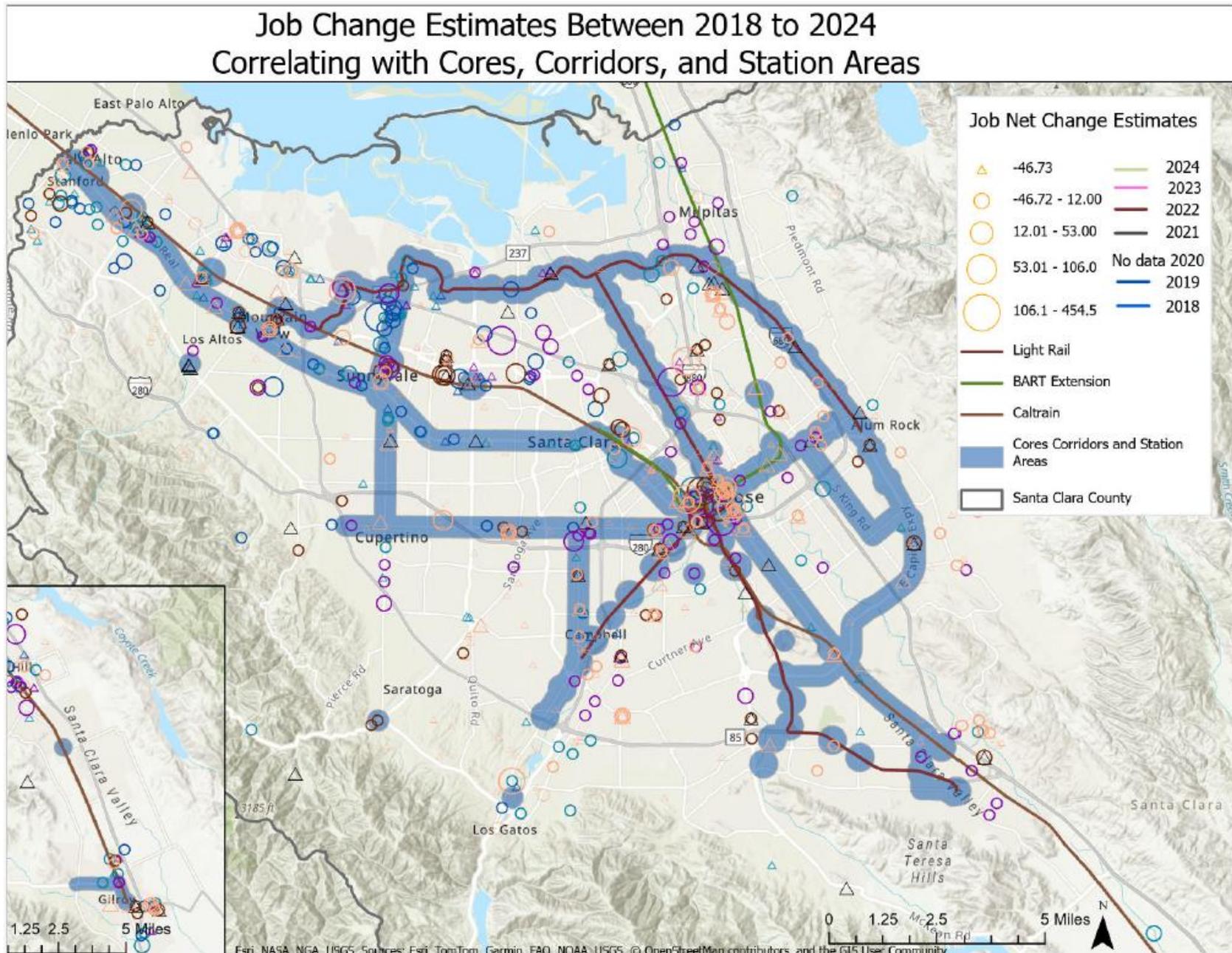
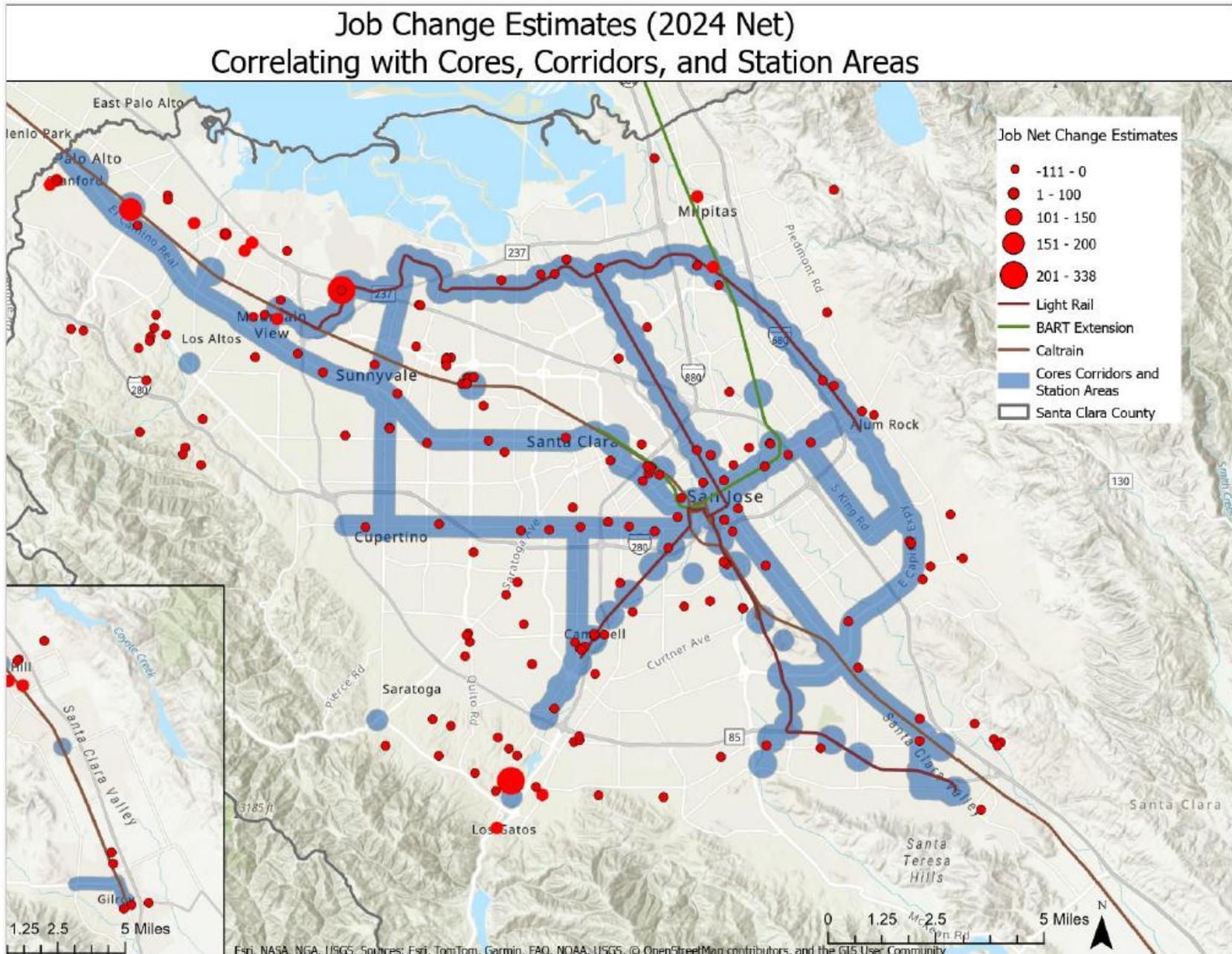


Figure 2.5: Job Change Estimates near VTA's CCSAs (2024 Net Change)



CHAPTER 3: CMP INTERSECTIONS

3.1: Introduction

VTA monitors 252 major intersections within Santa Clara County every two years when traffic data is collected and level of service (LOS) is calculated for these intersections. CMP intersections that operated at LOS F since the CMP intersection LOS evaluation began in 1991, are exempt from meeting the threshold of LOS E or better. CMP intersections that degraded to LOS F after 1991 are considered non-conforming with the CMP.

CMP intersections that fall within Infill Opportunity Zones (IOZ) established by a Member Agency pursuant to California Government Code 65088.4 are also exempt from meeting the threshold of LOS E or better. In February 2018, the San Jose City Council designated IOZs that included 40 CMP intersections.

Local jurisdictions with CMP non-exempt intersections that operate at LOS F are at risk of losing their gas tax subventions per Propositions 111 (1991) without a Multimodal Improvement Plan.

Figure 3.1 illustrates the geographic locations of all 252 CMP study intersections. The following chapter describes methodologies, data collection and quality assurance efforts, LOS analysis, and monitoring results of the VTA CMP intersection analysis.

3.2: Methodology

LOS FOR THE SIGNALIZED CMP INTERSECTIONS WERE DETERMINED BASED ON THE LOS CRITERIA IN VTA'S TRAFFIC OPERATIONS ANALYSIS GUIDELINES, WHICH IS BASED ON CHAPTER 19 OF THE HIGHWAY CAPACITY MANUAL (HCM 7TH EDITION). INTERSECTION LEVEL OF SERVICE AT ALL INTERSECTIONS WERE CALCULATED USING THE HCM 7TH EDITION METHODOLOGY IN VISTRO ANALYSIS SOFTWARE. TABLE 3.1 DETAILS THE LOS THRESHOLDS FOR THE CMP INTERSECTIONS.

In years prior to 2021, the level of service analyses for CMP intersections were performed using HCM 2000 methodology in the TRAFFIX™ analysis software. Due to the difference in methodologies, significant changes in LOS were observed at CMP intersections in 2021. Therefore, when comparing LOS results with prior years operation, it is important to note that there may be a potential difference in methodology due to the shift in software.

As is stated in the 2021 CMP Monitoring Report, the difference between the TRAFFIX™ and VISTRO methodologies are summarized below:



TRAFFIX™ and VISTRO software both perform intersection and traffic network analysis, including at unsignalized, signalized, and roundabout intersections. Results include queue lengths, delays, and level of service. However, TRAFFIX™ and VISTRO may produce different delay results due to the difference software applications. TRAFFIX™ provides an overhead analysis and does not consider details such as truck traffic, network and intersection signal coordination, phase splits, turn pockets, storage lengths, etc. In TRAFFIX™, signal timing inputs are limited to control type, minimum green interval, yellow time, red time, and cycle length. However, VISTRO considers those parameters along with truck traffic, coordination type, coordination offset, phase splits, pedestrian clearance and recalls. For these reasons, VISTRO produces a more realistic traffic scenario than TRAFFIX™, and thus may cause deterioration in reported delay and LOS compared to previous monitoring years.

Table 3.1: Level of Service Thresholds for Signalized Intersections

LOS	Average Control Delay (seconds/vehicle)	Description
A	delay ≤ 10	LOS A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all.
B+	10 < delay ≤ 12	LOS B generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
B	12 < delay ≤ 18	
B-	18 < delay ≤ 20	
C+	20 < delay ≤ 23	LOS C indicates higher delays that may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. 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	At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high 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	LOS E generally indicates poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent. This is considered to be the limit of capacity.
E	60 < delay ≤ 75	
E-	75 < delay ≤ 80	
F	Delay > 80	LOS F, considered unacceptable to most drivers, often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

SOURCE: TRAFFIC LEVEL OF SERVICE ANALYSIS GUIDELINES, SANTA CLARA VALLEY TRANSPORTATION AUTHORITY. CHAPTER 19, SIGNALIZED INTERSECTIONS HIGHWAY CAPACITY MANUAL 7TH EDITION.

3.3: Data Collection and Quality Assurance

TJKM collected intersection turning movement counts at all 252 CMP intersections, using IDAX Data Solutions (IDAX). However, there are eight intersections where turning movement data was not



collected due to the construction, pavement rehabilitation, and the Eastridge to BART Regional Connector (EBRC) projects. Intersection turning movement count (TMC) data was collected via video cameras during the p.m. (4:30 p.m.-6:30 p.m.) peak period for a typical weekday, during the months of late August to October in 2024. If needed, recounts were collected in March 2025. The turning movement counts included vehicle, truck, pedestrian and bicycle counts at each intersection.

TJKM performed additional checks to ensure the accuracy of the data collection. The approach volumes for all CMP intersections were compared with data collected in 2022. If there were significant increases or decreases in approach volumes, the 2024 volumes were first checked to make sure the approach orientations were consistent.



3.4: Level of Service Analysis

In 2022, the software to analyze the level of service was transitioned from TRAFFIX to PTV VISTRO software. VISTRO software was also used for this 2024 CMP monitoring cycle. VTA member agencies have had the option to have consultants perform the LOS analysis for the CMP intersections located within their jurisdiction(s). TJKM performed the LOS analysis at all 252 CMP intersections for the 2024 monitoring cycle. The analysis details and findings follow.

VISTRO Model Implementation

The input data used for LOS analysis in VISTRO include the following:

- Intersection turning movement counts for vehicles, pedestrian, and bicycles were imported with 2024 data collection at each intersection.
- To maintain consistency with the TRAFFIX LOS analysis, the peak hour factor (PHF) 1.0 was used for all intersections.
- For intersections with HOV lanes, the HOV lane and volumes were omitted from the analysis. The lanes were omitted by eliminating the lane from the geometry. The traffic volumes were adjusted using a volume factor to reduce the traffic volume to represent non-HOV traffic volumes only.
- Signal timing data, including minimum parameters, time of day coordination, and time of day/maximum phase splits were inputted for all intersections, based on signal timing sheets provided by each jurisdiction. For the 2024 monitoring analysis of Santa Clara County intersections, the signal offset reference was based on the end of green phase, as directed by county staff.

Intersection Operations

Table 3.2 provides a summary of the LOS results from the last four monitoring cycles (2018-2024). As indicated in the table, the same number of intersections operated at LOS A in 2024 as in 2022. However, there was an increase in the number of intersections operating at LOS D. In 2024, 12% of intersections operated at LOS E, whereas 17% of intersections operated at these levels in 2022. This reflects a slight overall decrease in the level of service from 2022 to 2024. It is important to note that a change in LOS analysis software, from TRAFFIX to VISTRO, began in 2021, which introduces a shift when comparing the results from 2021, 2022, and 2024 to those from prior years.

Table 3.2: LOS Results for Monitoring Cycles (2018-2024)

LOS	2018		2021		2022		2024	
	Total	Percent	Total	Percent	Total	Percent	Total	Percent
A	13	5%	16	6%	13	5%	13	5%
B	33	13%	28	11%	39	15%	33	13%
C	69	28%	63	25%	53	21%	52	21%
D	106	42%	102	41%	95	38%	106	42%
E	28	11%	31	12%	42	17%	31	12%
F	3	1%	11	5%	9	4%	9	4%
NM	0	0%	1	0%	1	0%	8	3%
Total	252	100%	252	100%	252	100%	252	100%

Figure 3.1 shows the number of intersections operating at each LOS in the latest eight monitoring cycles. **Figure 3.2** shows the distribution of each LOS in all the previous monitoring cycles. **Figure 3.3** illustrates the locations of the CMP intersections and the respective 2024 LOS results.

Figure 3.1: Number of Intersections per LOS for 2010-2024

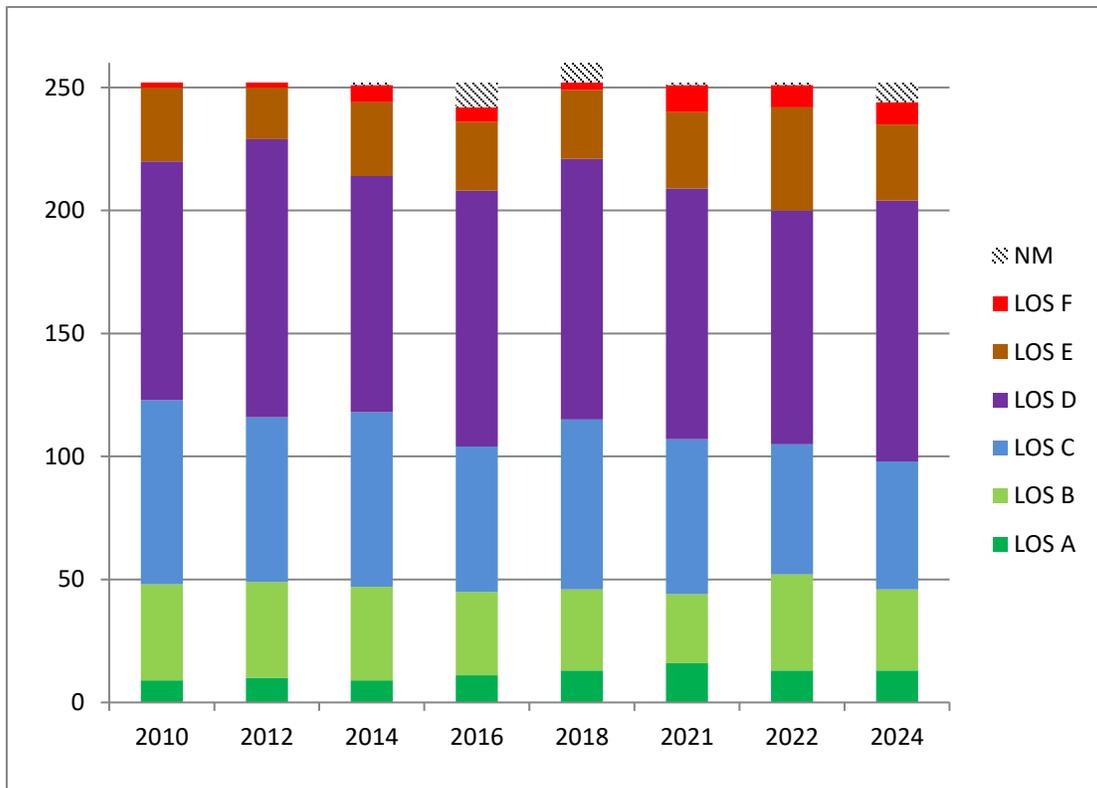


Figure 3.2: Number of Intersections per LOS for 1991-2024

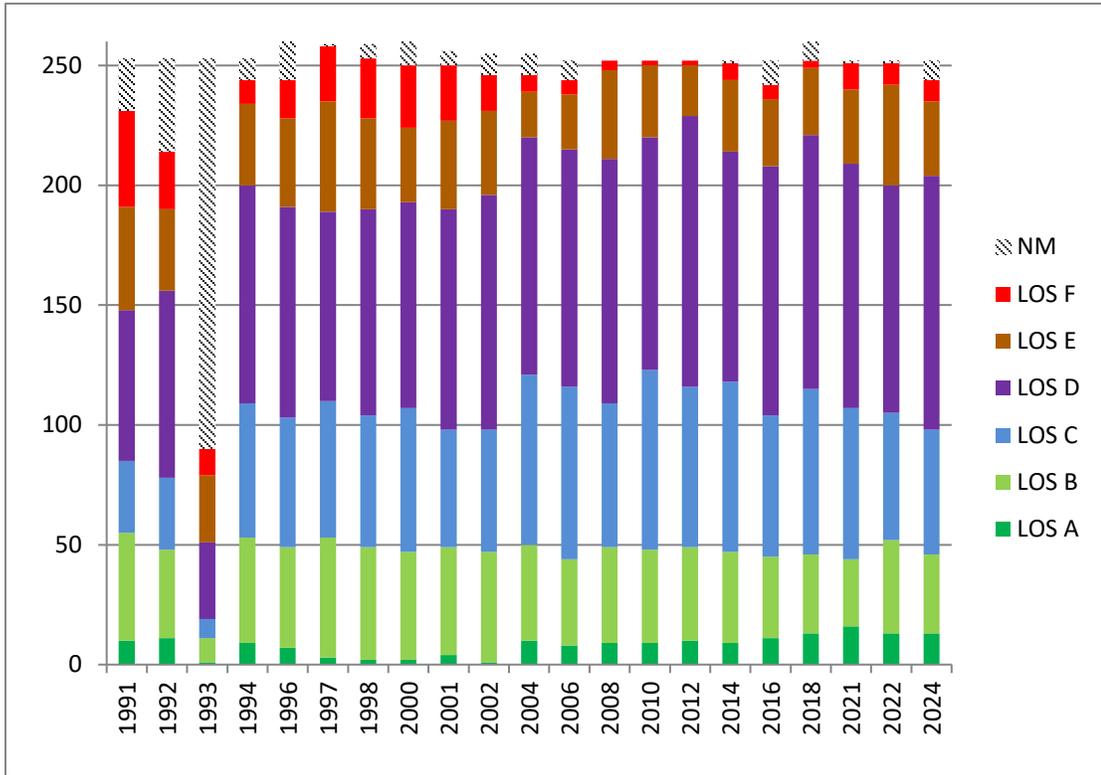
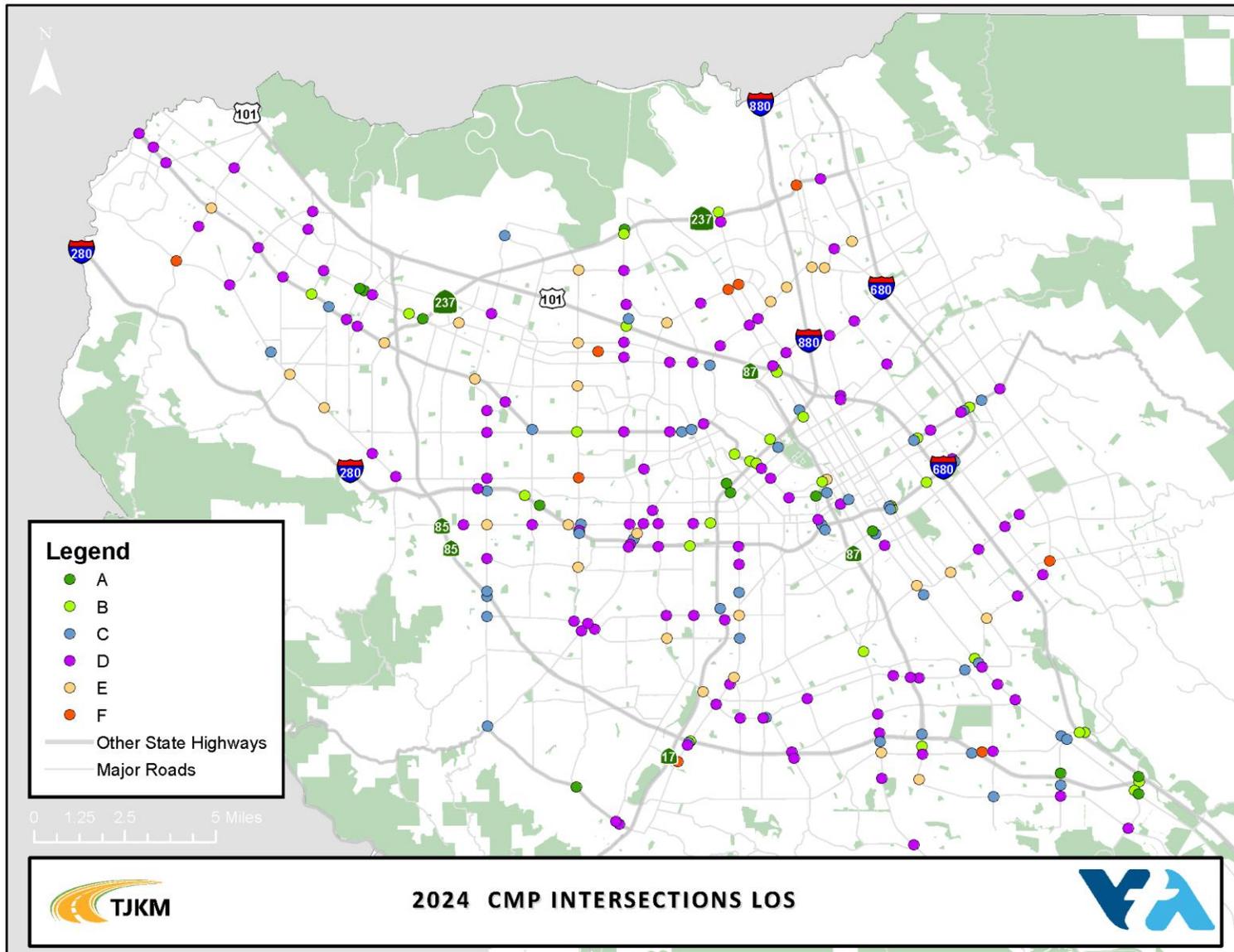


Figure 3.3: LOS at CMP Intersections in 2024



Intersections at LOS F

Nine intersections were observed to operate at LOS F in 2024, among which five are non-exempt intersections. LOS-exempt intersections are the ones that operated at LOS F under the 1991 baseline conditions or are located in designated Infill Opportunity Zones. As discussed in the methodology section above, many of these intersections are now LOS F due to the change in software analysis methodology, rather than an actual degradation in performance.

A thorough review was completed of all LOS F intersections to better understand the change in traffic patterns that is reflected in the degraded LOS. All of the new LOS F intersections have increased traffic volumes, particularly for the critical turning movements.

Table 3.3 lists the CMP intersections operating at LOS F in 2024. The “Location” column lists the agency that maintains the LOS standard, while the “Jurisdiction” column lists the agency that operates the intersections.

The intersections at Los Gatos Boulevard and Lark Avenue (ID 603), and Capitol Expressway and Aborn Road (ID 5724) continue to operate at LOS F as they did within the previous three monitoring cycles. Page Mill/Oregon Expressway and Foothill Expressway (ID 5205), and Montague Expressway and First Street (ID 5807) operated at LOS E in 2022 and now operates at LOS F in 2024. These intersections are also LOS Exempt. The intersection of Highway 85 at Blossom Hill Road (South) (ID 3005), and Lawrence Expressway and Homestead Road (ID 5625) operated at LOS F in 2022 and 2024.

Five intersections that operated better than LOS F in 2022 are now operating at LOS F. Two of these intersections are exempt.

Five intersections are operating at LOS F in 2024 that are non-exempt from the CMP LOS standard of E or better. These five intersections are not in conformance with the CMP LOS standard.

Table 3.3: CMP Intersections at LOS F in 2024

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction
LOS-Exempt Intersection				
5205*	Page Mill/Oregon Exp.	Foothill Expwy.	Palo Alto	SC County
5625*	Lawrence Exp.	Homestead Rd.	Sunnyvale	SC County
5724*	Capitol Exp.	Aborn Rd.	San Jose	SC County
5807*	Montague Exp.	First St.	San Jose	SC County
Non-Exempt Intersection				
603	Los Gatos Blvd.	Lark Ave.	Los Gatos	Los Gatos
701	Calaveras Blvd. (Rte. 237)	Abel St.	Milpitas	State
3005	Hwy 85	Blossom Hill Rd. (South)	San Jose	San Jose
5325	Central Exp.	Corvin Dr./Oakmead Pkwy	Santa Clara	SC County
5812	Montague Exp.	Zanker Rd.	San Jose	SC County

Bold indicates intersection operated better than LOS F in 2022

*indicates intersection is located in an Infill Opportunity Zone

Four intersections remained at LOS F in 2024 as outlined in **Table 3.4** and five intersections degraded in LOS compared to 2024 as outlined in **Table 3.5**.

Table 3.4: CMP Intersections that Remained at LOS F in 2024

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	2022	2024
603	Los Gatos Blvd.	Lark Ave.	Los Gatos	Los Gatos	F	F
3005	Hwy 85	Blossom Hill Rd. (South)	San Jose	San Jose	F	F
5625	Lawrence Exp.	Homestead Rd.	Sunnyvale	SC County	F	F
5724	Capitol Exp.	Aborn Rd.	San Jose	SC County	F	F

Table 3.5: CMP Intersections that Degraded to LOS F in 2024 Compared to 2022

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	2022	2024
701	Calaveras Blvd. (Rte. 237)	Abel St.	Milpitas	State	C	F
5205	Page Mill/Oregon Exp.	Foothill Expwy.	Palo Alto	SC County	E	F
5325	Central Exp.	Corvin Dr./Oakmead Pkwy	Santa Clara	SC County	E	F
5807	Montague Exp.	First St.	San Jose	SC County	E-	F
5812	Montague Exp.	Zanker Rd.	San Jose	SC County	E+	F

Intersections at LOS E

In 2024, thirty-one (31) intersections were operating at LOS E, of which 22 intersections also operated at LOS E in 2022. **Table 3.6** lists the intersections that operated at LOS E in both 2022 and 2024. Of the 31 intersections operating at LOS E in 2024, five intersections operated at LOS D in 2022. **Table 3.7** lists the intersections that deteriorated from LOS D to LOS E between 2022 and 2024.

Table 3.6: CMP Intersections at LOS E for both 2022 and 2024

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction
105	Hamilton Ave.	Bascom Ave.	Campbell	Campbell
1003	El Camino Real (Rte 82)	Hwy 237/Grant Rd.	Mountain View	State
1104	El Camino Real (Rte. 82)	Page Mill Rd./Oregon Expwy.	Palo Alto	State
1210	Hwy 280 (SB)	Stevens Creek Blvd.	Santa Clara	State
3093	Santa Teresa Blvd.	Coleman Rd.	San Jose	San Jose
3095	Monterey Hwy. (Rte. 82)	Curtner Ave./Tully Rd.	San Jose	San Jose
3117	Tully Rd.	Senter Rd.	San Jose	San Jose
5220	Foothill Exp.	Magdalena Ave./Springer Rd.	Los Altos	SC County
5320	Central Exp.	Mary Ave.	Sunnyvale	SC County
5430	San Tomas Exp.	Campbell Ave.	Campbell	SC County
5432	Hwy 17 (SB)	San Tomas Expwy./Camden Ave.	Campbell	SC County
5513	Almaden Exp.	Blossom Hill Rd.	San Jose	SC County
5603	Lawrence Exp.	Tasman Dr.	Sunnyvale	SC County
5611	Lawrence Exp.	Arques Ave.	Sunnyvale	SC County
5613	Lawrence Exp.	Reed Ave.	Sunnyvale	SC County
5633	Lawrence Exp.	Bollinger Rd./Moorpark Ave.	San Jose	SC County
5720	Capitol Exp.	Senter Rd.	San Jose	SC County
5802	Montague Exp.	Trade Zone Blvd./McCandless	Milpitas	SC County
5804	Montague Exp.	Milpitas Blvd.	Milpitas	SC County
5805	Montague Exp.	Mission College Blvd.	Santa Clara	SC County
5808	Montague Exp.	Trimble Rd.	San Jose	SC County
5809	Montague Exp.	McCarthy Blvd./O'Toole Ave.	Milpitas	SC County

Table 3.7: CMP Intersections that Degraded from LOS D (2022) to LOS E (2024)

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction
211	De Anza Blvd.	Stevens Creek Blvd.	Cupertino	Cupertino
1407	El Camino Real (Rte 82)	Mathilda Ave.	Sunnyvale	State
3013	Hwy 87	Julian (East)	San Jose	San Jose
3071	S. Bascom Ave.	Union Ave.	San Jose	San Jose
5433	Hwy 17 (NB)	San Tomas Expwy./Camden Ave.	Campbell	SC County

Intersections Improving from LOS F

Of the nine intersections operating at LOS F in 2022, five intersections improved in 2024, as listed in **Table 3.8**. Three of the intersections, Highway 880 (SB) and Brokaw Road Ramp (ID 3051), Saratoga Avenue and Kiely Boulevard (ID 3103), Foothill Expressway and El Monte Avenue (ID 5215) and Montague Expressway and Main Street/Old Oakland Road (ID 5801) operate at LOS E/E+/E- in 2024,



compared to LOS F in 2022. The intersection of Highway 17 (SB) and Hamilton Avenue (ID 104) improved to LOS D- in 2024.

Table 3.8: CMP Intersections which Improved from LOS F in 2022

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	2022	2024
104	Hwy 17 (SB)	Hamilton Ave.	Campbell	State	F	D-
3051	Hwy 880 (SB)	Brokaw Rd. Ramp	San Jose	San Jose	F	E
3103	Saratoga Ave.	Kiely Blvd.	San Jose	San Jose	F	E
5215	Foothill Exp.	El Monte Av.	Los Altos	SC County	F	E+
5801	Montague Exp.	Main St./Old Oakland Rd.	Milpitas	SC County	F	E-

Intersections with Changes in LOS

In 2024, fifty-seven (57) intersections were observed to change in LOS between 2022 and 2024. Of the 57 intersections, one intersections improved by two LOS grades, 26 intersections improved by one LOS grade, 28 intersections degraded by one LOS grade, one degraded by two LOS grades, and one degraded by three LOS grades. **Table 3.9** lists the intersections where the improvements in LOS were observed. **Tables 3.10 and 3.11** lists the intersections where the reductions in LOS were observed. **Figure 3.5** illustrates the locations of these intersections.

Table 3.9: CMP Intersections which Improved in LOS between 2022 and 2024

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction	2022 LOS	2024 LOS
<i>Intersection Improved by Two Levels of Service</i>						
104	Hwy 17 (SB)	Hamilton Ave.	Campbell	State	F	D-
<i>Intersection Improved by One Level of Service</i>						
203	Hwy 280 SB Ramps	Wolfe Rd.	Cupertino	Cupertino	B+	A
206	Sara-Sunny Rd/De Anza Blvd.	Prospect Rd.	Cupertino	Cupertino	D	C-
1005	El Camino Real (Rte. 82)	Rengstorff Ave.	Mountain View	State	C+	B-
1211	Stevens Creek Blvd.	Lawrence Expwy. (E side)	Santa Clara	Santa Clara	D	C
1212	Stevens Creek Blvd.	Lawrence Expwy. (SB ramp)	Santa Clara	Santa Clara	E-	D
3039	Hwy 280	Saratoga Av. South	San Jose	San Jose	E	D
3051	Hwy 880 (SB)	Brokaw Rd. Ramp	San Jose	San Jose	F	E
3052	Hwy 880 (SB)	Coleman Av. Ramp	San Jose	San Jose	C+	B
3062	Alum Rock Avenue (Rte. 130)	Capitol Ave.	San Jose	State	D+	C
3081	Blossom Hill Rd.	Snell Ave.	San Jose	San Jose	E	D-
3084	Brokaw Rd.	Old Oakland Rd.	San Jose	San Jose	E+	D-
3094	Santa Teresa Blvd.	Cottle Rd.	San Jose	San Jose	E+	D-
3103	Saratoga Avenue	Kiely Blvd.	San Jose	San Jose	F	E
3112	W. Santa Clara St. (Rte 82)	Montgomery St.	San Jose	San Jose	B+	A

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction	2022 LOS	2024 LOS
5213	Foothill Exp.	Main St./Burke Rd.	Los Altos	SC County	C	B
5215	Foothill Exp.	El Monte Av.	Los Altos	SC County	F	E+
5335	Central Exp.	De la Cruz Blvd.	Santa Clara	SC County	D+	C
5429	San Tomas Exp.	Hamilton Ave.	Campbell	SC County	E+	D-
5520	Almaden Exp.	Camden Ave.	San Jose	SC County	E	D-
5522	Almaden Exp.	Hwy 85 N. ramp	San Jose	SC County	E+	D
5635	Lawrence Exp.	Prospect Rd.	San Jose	SC County	E+	D-
5640	Lawrence Exp.	Saratoga Ave.	San Jose	SC County	E+	D
5715	Capitol Exp.	Snell Rd.	San Jose	SC County	D+	C
5723	Capitol Exp.	Silver Creek Rd.	San Jose	SC County	E	D
5801	Montague Exp.	Main St./Old Oakland Rd.	Milpitas	SC County	F	E-
5803	Montague Exp.	Capitol Ave.	Milpitas	SC County	E	D-

Table 3.10: CMP Intersections that Degraded in LOS by One Level between 2022 and 2024

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction	2022 LOS	2024 LOS
204	Stevens Creek Blvd.	Wolfe Rd./Miller Ave.	Cupertino	Cupertino	C-	D
211	De Anza Blvd. (Rte. 85)	Stevens Creek Blvd.	Cupertino	Cupertino	D	E
213	Hwy 280 NB Ramps	De Anza Blvd.	Cupertino	Cupertino	C-	D
702	Calaveras Blvd. (Rte. 237)	Milpitas Blvd.	Milpitas	State	C	D
1001	El Camino Real (Rte. 82)	Castro St.	Mountain View	State	C-	D
1201	El Camino Real (Rte. 82)	Kiely Blvd./Bowers Ave.	Santa Clara	State	C-	D+
1407	El Camino Real (Rte. 82)	Mathilda Ave.	Sunnyvale	State	D-	E+
3013	Hwy 87	Julian (East)	San Jose	San Jose	D	E-
3015	Hwy 87	E. Santa Clara Street (NB Off)	San Jose	San Jose	B-	C+
3016	Hwy 101	Santa Clara (East)	San Jose	State	B	C+
3021	Hwy 101 (NB)	Oakland Rd. Ramp	San Jose	State	C-	D+
3025	Hwy 101 (SB)	Yerba Buena Rd. Ramp	San Jose	San Jose	B-	C+
3040	Hwy 280 (NB)	S 10th St. On-Ramp	San Jose	San Jose	B-	C+
3041	Hwy 280 (SB)	S 10th St. On-Ramp	San Jose	San Jose	B	C+
3054	Hwy 880 (SB)	N. First St. Ramp	San Jose	San Jose	B-	C
3068	S. Bascom Avenue	Curtner Ave.	San Jose	San Jose	C-	D+
3071	S. Bascom Avenue	Union Ave.	San Jose	San Jose	D	E
3072	Monterey Hwy. E	Bernal Rd.	San Jose	San Jose	A	B-
3089	Hamilton Avenue	Campbell Ave.	San Jose	San Jose	C-	D+
3092	Monterey Hwy. (Rte. 82)	Capitol Expwy. S	San Jose	San Jose	B-	C+

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction	2022 LOS	2024 LOS
3114	Tully Rd.	Quimby Rd.	San Jose	San Jose	C-	D+
5205	Page Mill/Oregon Exp.	Foothill Expwy.	Palo Alto	SC County	E	F
5313	Central Exp.	Whisman Station Dr.	Mountain View	SC County	A	B+
5325	Central Exp.	Corvin Dr./Oakmead Pkwy	Santa Clara	SC County	E	F
5433	Hwy 17 (NB)	San Tomas Expwy./Camden Ave.	Campbell	SC County	D	E
5523	Almaden Exp.	Hwy 85 S. Ramp	San Jose	SC County	B-	C+
5807	Montague Exp.	First St.	San Jose	SC County	E-	F
5812	Montague Exp.	Zanker Rd.	San Jose	SC County	E+	F

Table 3.11: CMP Intersections that Degraded in LOS by Two & Three Level between 2022 and 2024

ID	CMP System Roadway	Cross-Street	Location	Jurisdiction	2022 LOS	2024 LOS
<i>Intersection Improved by Two Levels of Service</i>						
3031	Hwy 237 (EB)	Zanker Rd. Off-Ramp	San Jose	State	B	D
<i>Intersection Improved by Three Levels of Service</i>						
701	Calaveras Blvd. (Rte. 237)	Abel St.	Milpitas	State	C	F

Figure 3.4: Intersections with Changes in LOS between 2022 and 2024

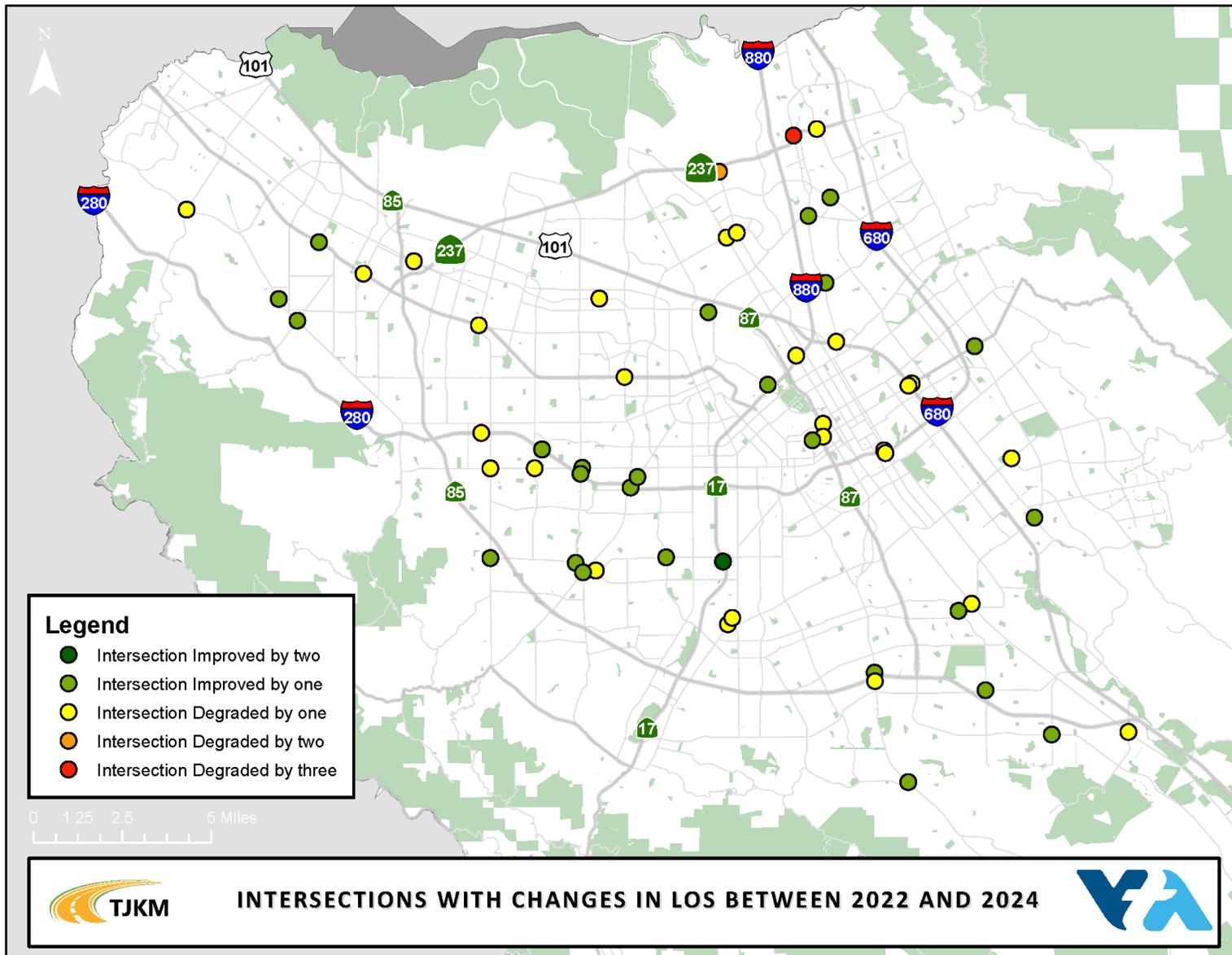


TABLE 3.12 SUMMARIZES THE OBSERVED LOS FOR EACH MONITORING REPORT BETWEEN 2008 AND 2024. APPENDIX A PROVIDES THE LOS TABLE INCLUDING ALL MONITORING CYCLES SINCE 1991.

3.5: Summary

This chapter documents the data collection and LOS analysis for the CMP intersections located in Santa Clara County. All 252 CMP intersections were evaluated. The intersection analysis findings are summarized below.

Nine (9) intersections were observed to operate below the CMP LOS Standard of LOS E or better, four of which are exempt from the CMP LOS standard. Five intersections have degraded to LOS F since 2022, while five intersections have improved from LOS F since 2022.

Twenty-eight (28) intersections degraded by one LOS grade between the 2022 and 2024 monitoring cycle, while one intersection degraded by two LOS grades, and one intersection degraded by three LOS grades during this same time.

One (1) intersection improved by two LOS grades between the 2022 and 2024 monitoring cycle, while twenty-six (26) intersections improved by one LOS grade during the same time.

The 2024 monitoring report findings are consistent with the 2022 monitoring year, however, it is inconsistent with the 2018 monitoring year and prior due to the differences in analysis methodologies between TRAFFIX™ and VISTRO.

ALTHOUGH THE FIVE NON-EXEMPT LOS F INTERSECTIONS WOULD TRIGGER THE REQUIREMENT OF A MULTI-MODAL IMPROVEMENT PLAN, OR DEFICIENCY PLAN, VTA RECOMMENDS PROVIDING A GRACE PERIOD PRIOR TO REQUIRING THE PLAN, GIVEN THE EXTENUATING CIRCUMSTANCE DESCRIBED ABOVE OF THE CHANGE IN METHODOLOGIES BETWEEN TRAFFIX AND VISTRO. APPENDIX B INCLUDES THE VISTRO ANALYSIS WORKSHEETS AT ALL STUDY INTERSECTIONS.

Table 3.12: CMP Intersection LOS (2008-2024)

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	2008	2010	2012	2014	2016	2018	2021	2022	2024
101	S. Bascom Ave.	Campbell Ave.	Campbell	Campbell	C-	C	C	C	C	C	C	C	C
102	Hamilton Ave.	Winchester Blvd.	Campbell	Campbell	E+	E+	D	D	D	D	D	D	D
103	Hwy 17 (NB)	Hamilton Ave.	Campbell	State	C	C+	C	C+	C	C+	F	C	C
104	Hwy 17 (SB)	Hamilton Ave.	Campbell	State	E	E	E	D	D-	D	F	F	D-
105	Hamilton Ave.	Bascom Ave.	Campbell	Campbell	E+	E+	D-	D	D-	D-	E	E	E+
202	Hwy 280 NB Ramps	Wolfe Rd.	Cupertino	Cupertino	B	B	B	B+	B	B	B	B	B
203	Hwy 280 SB Ramps	Wolfe Rd.	Cupertino	Cupertino	A	A	A	A	A	A	A	B+	A
204	Stevens Creek Blvd.	Wolfe Rd./Miller Ave.	Cupertino	Cupertino	D+	D+	D+	D	D	D	D	C-	D
206	Sara-Sunny Rd/De Anza Blvd.	Prospect Rd.	Cupertino	Cupertino	C	B-	C	C	C	C	D	D	C-
208	Hwy 85 SB Ramps	Sara-Sunny Rd/De Anza Blvd.	Cupertino	Cupertino	C-	C	C	B	B	B	C-	C-	C
209	Hwy 85 NB Ramps	Sara-Sunny Rd/De Anza Blvd.	Cupertino	Cupertino	D	B	B	B+	B	B+	C	C	C-
210	De Anza Blvd. (Rte. 85)	Bollinger Rd.	Cupertino	Cupertino	C	C	C	C	C	C	D+	D	D
211	De Anza Blvd. (Rte. 85)	Stevens Creek Blvd.	Cupertino	Cupertino	D-	D	D	D	D	D	D	D	E
212	Hwy 280 SB Ramps	De Anza Blvd.	Cupertino	Cupertino	B-	B	B-	C+	C+	C	D+	C-	C
213	Hwy 280 NB Ramps	De Anza Blvd.	Cupertino	Cupertino	C+	C+	C-	C	D+	C	D+	C-	D
214	De Anza Blvd. (Rte. 85)	Homestead Rd.	Cupertino	Cupertino	D+	D+	D+	D+	D+	D	D	D	D-
217	Stevens Creek Blvd.	Stelling Rd.	Cupertino	Cupertino	D	D	C-	D	D-	D	D	D	D-
219	Stevens Creek Blvd.	Hwy 85 SB Ramp	Cupertino	Cupertino	C	C	C	C+	C	C+	C	C-	C-
220	Stevens Creek Blvd.	Hwy 85 NB Ramp	Cupertino	Cupertino	C-	C	B-	C+	C	C	C	C-	C-
301	Monterey Hwy. (Rte. 152)	Leavesley Rd.	Gilroy	State	C	C	C	C	C	C	C+	C	C+
601	Saratoga-Los Gatos (Hwy. 9)	University Ave.	Los Gatos	State	C	C	C	C	C	C	D	D	D
602	Saratoga-Los Gatos (Hwy. 9)	Santa Cruz Ave.	Los Gatos	State	D	D+	D+	D+	D+	C-	D	D	D
603	Los Gatos Blvd.	Lark Ave.	Los Gatos	Los Gatos	E+	D+	D+	C-	D+	D+	F	F	F
701	Calaveras Blvd. (Rte. 237)	Abel St.	Milpitas	State	D	E+	E	E	E	E	C	C	F
702	Calaveras Blvd. (Rte. 237)	Milpitas Blvd.	Milpitas	State	D	E	D	D	D	D	C	C	D
1001	El Camino Real (Rte. 82)	Castro St.	Mountain View	State	D	D+	D	D	D	D	D	C-	D

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1002	El Camino Real (Rte. 82)	El Monte Ave.	Mountain View	State	C	C	C-	D	D	D+	C	C	C
1003	El Camino Real (Rte. 82)	Hwy 237/Grant Rd.	Mountain View	State	D-	D-	E+	D	E+	E+	E	E	E
1004	El Camino Real (Rte. 82)	Miramonte Ave./Shoreline Blvd.	Mountain View	State	D-	D	D	D	D-	E+	D	D	D
1005	El Camino Real (Rte. 82)	Rengstorff Ave.	Mountain View	State	C	C+	C	C	C	C	C+	C+	B-
1006	El Camino Real (Rte. 82)	San Antonio Rd.	Mountain View	State	D	D	D	D	D-	D-	D	D	D
1100	El Camino Real (Rte. 82)	Palo Alto Ave./Sand Hill Rd.	Palo Alto	State	D+	D+	D+	C-	C-	C-	D	D+	D+
1102	El Camino Real (Rte. 82)	Embarcadero Rd./Galvez	Palo Alto	State	D	D	D+	D+	D+	D+	D-	D	D-
1104	El Camino Real (Rte. 82)	Page Mill Rd./Oregon Expwy.	Palo Alto	State	D	D	D	D	D	D	D	E	E
1106	El Camino Real (Rte. 82)	Charleston Rd./Arastradero	Palo Alto	State	D	D	D	D	D	D	D	D	D
1108	San Antonio Rd.	Charleston Rd.	Palo Alto	Palo Alto	D	D	D	D	D	D	D	D	D-
1110	San Antonio Rd.	Middlefield Rd.	Palo Alto	Palo Alto	D	E	D+	D+	D	D	E+	D-	D-
1112	El Camino Real (Rte. 82)	Palm Dr. (San Mateo Co.)	Palo Alto	Palo Alto	C	C	C	C	C	C	C	C	C
1114	El Camino Real (Rte. 82)	University Av. (San Mateo Co.)	Palo Alto	Palo Alto	C+	C	C-	C	C	C	D+	D+	D+
1200	Bowers Ave.	Scott Blvd.	Santa Clara	Santa Clara	C	C	C	C	C-	C	C+	D	D
1201	El Camino Real (Rte. 82)	Kiely Blvd./Bowers Ave.	Santa Clara	State	D	C-	C	C-	C	C	C	C-	D+
1202	El Camino Real (Rte. 82)	Lafayette St.	Santa Clara	Santa Clara	D+	D+	D	D	D+	D	D+	D+	D
1203	El Camino Real (Rte. 82)	Lincoln St.	Santa Clara	Santa Clara	C+	C+	C	C	C	C	B	C+	C+
1204	El Camino Real (Rte. 82)	Monroe St.	Santa Clara	Santa Clara	C-	C-	C	C-	D+	C-	C	C	C-
1205	El Camino Real (Rte. 82)	Scott Blvd.	Santa Clara	Santa Clara	D	D+	D						
1206	Great America Parkway	Mission College Blvd.	Santa Clara	Santa Clara	D-	D	D	D	D	D	D	D	D
1207	Great America Parkway	Tasman Dr.	Santa Clara	Santa Clara	C-	C	C	C	C	C	D	D	D-
1208	Hwy 101 (SB)	Bowers Ave.	Santa Clara	State	A	A	A	A	A	A	A	B+	B
1209	Hwy 101 (NB)	Great America Pkwy.	Santa Clara	State	A	A	A	A	A	A	A	C	C
1210	Hwy 280 (SB)	Stevens Creek Blvd.	Santa Clara	State	E+	C	C	C	B-	C-	C+	E+	E
1211	Stevens Creek Blvd.	Lawrence Expwy. (E side)	Santa Clara	Santa Clara	C	C	C	C	NM	C	D+	D	C
1212	Stevens Creek Blvd.	Lawrence Expwy. (SB Ramp)	Santa Clara	Santa Clara	C	C	C	C	C	C	C	E-	D
1213	The Alameda (Rte 82)	El Camino Real (Rte 82)	Santa Clara	State	C	B	B	B	B	B	C+	B	B

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1214	Lawrence Exp. SB & NB Ramp	El Camino Real (Rte 82)	Santa Clara	State	C	C	C	C	C	C	B	B	B
1301	Big Basin Way (Hwy 9)	Saratoga-Los Gatos Rd.	Saratoga	State	D+	D+	D+	D+	D+	C-	C+	C	C+
1401	Saratoga-Sunnyvale Rd.	Fremont Ave.	Sunnyvale	Sunnyvale	D	D	D	D	D	D	D	D	D-
1402	Saratoga-Sunnyvale Rd.	Remington Dr.	Sunnyvale	Sunnyvale	D	C-	D	D	D	D	D	D	D
1404	El Camino Real (Rte. 82)	Fair Oaks Ave.	Sunnyvale	State	D+	D	D	D	D	D	D	D+	D-
1405	El Camino Real (Rte. 82)	Wolfe Rd.	Sunnyvale	State	E-	D	D	D	D	D	C	C	C
1406	El Camino Real (Rte. 82)	Mary Ave.	Sunnyvale	State	D	D	D	D+	D	D	C	C	C
1407	El Camino Real (Rte. 82)	Mathilda Ave.	Sunnyvale	State	D	D	D	D	D	D	D-	D-	E+
1412	Mathilda Ave.	Java Dr.	Sunnyvale	Sunnyvale	C-	C	C	C	C-	D+	C	C	C+
1413	Mathilda Ave.	Maude Ave.	Sunnyvale	Sunnyvale	D+	C-	D+	D+	NM	D	D+	D	D
2001	Saratoga-Los Gatos (Hwy. 9)	Quito Rd.	SC County	State	B+	B+	B+	B+	B	B	A	A	A
3001	Hwy 85	Bascom (North)	San Jose	San Jose	C+	B	B-						
3002	Hwy 85	Bascom (South)	San Jose	San Jose	C+	C	C	C	C	C	C	C	C
3003	Hwy 85	Bernal Rd.	San Jose	San Jose	C	C	B	B-	B-	B-	B	B	B
3004	Hwy 85	Blossom Hill Rd. (North)	San Jose	San Jose	C	C	C	C-	C	C-	C	C	C
3005	Hwy 85	Blossom Hill Rd. (South)	San Jose	San Jose	D-	E+	E+	D	D-	D-	E	F	F
3006	Hwy 85	Camden (North)	San Jose	San Jose	C	C	C	C	C	C	D	D	D
3007	Hwy 85	Camden (South)	San Jose	San Jose	E+	E+	D	D	D	D	D+	D	D
3008	Hwy 85	Cottle (North)	San Jose	San Jose	B	A	B	B+	B	B	A	A	A
3009	Hwy 85	Cottle (South)	San Jose	San Jose	C-	C-	D	C-	D+	C-	C-	C-	C-
3010	Hwy 85	Santa Teresa (North)	San Jose	San Jose	C	C	C	C	C	C	B-	C+	C
3011	Hwy 85	Santa Teresa (South)	San Jose	San Jose	B	C+	B-	B-	C+	B-	B	B	B
3013	Hwy 87	Julian (East)	San Jose	San Jose	D	D	D	D	NM	D	C	D	E-
3014	Hwy 87	Julian (West)	San Jose	San Jose	B	B	B	B-	NM	A	B	B+	B
3015	Hwy 87	E. Santa Clara St. (NB Off)	San Jose	San Jose	B	B	B	B	B	B	C+	B-	C+
3016	Hwy 101	Santa Clara (East)	San Jose	State	B	B	B	B	B	B	B	B	C+
3017	Hwy 101 (SB)	Bernal Rd.	San Jose	State	B+	B+	B	B	B	B	A	A	A
3018	Hwy 101 (NB)	Blossom Hill Rd.	San Jose	State	C	C	C	C	C-	C	C	B	B
3019	Hwy 101 (SB)	Blossom Hill Rd.	San Jose	State	B	C	B	B	C+	C+	D	B	B
3020	Hwy 101 (SB)	Brokaw Rd. (West)	San Jose	San Jose	C	C+	C+	B-	C+	D+	NM	NM	NM
3021	Hwy 101 (NB)	Oakland Rd. Ramp	San Jose	State	C	C+	C+	C	C+	C+	F	C-	D+
3022	Hwy 101 (SB)	Oakland Rd. Ramp	San Jose	State	C	C	C	C-	C-	C	D+	D	D+
3023	Hwy 101 (SB)	Santa Clara St. Ramp	San Jose	State	B	B	B	B	B	B	B	B	B-
3024	Hwy 101 (NB)	Yerba Buena Rd. Ramp	San Jose	State	B	C+	C+	C+	B-	C+	B	B+	B+

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3025	Hwy 101 (SB)	Yerba Buena Rd. Ramp	San Jose	State	C	C+	C+	C	C	C	C+	B-	C+
3026	Hwy 237 (WB)	N First St. On-Ramps	San Jose	State	B-	B-	B-	B-	B	B	D+	B	B
3027	Hwy 237 (EB)	N First St. On/Off Ramps	San Jose	State	C+	B-	C+	C+	C+	C+	B	B	B-
3028	Hwy 237 (WB)	Great America Pkwy On-Ramp	San Jose	State	B	B	B	B	B	B-	C+	A	A
3029	Hwy 237 (EB)	Great America Pkwy Off-Ramp	San Jose	State	B+	A	B+	B+	B+	B-	B	B+	B
3030	Hwy 237 (W)B	Zanker Rd. On/Off Ramps	San Jose	State	B+	B	B	B+	B+	B+	B	B-	B
3031	Hwy 237 (EB)	Zanker Rd. Off-Ramp	San Jose	State	B+	B	B	B	B+	B+	B+	B	D
3032	Hwy 280	Bird Ave. North	San Jose	San Jose	C	C	C	C	C	C	C	C	C
3033	Hwy 280	Bird Ave. South	San Jose	San Jose	C	C	C	C+	C+	C	C	C	C
3034	Hwy 280	11th St. North	San Jose	San Jose	B	B	B	B	B	B	B-	B	B-
3035	Hwy 280	11th St. South	San Jose	San Jose	B	B	B	B	B	B	B	B	B
3036	Hwy 280	McLaughlin Ave.	San Jose	San Jose	B	B	B	B	B	B	B	B	B
3037	Hwy 280	Moorpark Ave.	San Jose	San Jose	B+	B	B	B	B+	B+	B	B	B
3038	Hwy 280	Saratoga Ave. North	San Jose	San Jose	B-	B-	C+	C+	C	C+	C	C	C+
3039	Hwy 280	Saratoga Ave. South	San Jose	San Jose	D	D	C-	C	D+	C	E+	E	D
3040	Hwy 280 (NB)	S 10th St. On-Ramp	San Jose	San Jose	B	B	B	B	B	B	C+	B-	C+
3041	Hwy 280 (SB)	S 10th St. On-Ramp	San Jose	San Jose	B	B	B-	B	B	B	C+	B	C+
3042	Hwy 680 (NB)	Alum Rock Ave. Ramps	San Jose	State	C-	C	C	C	NM	C+	B-	B	B
3043	Hwy 680 (SB)	Alum Rock Ave. Ramps	San Jose	State	C	C	C	C	NM	C	C	C	C
3044	Hwy 680 (SB)	King Rd. On-Ramp	San Jose	San Jose	C	C-	C-	C	C	C	D+	D+	D+
3045	Hwy 680 (NB)	King Rd. On-Ramp	San Jose	San Jose	C	C	C	C	C	C	C	C	C
3046	Hwy 880 (SB)	The Alameda Ramp	San Jose	San Jose	B	B	B	B	B	B	B+	B	B+
3047	Hwy 880 (NB)	The Alameda Ramp	San Jose	San Jose	B	C+	B-	C+	C+	C+	B	B	B
3048	Hwy 880 (SB)	Bascom Ave. Ramp	San Jose	San Jose	A	B+	A	B+	A	A	A	A	A
3049	Hwy 880 (NB)	Bascom Ave. Ramp	San Jose	San Jose	B+	B+	A	A	A	A	A	A	A
3050	Hwy 880 (NB)	Brokaw Rd. Ramp	San Jose	San Jose	D+	C	C	C	B+	B+	D+	C	C
3051	Hwy 880 (SB)	Brokaw Rd. Ramp	San Jose	San Jose	D	D+	D	C-	D	D	E	F	E
3052	Hwy 880 (SB)	Coleman Ave. Ramp	San Jose	San Jose	A	B+	B+	B+	B-	A	B	C+	B
3053	Hwy 880 (NB)	Coleman Ave. Ramp	San Jose	San Jose	B-	C+	C+	C	C	C+	C+	C	C
3054	Hwy 880 (SB)	N. First St. Ramp	San Jose	San Jose	B-	B	C	C	C	C	C	B-	C
3055	Hwy 880 (NB)	N. First St. Ramp	San Jose	San Jose	B	B	B	B	B	A	B	B	B
3056	Hwy 880 (SB)	Stevens Creek Blvd. Ramp	San Jose	San Jose	C+	C+	B	NM	C	B-	B	B	B-
3057	The Alameda (Rte 82)	Hedding St.	San Jose	San Jose	C-	C-	D+	D+	D	D	D	D	D

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3058	The Alameda (Rte 82)	Naglee Ave.	San Jose	San Jose	D	D	D	D	D	D	D	D	D
3059	The Alameda (Rte 82)	Race St.	San Jose	San Jose	D+	C	C-	D	D+	D	C-	D	D+
3060	Monterey Hwy/First St. (SR82)	Alma Ave.	San Jose	San Jose	D	D	D	D	D	D	D	D	D
3061	E. San Carlos St. (Rte 82)	Almaden Blvd.	San Jose	San Jose	D	D+	D+	C-	C-	C-	D	D	D+
3062	Alum Rock Avenue (Rte. 130)	Capitol Ave.	San Jose	State	D	C-	C-	C	NM	D+	D	D+	C
3063	Alum Rock Ave. (Rte. 130)	Jackson Ave.	San Jose	State	D-	D	D	D	NM	D	C	D	D
3064	Alum Rock Ave. (Rte. 130)	King Rd.	San Jose	State	D	C-	C-	C-	C-	C-	C	D	D+
3065	Alum Rock Avenue (Rte. 130)	White Rd.	San Jose	State	D	D	D	D	C-	C-	D	D	D+
3066	W. Santa Clara St.	Barack Obama Blvd.	San Jose	San Jose	C+	B-	C+	C+	B	B-	C+	C+	C
3067	S. Bascom Ave.	Camden Ave.	San Jose	San Jose	D	D	D	D	D	D	D	D	D
3068	S. Bascom Ave.	Curtner Ave.	San Jose	San Jose	D	D	D+	D+	D+	D+	C-	C-	D+
3069	Los Gatos Blvd.	Samaritan Dr./Burton Rd.	San Jose	San Jose	D+	C-	D+	D	C-	C	D	D+	D+
3070	S. Bascom Ave.	Stokes St.	San Jose	San Jose	C-	C	C	C	C	C-	C+	C+	C
3071	S. Bascom Ave.	Union Ave.	San Jose	San Jose	D+	D+	D	D	D+	D+	D+	D	E
3072	Monterey Hwy. E	Bernal Rd.	San Jose	San Jose	B	A	B	B	B+	B	A	A	B-
3073	Monterey Hwy. N	Bernal Rd.	San Jose	San Jose	C	C	C	C	C	C	B	B	B
3074	Monterey Hwy. S	Bernal Rd.	San Jose	San Jose	A	A	A	A	A	A	A	A	A
3075	Santa Teresa Blvd.	Bernal Rd.	San Jose	San Jose	D	D	D	D	D+	D+	D	D	D
3076	Berryessa Rd.	Lundy Ave.	San Jose	San Jose	D	D	D	D	D	D	D	D	D
3077	Barack Obama Blvd. (Rte 82)	W. San Carlos St. (Rte 82)	San Jose	San Jose	D+	D+	D	D	D+	D+	D	D	D
3078	Monterey Hwy. (Rte. 82) N	Blossom Hill Rd.	San Jose	San Jose	B-	B	C+	C	C	C+	C	C-	C
3079	Monterey Hwy. (Rte. 82) S	Blossom Hill Rd.	San Jose	San Jose	C	C+	C	C	C+	C+	C	C	C
3080	Blossom Hill Rd.	Santa Teresa Blvd.	San Jose	San Jose	D	D	D	D	D+	D+	D	D	D
3081	Blossom Hill Rd.	Snell Avenue	San Jose	San Jose	D	D	D	D	D	D	D-	E	D-
3082	Monterey Hwy. (Rte. 82)	Branham Ln.	San Jose	San Jose	D+	D+	D+	C-	D	D+	D	D	D
3083	Brokaw Rd.	First St.	San Jose	San Jose	D-	D-	D	D	D	D	D	D	D
3084	Brokaw Rd.	Old Oakland Rd.	San Jose	San Jose	D	D	D	D	D	D	F	E+	D-
3085	Brokaw Rd.	Zanker Rd.	San Jose	San Jose	D	D	D	D	D	D+	D+	D+	D-
3086	Hillsdale Ave.	Camden Ave.	San Jose	San Jose	C	C	C	B-	C	C-	C+	C+	C+

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3087	Camden Ave.	Leigh Ave.	San Jose	San Jose	D	D	D	D	D	D-	D	D	D
3088	Camden Ave.	Union Ave.	San Jose	San Jose	E	E	E+	D	E+	E+	E+	D-	D
3089	Hamilton Ave.	Campbell Ave.	San Jose	San Jose	B	B	B	C+	C	C-	B-	C-	D+
3090	Campbell Ave.	Saratoga Ave.	San Jose	San Jose	D-	D-	D-	D	D	D	D+	D+	D
3091	Monterey Hwy. (Rte. 82)	Capitol Expwy. N	San Jose	San Jose	B-	B	B	B	B	B	B	B	B
3092	Monterey Hwy. (Rte. 82)	Capitol Expwy. S	San Jose	San Jose	B	B	B	B	B	B	C+	B-	C+
3093	Santa Teresa Blvd.	Coleman Rd.	San Jose	San Jose	C	C	C	C	C	C	D	E+	E-
3094	Santa Teresa Blvd.	Cottle Rd.	San Jose	San Jose	D+	D+	D+	D+	D+	D+	F	E+	D-
3095	Monterey Hwy. (Rte. 82)	Curtner Av./Tully Rd.	San Jose	San Jose	E	E+	E	D-	E+	D-	E-	E	E+
3096	Trimble Rd.	De la Cruz Blvd./Seaboard Ave.	San Jose	San Jose	D	C-	C	C-	D	D	E	D	D
3097	S. First Street (Rte 82)	Keyes St./Goodyear	San Jose	San Jose	C	C	C	C	D+	C-	D	C-	C-
3098	Trimble Rd.	First St.	San Jose	San Jose	D	D	D	D	D	D	D	D	D
3099	S. First Street (Rte 82)	Willow St.	San Jose	San Jose	A	A	A	A	A	A	A	A	A
3102	Hillsdale Ave.	Meridian Ave.	San Jose	San Jose	D	D	D-	D	D-	D-	D	D-	D-
3103	Saratoga Ave.	Kiely Blvd.	San Jose	San Jose	E	D	D	D+	D	D	E	F	E
3104	Stevens Creek Blvd.	Kiely Blvd.	San Jose	San Jose	D	D	D+						
3105	Tully Rd.	King Rd.	San Jose	San Jose	D-	D	D	D	D	D	D	D	D
3106	Murphy Ave.	Lundy Ave.	San Jose	San Jose	D	D	D	C-	D	D	D	D	D
3107	E. San Carlos St. (Rte 82)	Market St.	San Jose	San Jose	D+	C-	D+	D+	C	C-	C	C	C
3108	Tully Rd.	McLaughlin Ave.	San Jose	San Jose	D	D-	D	D	D	D	D	D	D
3109	Monterey Rd. (Rte. 82)	Senter Rd.	San Jose	San Jose	C	C	C	C	C	C	D	D	D-
3110	Monterey Rd. (Rte. 82)	Skyway Dr.	San Jose	San Jose	C	C	C	C	C	C	C-	D+	D+
3111	Monterey Rd. (Rte. 82)	Old Tully Rd.	San Jose	San Jose	C+	C	C	C+	C	C	C	C+	C+
3112	W. Santa Clara St. (Rte 82)	Montgomery St.	San Jose	San Jose	B	B	A	A	A	B+	A	B+	A
3113	Saratoga Ave.	Moorpark Av.	San Jose	San Jose	D	D	D	D	D	D	C	D	D
3114	Tully Rd.	Quimby Rd.	San Jose	San Jose	D	D+	D+	D+	D	D	C-	C-	D+
3115	Santa Teresa Blvd.	Snell Ave.	San Jose	San Jose	C	C-	D+	D+	D+	C-	C	C	C
3116	Stevens Creek Blvd.	Saratoga Ave.	San Jose	San Jose	D+	D+	D+	D+	D	D+	D	D	D
3117	Tully Rd.	Senter Rd.	San Jose	San Jose	D-	D	D	D	D	D	E	E+	E+
3118	Stevens Creek Blvd.	Winchester Blvd.	San Jose	San Jose	D	D	D-	D	D	D-	D	D	D
3119	Trimble Rd.	Zanker Rd.	San Jose	San Jose	C-	C-	D+	D+	D+	D+	C	D+	D
3120	Capitol Expwy.	Pearl Ave.	San Jose	San Jose	C-	C-	D+	C-	D+	D+	D	D	D
5009	S. Bascom Ave.	Fruitdale Ave.	San Jose	SC County	D+	D	D	D+	D	D	C-	D+	D+
5012	S. Bascom Ave.	Moorpark Ave.	San Jose	SC County	D	D-	D	E	E	E	D	D+	D

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	2008	2010	2012	2014	2016	2018	2021	2022	2024
5108	Page Mill/Oregon Expwy.	Middlefield Rd.	Palo Alto	SC County	E	E+	E+	E+	E+	E+	D	D	D+
5120	Page Mill/Oregon Expwy.	Hanover	Palo Alto	SC County	D+	D	D	D	D	D-	D	D	D-
5205	Page Mill/Oregon Expwy.	Foothill Expwy.	Palo Alto	SC County	F	F	E-	F	F	F	F	E	F
5207	Foothill Expwy.	Arastradero Rd.	Palo Alto	SC County	D	D-	D	D	D-	D-	C	D+	D+
5213	Foothill Expwy.	Main St./Burke Rd.	Los Altos	SC County	C+	C+	C+	B-	C+	C+	C	C	B
5214	Foothill Expwy.	San Antonio Rd.	Los Altos	SC County	B	B	B	E-	D	E	C+	C	C-
5215	Foothill Expwy.	El Monte Ave.	Los Altos	SC County	E+	E+	D-	F	E	E	F	F	E+
5220	Foothill Expwy.	Magdalena Av./Springer Rd.	Los Altos	SC County	D	D	D	E	E	E	E+	E+	E+
5223	Foothill Expwy.	Grant Rd./St. Joseph Ave.	Los Altos	SC County	D	D	D	D	D	D+	D	D+	D
5225	Foothill Expwy.	Homestead Rd.	Los Altos	SC County	D+	D+	C-	C	C	C-	D+	D+	D
5305	Central Expwy.	Rengstorff Ave.	Mountain View	SC County	E+	D-	D	E	E	E+	D-	D	D
5308	Central Expwy.	Castro St./Moffet Blvd.	Mountain View	SC County	D	D	D	E	D-	E	D	D-	D-
5310	Central Expwy.	Shoreline Blvd. East	Mountain View	SC County	B+	B+	A	A	A	A	A	A	A
5311	Central Expwy.	Shoreline Blvd. West	Mountain View	SC County	B+	B	B+	A	A	A	A	A	A
5313	Central Expwy.	Whisman Station Dr.	Mountain View	SC County	B	C+	B-	D+	D+	B+	A	A	B+
5315	Central Expwy.	Hwy 237 /Ferguson Dr.	Mountain View	SC County	A	B	B+	B	A	A	A	A	A
5320	Central Expwy.	Mary Ave.	Sunnyvale	SC County	D	D	D	E	E	E	D	E	E
5325	Central Expwy.	Corvin Dr. /Oakmead Pkwy.	Santa Clara	SC County	C+	C+	C	D-	D	D	C	E	F
5329	Central Expwy.	Bowers Ave.	Santa Clara	SC County	E	E	D	E	E+	E+	D	D	D
5332	Central Expwy.	Scott Blvd.	Santa Clara	SC County	D	D-	D	E	E	E	D	D	D
5334	Central Expwy.	Lafayette St.	Santa Clara	SC County	E	E	D-	E	E	D-	D-	D-	D
5335	Central Expwy.	De la Cruz Blvd.	Santa Clara	SC County	F	F	F	F	F	F	D+	D+	C
5405	San Tomas Expwy.	Stevens Creek Blvd.	Santa Clara	SC County	F	E	E	E	E	E+	D	D	D-
5406	San Tomas Expwy.	Moorpark Ave.	San Jose	SC County	D	D	D-	D	D	D	D	D+	D
5408	San Tomas Expwy.	Scott Blvd.	Santa Clara	SC County	D-	D	D	D-	D-	D	D	D	NM
5414	San Tomas Expwy.	Monroe St.	Santa Clara	SC County	D+	D+	D+	D+	D	D+	C	C	NM
5416	San Tomas Expwy.	El Camino Real (Rte 82)	Santa Clara	SC County	E	E+	E+	E-	E-	E	E	E	NM

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	2008	2010	2012	2014	2016	2018	2021	2022	2024
5419	San Tomas Expwy.	Homestead Rd.	Santa Clara	SC County	E	E+	E+	E	E+	D	D	D	D+
5422	San Tomas Expwy.	Saratoga Ave.	Santa Clara	SC County	E+	E+	D	E+	E+	D-	D	D	D
5429	San Tomas Expwy.	Hamilton Ave.	Campbell	SC County	E+	D	D	E	E	D-	D-	E+	D-
5430	San Tomas Expwy.	Campbell Ave.	Campbell	SC County	E-	E	E	F	F	E	F	E-	E-
5432	Hwy 17 (SB)	San Tomas Expwy./Camden Ave.	Campbell	SC County	E	E+	E	E-	F	E	E	E+	E
5433	Hwy 17 (NB)	San Tomas Expwy./Camden Ave.	Campbell	SC County	E+	D	D	D	D+	D+	E-	D	E
5505	Almaden Expwy.	Koch Ln.	San Jose	SC County	A	A	A	B-	B	C+	B	B	B-
5512	Almaden Expwy.	Branham Ln.	San Jose	SC County	D	D	D	D-	D	D	D	D	D+
5513	Almaden Expwy.	Blossom Hill Rd.	San Jose	SC County	E	E	E+	E+	D-	D	E-	E	E+
5516	Almaden Expwy.	Coleman Rd.	San Jose	SC County	D	D	D	D	D	D	D	D	D
5520	Almaden Expwy.	Camden Ave.	San Jose	SC County	D	D	D	D	D	D	E+	E	D-
5522	Almaden Expwy.	Hwy 85 N. Ramp	San Jose	SC County	E	D	D	D	D+	E+	E+	E+	D
5523	Almaden Expwy.	Hwy 85 S. Ramp	San Jose	SC County	C	C	C	B-	B-	B	D	B-	C+
5603	Lawrence Expwy.	Tasman Dr.	Sunnyvale	SC County	E+	D-	D-	E+	D-	E+	D-	E+	E+
5611	Lawrence Expwy.	Arques Ave.	Sunnyvale	SC County	D-	E+	E+	E	E	E	D-	E	E
5613	Lawrence Expwy.	Reed Ave.	Sunnyvale	SC County	D-	D+	D	E	E	E	E-	E	E
5625	Lawrence Expwy.	Homestead Rd.	Sunnyvale	SC County	D	D	D	E	E	E	E	F	F
5633	Lawrence Expwy.	Bollinger Rd./Moorpark Ave.	San Jose	SC County	E+	D	D	E	E	D-	D-	E-	E
5635	Lawrence Expwy.	Prospect Rd.	San Jose	SC County	D	D	D	D	D	D	D-	E+	D-
5636	Lawrence Expwy.	Calvert Dr. (I-280 on-ramp)	San Jose	SC County	D+	C-	C-	C	D+	D	E	C	C-
5640	Lawrence Expwy.	Saratoga Ave.	San Jose	SC County	D	D	D	D-	D-	D	D-	E+	D
5711	Capitol Expwy.	Narvaez Ave.	San Jose	SC County	D	D	D	D	D	D+	D-	D-	D
5713	Capitol Expwy.	Hwy 87 On/Off Ramp	San Jose	SC County	D-	D	D	D	D	D	D	D	D
5715	Capitol Expwy.	Snell Rd.	San Jose	SC County	D+	D	D	D	D	D	C	D+	C
5720	Capitol Expwy.	Senter Rd.	San Jose	SC County	D	D	D	D-	D-	D	E	E	E
5721	Capitol Expwy.	McLaughlin Ave.	San Jose	SC County	D-	D	D	E+	D	D-	D	D	D+
5723	Capitol Expwy.	Silver Creek Rd.	San Jose	SC County	E+	E	E+	E+	E+	D	E	E	D
5724	Capitol Expwy.	Aborn Rd.	San Jose	SC County	E-	E	E	F	F	E	F	F	F
5725	Capitol Expwy.	Quimby Rd.	San Jose	SC County	E-	E	E	D-	D-	D	E	E+	NM
5727	Capitol Expwy.	Tully Rd.	San Jose	SC County	D-	D	D	D	D	D	D	D	NM
5732	Capitol Expwy.	Story Rd.	San Jose	SC County	E	E	E+	E	E	D-	E-	E-	NM

ID	CMP System Roadway	Cross Street	Location	Jurisdiction	2008	2010	2012	2014	2016	2018	2021	2022	2024
5734	Capitol Expwy.	Excalibur Dr. (Capitol Ave.)	San Jose	SC County	E+	E+	D-	D	D	D	D-	E+	NM
5801	Montague Expwy.	Main St./Old Oakland Rd.	Milpitas	SC County	E+	D	D-	F	E	E	F	F	E-
5802	Montague Expwy.	Trade Zone Blvd./McCandless	Milpitas	SC County	F	F	E-	E+	E	E	E	E	E
5803	Montague Expwy.	Capitol Ave.	Milpitas	SC County	E+	D-	D-	E+	NM	D-	E+	E	D-
5804	Montague Expwy.	Milpitas Blvd.	Milpitas	SC County	D+	D	D+	C-	NM	D	E+	E	E-
5805	Montague Expwy.	Mission College Blvd.	Santa Clara	SC County	D+	D	D	E	E	E	D	E+	E+
5806	Montague Expwy.	De la Cruz Blvd.	Santa Clara	SC County	D	D+	D	D-	D-	D	D	D	D
5807	Montague Expwy.	First St.	San Jose	SC County	F	E+	E	E+	E	E	E	E-	F
5808	Montague Expwy.	Trimble Rd.	San Jose	SC County	E+	D	D	D-	D	D	E+	E+	E
5809	Montague Expwy.	McCarthy Blvd./O'Toole Ave.	Milpitas	SC County	E	E	F	F	F	F	E	E-	E
5812	Montague Expwy.	Zanker Rd.	San Jose	SC County	E	D	D-	D-	D-	D	D	E+	F

Note: NM – Intersections not measured due to construction

CHAPTER 4: FREEWAYS

This section discusses the methodology utilized for measuring LOS on freeways throughout Santa Clara County, followed by the results of the analysis. The process begins with screening the data to capture only the days within the monitoring period that are expected to result in normal commuter traffic conditions. Days that could produce lighter or heavier than usual traffic conditions, such as public holidays or special event days, were screened out.

4.1: Data Collection

This year's monitoring study was conducted in September and October 2024 on mid-week days (Tuesdays, Wednesdays and Thursdays) during the AM (5 a.m.-12 p.m.) and PM (12 p.m.-9 p.m.) peak periods. Data collection consisted of obtaining travel speed data from INRIX to measure congestion on Santa Clara County freeways. This is supplemented by floating car surveys conducted in High Occupancy Vehicle (HOV) lanes on freeways across the county, as INRIX does not have the ability to separate out data by lane.

Travel Speed Data

MTC has contracted with INRIX to obtain region-wide commercial speed data, and has made the data available for planning and monitoring purposes. This LOS Monitoring Study used the commercial speed data from INRIX through MTC's contract. INRIX "aggregates traffic data from GPS-enabled vehicles and mobile devices, traditional road sensors and hundreds of other sources."

Traffic data is reported by INRIX using discrete roadway links termed as XD (eXtreme Definition). Each XD link is associated with a unique ID represented by a nine-digit code, where each individual number in the XD ID describes a portion of the geography including facility, direction of travel, and roadway segment. There were a total of 710 XD segments covering all Santa Clara County freeways. INRIX data contains speeds aggregated at multiple time intervals for each XD ID in the network. For the current monitoring period, data at 15 minute granularity was accessed for the selected monitoring times across all identified freeways in Santa Clara County. The raw data was filtered to remove:

- Times outside the morning and afternoon peak periods, as defined above;
- Days other than Tuesdays – Thursdays; and
- Data points that are not real-time data.

INRIX provides a data quality score that is associated with every data point, which is defined as:

- Score of 30: INRIX data are exclusively generated from observed real-time sources.
- Score of 20: A mix of historical and real-time sources are used.
- Score of 10: INRIX data are exclusively generated using historical data.

For this analysis, non-real time data points with a score of 20 or 10 were removed, leaving real-time data points collected in the months of September and October 2024.

It should be noted that segmentation for previous CMP studies was generally based on overpasses along a freeway. The end points for XD segments are typically the merge or diverge points of ramps at an interchange, rather than the overpass. It should also be noted that the ends of CMP segments do not generally align with the ends of the XD segments. Hence, an XD segment is either partially or fully contained within the prior CMP segment.



HOV Lanes and Gateway Counts

In addition to monitoring mixed flow lanes on freeways, VTA also specifically monitors congestion in HOV lanes on all freeways with HOV. Floating car surveys are conducted in each HOV lane during the AM and PM peak periods, which is then used to calculate average speed. In addition, VTA conducts gateway counts at each of the county's four major "gateways": Peninsula, East Bay, Santa Cruz, and Southern. Each of these data collection efforts are conducted alongside INRIX data collection and subsequent monitoring of mixed flow lanes on freeways.

4.2: Methodology

This section documents the processing steps performed to obtain vehicular LOS and other performance measures in the AM and PM peak periods for each freeway segment. Following the collection and filtering of INRIX data, the next step was to calculate five performance measures to be consistent with past monitoring efforts: **peak-period speeds, LOS, density and flow, duration of congestion, and average delay per vehicle.**

Background

Prior to the 1997 CMP Monitoring and Conformance Report, floating vehicle survey techniques were used to collect the travel speed data needed to monitor freeway operations. In addition to the travel speed data, mainline freeway traffic counts were manually collected for HOV and mixed flow lanes at 40 locations during the PM peak period. A combination of travel speed and mainline volumes enabled the estimation of vehicle density.

Beginning in 1997 until 2016, aerial photography techniques were used to collect traffic data for freeway segments, a technique that allows direct measurement of density. Travel speeds and flow volumes were then estimated using a mathematical relationship between density, speed, and flow. While aerial photography was the most precise method for collecting freeway density measurements, the expense of flying airplanes limited the amount of data that could be collected to only one or two days per year.

To address the limited data that could be obtained from aerial photography and to make use of commercially available data sources, the 2017 CMP used INRIX speed data. INRIX is one of the leading providers of real-time, historical, and predictive traffic information. INRIX works by combining anonymous, real-time GPS probe data from more than 70 million devices of commercial fleet, delivery, taxi vehicles, and smart phone users across the U.S. (INRIX, 2012). This data source allows VTA to look at a full two months of travel speed information at 15-minute intervals for all freeway miles in the county.

For the 2024 monitoring effort, the open source software "R" was used to process the INRIX data and calculate all performance metrics, as has been done in past monitoring cycles.

Peak Period Speeds

In this step, the 20th percentile travel speeds were calculated for each XD segment for each 15-minute period during the AM and PM peak periods across mid-week days in September and October 2024. The 20th percentile speed is near the low end of the range in speeds. That is, motorists drive faster on 80 percent of the days analyzed and slower on 20 percent of the days analyzed. This measure is selected to avoid congestion due to unusual events, such as collisions, construction, and special events. This 20th percentile speed is assumed to represent the worst-case perceived “typical” day for that XD segment during that 15-minute time period. This is in accordance with the assumption that the worst speeds below the 20th percentile speed values correspond to non-recurrent congestion.

The 20th percentile speed was selected for each XD segment for each 15-minute interval in the AM and PM peak periods (twenty-eight 15-minute intervals in the AM; and thirty-six 15-min intervals in the PM). For example, the speed for 7:30 – 7:45 AM for a XD segment on a freeway corridor may be based on September 17, 2024 while the speed for 7:45 – 8:00 AM is from October 15, 2024 for the same XD segment. Hence, the travel speeds selected for each 15-minute period for each XD segment are representative of the “typical congestion” on the XD segment during the “typical” CMP monitoring months. This methodology is consistent with past monitoring efforts.

LOS Assignment

Consistent with past monitoring efforts, the LOS was assigned based on HCM procedures and the lowest 20th percentile speed for each XD segment during the AM and PM peak periods. **Table 4.1** details the LOS thresholds that were used to determine LOS for each XD segment.

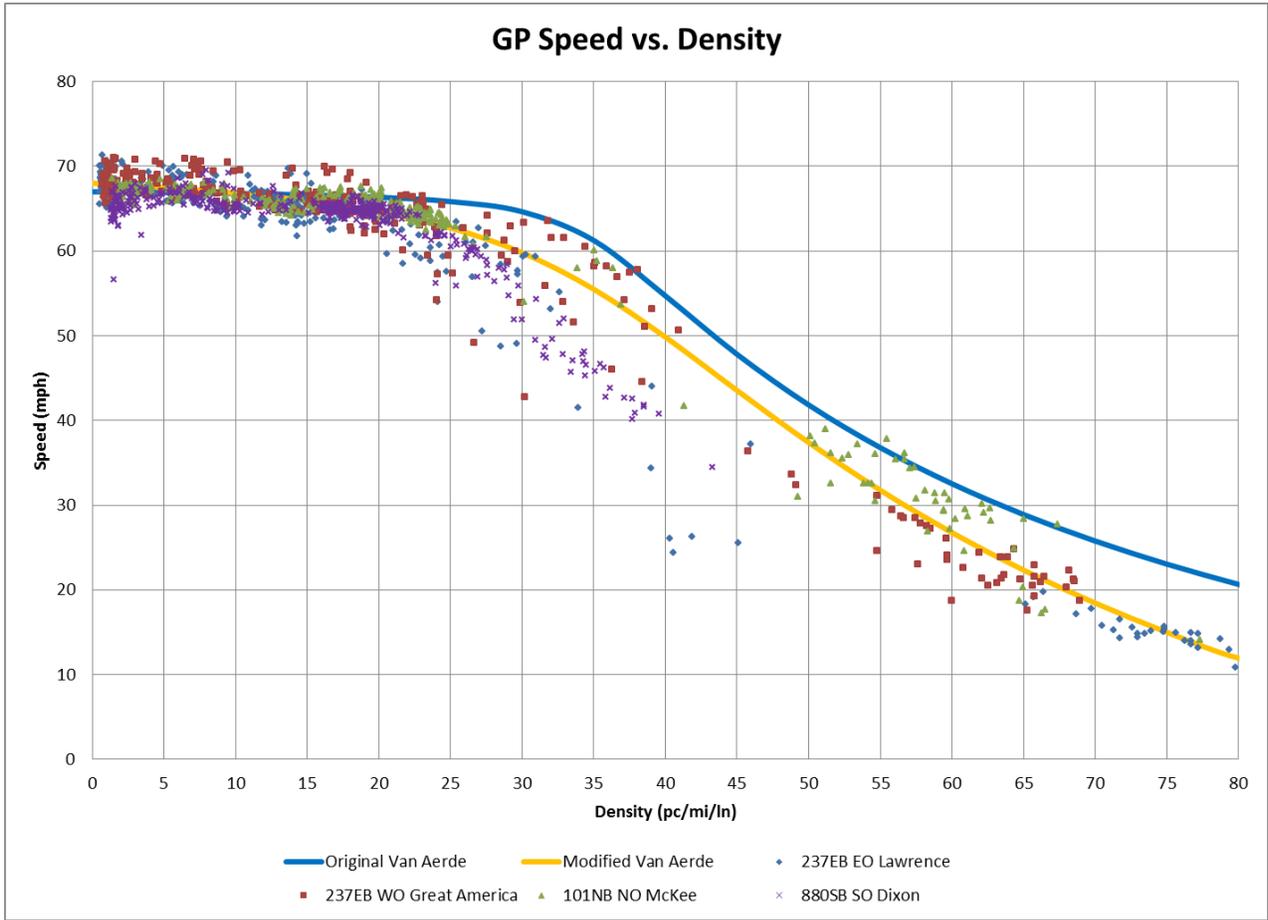
Table 4.1: LOS Thresholds

Level of Service	Density (Passenger cars/mile/lane)	Travel Speed (MPH)
A	≤ 11	≥ 67
B	$11 < \text{density} \leq 18$	$65 \leq \text{speed} < 67$
C	$18 < \text{density} \leq 26$	$62 \leq \text{speed} < 65$
D	$26 < \text{density} \leq 46$	$42 \leq \text{speed} < 62$
E	$46 < \text{density} \leq 58$	$30 \leq \text{speed} < 42$
F	> 58	< 30

Density and Flow

Between 2001 and 2016, the CMP used the Van Aerde equation to develop a speed-density curve to estimate speed and vehicle flow from the aerial photography density measurements. However, since VTA started using INRIX data to calculate speed instead of density, the Van Aerde equation was recalibrated to estimate density and flow from speed. Recalibration of the relationships was necessary since deriving density from speed requires a more precise calibration than deriving speed from density. The modified Van Aerde Density-Speed Model was utilized in the 2024 CMP monitoring to calculate density and flow, as shown in **Figure 4.1**. The modified Van Aerde Density-Speed Model is shown with a yellow line and was derived to best fit the data points shown in **Figure 6**. The modified Van Aerde Density-Speed Model is a better fit for the data than the original model.

Figure 4.1: Original (2001) and Modified (2013) Van Aerde Density-Speed Model



Duration of Congestion

The duration of congestion for the AM and PM peak periods was determined from the speed contour maps for each XD freeway segment by direction. For each peak period, the number of 15-minute periods for each XD segment operating below 35 mph was determined and reported as the duration of congestion (in hours) for each peak period.

Delay

To calculate delay, the team first calculated the 80th percentile travel time for each 15-minute interval in each peak period, similar to the process outlined above to calculate peak period speed. The 80th percentile travel time is the travel time that 80 percent of drivers will drive at or below during a 15 minute period. Following this, the delay (in minutes) was calculated for each 15-minute interval, which is defined as additional time between the 80th percentile travel time and travel time at the threshold speed along a particular XD segment. The threshold speed was selected by VTA as 35 mph. The worst delay among the 15-minute intervals during the AM and PM peak periods was reported.

HOV Lanes

Floating car surveys were conducted on the freeways with High Occupant Vehicle (HOV) lanes using conventional methods. Drivers were instructed to follow road rules including the speed limit, traffic signals and not blocking intersections. GPS coordinates were recorded as the floating car travels along the INRIX ID segment. The timestamps from the GPS coordinates at the beginning and end of the INRIX ID segment were identified and the INRIX travel time was calculated. The floating car surveys were conducted from 6:15 a.m. to 9:45 a.m. and from 3:15 p.m. to 6:45 p.m. on select Tuesdays, Wednesdays and Thursdays in October and November 2024.

4.3: 2024 Freeway Monitoring Results

Freeway Mixed-Flow Lanes

This section discusses the 2024 monitoring results for freeways based on the data collected for the project during September and October 2024. The results indicate that traffic volumes and traffic congestion have been increasing since the drastic reductions due to the COVID-19 pandemic in 2020 - 2021, however, is not yet back to pre-pandemic levels as measured in 2018.

As shown on **Table 4.2**, the number of freeway miles operating at LOS F during the AM Peak Period in 2024 have increased 10% compared to 2023. However, when compared to 2018, the number of freeway miles operating at LOS F have decreased by 6%. This pattern is similar during the PM Peak Period with an increase of 15% from 2023 to 2024 and a decrease of 5% from 2018 to 2024. This is an indication that traffic volumes are continuing to recover from the traffic declines of the COVID-19 pandemic, however, it is not back to pre-pandemic levels.

Figure 4.2 maps out the reported LOS for each XD segment in the AM peak period, while **Figure 4.3** maps out the same for the PM peak period.

Figure 4.2: 2024 AM Peak Period LOS

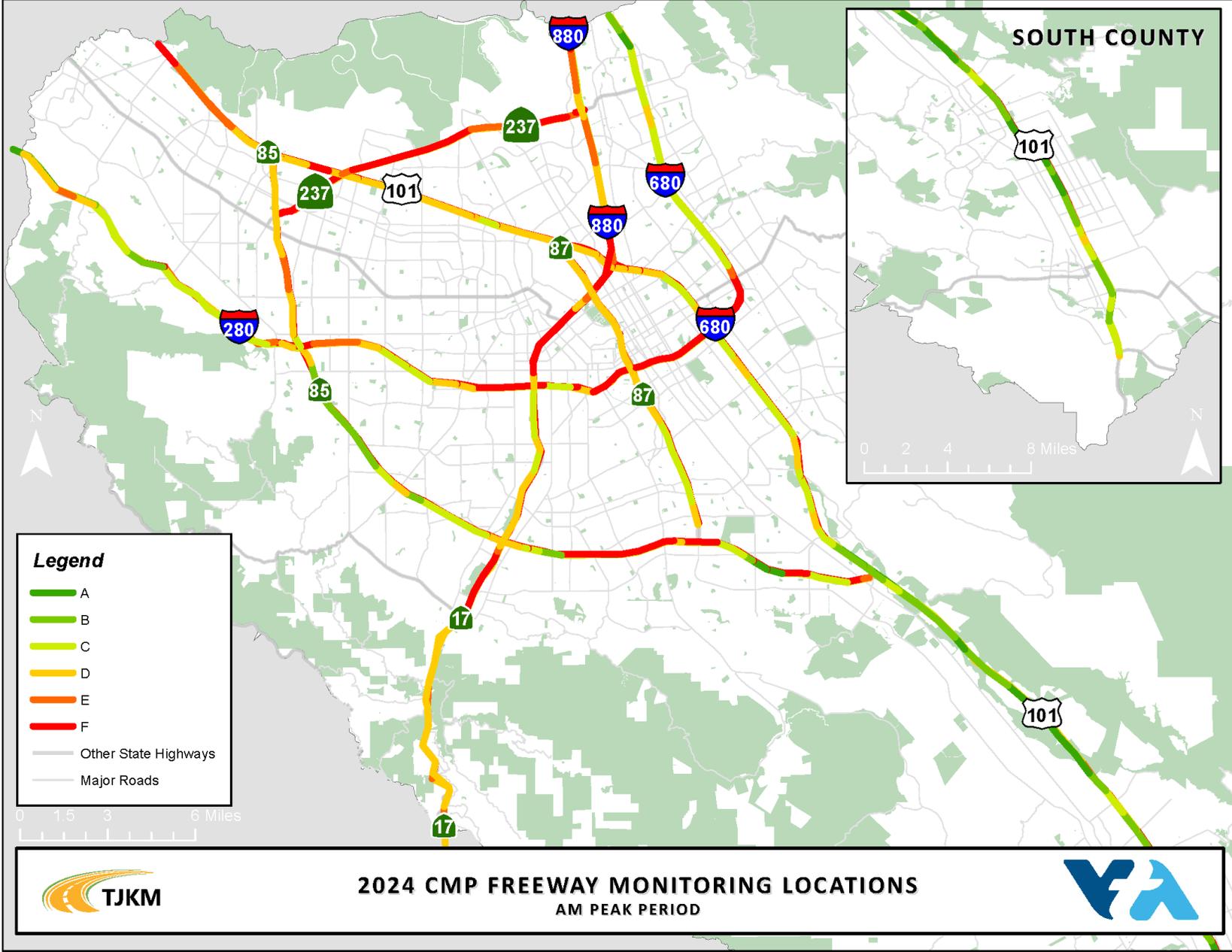
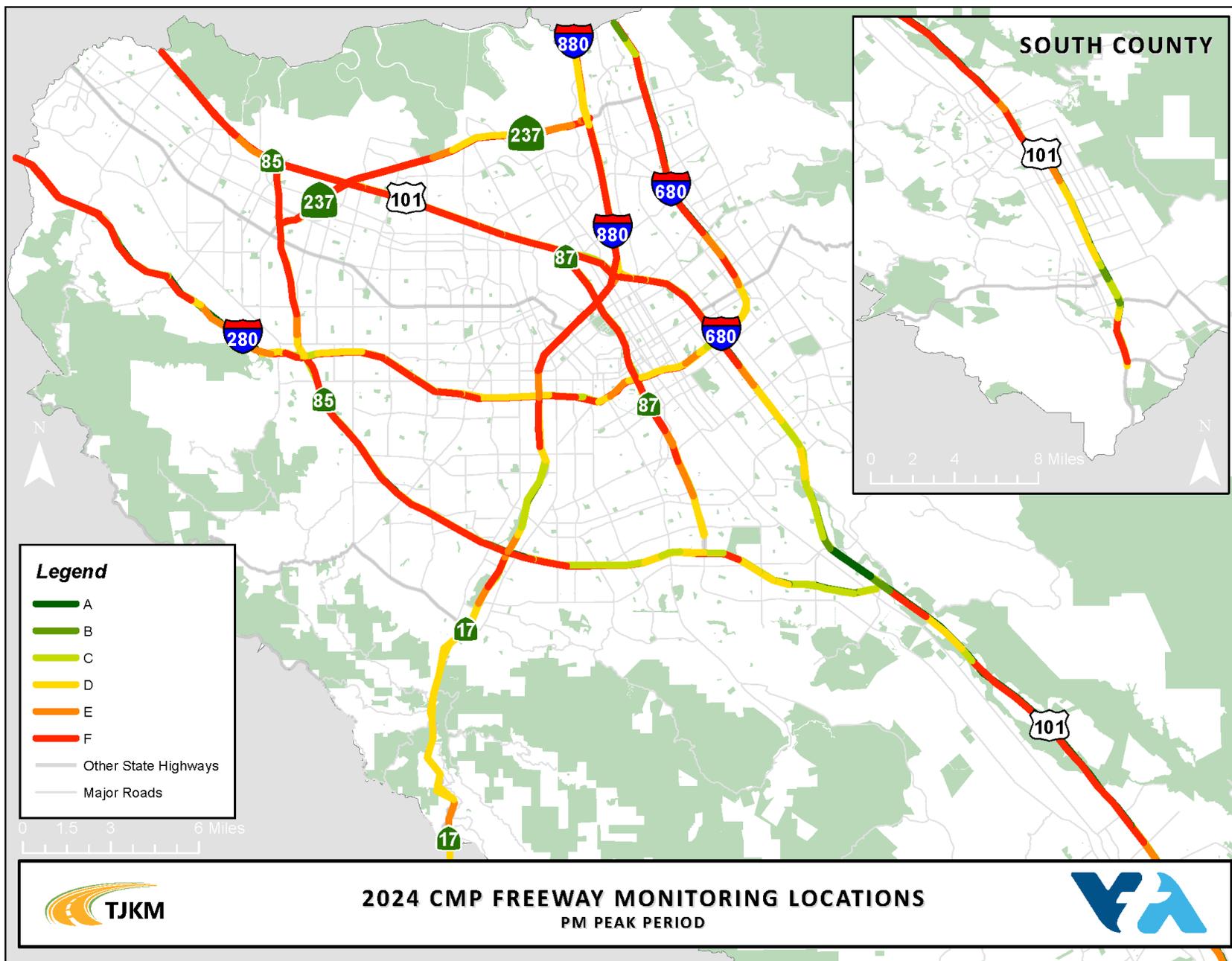


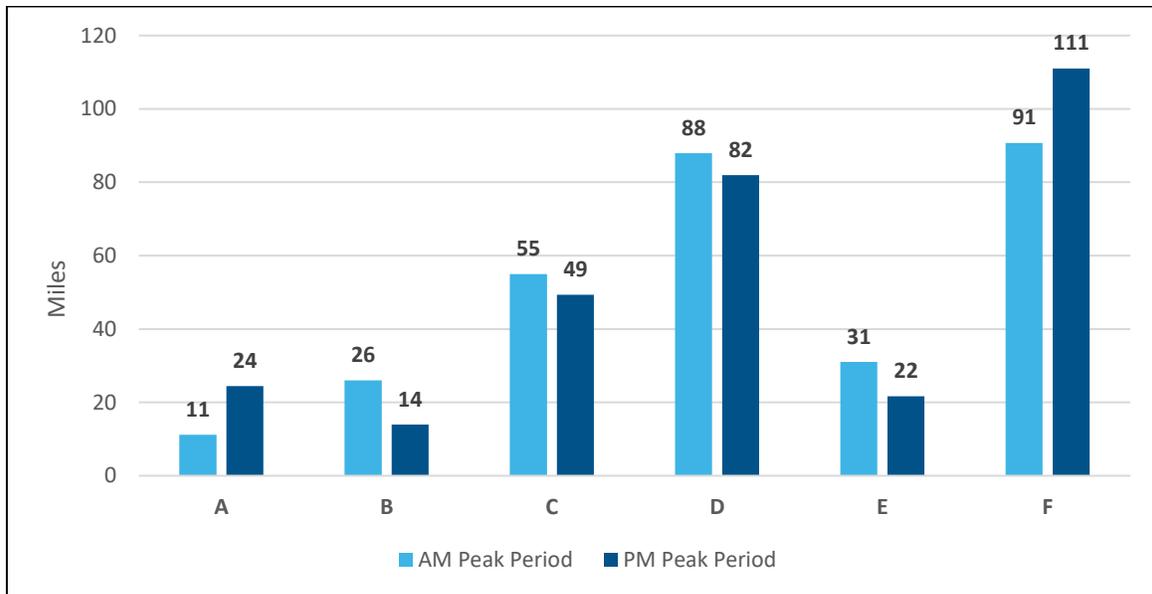
Figure 4.3: 2024 PM Peak Period LOS



Peak Period Speeds and LOS Results

As previously mentioned, there were 91 and 111 directional miles that operated at LOS F during the AM and PM peak periods respectively in 2024, which represents 30 percent and 37 percent of directional miles in the county. There were 11 and 24 directional miles that operated at LOS A during the AM and PM peak periods. **Figure 4.4** shows the total lane-miles of mixed flow freeway facilities by reported LOS.

Figure 4.4: 2024 Mixed-Flow Freeway Directional Miles in LOS Categories



As shown on **Table 4.2**, the number of freeway miles operating at LOS F during the AM Peak Period in 2024 have increased 10% compared to 2023. However, when compared to 2018, the number of freeway miles operating at LOS F have decreased by 6%. This pattern is similar during the PM Peak Period with an increase of 15% from 2023 to 2024 and a decrease of 5% from 2018 to 2024. This is an indication that traffic volumes are continuing to recover from the traffic declines of the COVID-19 pandemic, however, it is not back to pre-pandemic levels.

Table 4.2: Mixed Flow Freeway Direction Miles in LOS Comparison 2018-2024

Level of Service	AM Peak Period									PM Peak Period								
	2018	2021	2022	2023	2024	Percent Change 2018-2024	Percent Change 2021-2024	Percent Change 2022-2024	Percent Change 2023-2024	2018	2021	2022	2023	2024	Percent Change 2018-2024	Percent Change 2021-2024	Percent Change 2022-2024	Percent Change 2023-2024
A	1	36	26	51	11	1013%	-69%	-57%	-78%	0	48	38	40	24	0%	-49%	-36%	-38%
B	12	25	18	17	26	117%	4%	45%	55%	8	17	16	12	14	74%	-18%	-11%	15%
C	63	79	56	41	55	-13%	-30%	-2%	34%	25	61	47	44	49	97%	-19%	6%	13%
D	94	103	99	74	88	-6%	-15%	-11%	19%	117	103	85	84	82	-30%	-20%	-3%	-3%
E	38	25	31	37	31	-18%	24%	0%	-16%	36	31	25	26	22	-40%	-30%	-14%	-18%
F	96	35	73	82	91	-6%	159%	24%	10%	117	42	92	96	111	-5%	164%	20%	15%

CMP freeway segments that are observed to be operating at LOS F are exempt from the monitoring and deficiency plan requirements if the segment operated at LOS F under the baseline year in 1991. In the case where the INRIX XD segment is partially or fully in the 1991 exempt freeway segments, the segments were considered exempt in 2024.

TABLE 4.3 AND TABLE 4.4 SHOW THE SEGMENTS THAT OPERATED AT LOS F IN 2024 DURING THE PEAK PERIODS AND UNDER THE 1991 BASELINE CONDITIONS. 57 SEGMENTS (23 PERCENT OF TOTAL LOS F DIRECTIONAL MILES) WERE EXEMPT IN THE AM PEAK PERIOD, WHILE 64 SEGMENTS (24 PERCENT OF TOTAL LOS F DIRECTIONAL MILES) WERE EXEMPT DURING THE PM PEAK PERIOD. A TOTAL OF 181 SEGMENTS DURING THE AM PEAK PERIOD AND 197 SEGMENTS DURING THE PM PEAK PERIOD OPERATED AT LOS F THAT ARE NON-EXEMPT. FREEWAY MIXED-FLOW SEGMENTS OPERATING AT LOS F IN 2024 BUT NOT LOS F IN 1991 ARE SHOWN IN TABLE 4.5 AND TABLE 4.6. MAPS SHOWING THE SEGMENTS THAT OPERATED AT LOS F IN 2024, REGARDLESS OF EXEMPTION STATUS, ARE SHOWN IN FIGURES 4.5 AND 4.6. FULL RESULTS OF THE 2024 FREEWAY MONITORING ARE LOCATED IN APPENDIX C.



Table 4.3: Exempt Freeway Segments Operating at LOS F in 2024, AM Peak Period

INRIX Segment	Facility	Direction	Segment Name	Miles
1626683013	CA-85	W	I-280 DIAG. On-Ramp to Homestead Rd On-Ramp	0.16
1626682992	CA-85	W	Homestead Rd On-Ramp to Fremont Ave Off-Ramp	0.79
1626682972	CA-85	W	Fremont Ave Off-Ramp to Fremont Ave On-Ramp	0.42
1626722368	CA-237	W	I-880 DIAG. On-Ramp to McCarthy Blvd DIAG. On-Ramp	0.24
1626615884	CA-237	W	McCarthy Blvd DIAG. On-Ramp to Zanker Rd DIAG. Off-Ramp	0.30
1626693878	CA-237	W	Zanker Rd DIAG. Off-Ramp to Zanker Rd DIAG. On-Ramp	0.35
429466802	I-280	W	Meridian Ave L. On-Ramp to SR-280 DIAG. On-Ramp	0.39
1626774353	I-280	W	SR-280 DIAG. On-Ramp to Bascom Avenue	0.26
1626627832	I-280	W	I-880 DIAG. Off-Ramp to I-280	0.19
1626647347	I-280	W	I-280 to I-280	0.30
1626647367	I-280	W	I-280 to I-880 DIAG. On-Ramp	0.26
1626764707	I-280	W	I-880 DIAG. On-Ramp to Winchester Blvd L. On-Ramp	0.55
1626689030	I-280	W	Winchester Blvd L. On-Ramp to Saratoga Ave DIAG. Off-Ramp	0.72
1626647239	I-280	W	Saratoga Ave DIAG. Off-Ramp to Saratoga Ave DIAG. On-Ramp	0.55
1626647258	I-280	W	Saratoga Ave DIAG. On-Ramp to Lawrence Expy DIAG. Off-Ramp	0.76
1626647276	I-280	W	Lawrence Expy DIAG. Off-Ramp to Stevens Creek Blvd DIAG. On-Ramp	0.77
1626647295	I-280	W	Stevens Creek Blvd DIAG. On-Ramp to Wolfe Rd DIAG. Off-Ramp	0.47
1626647157	I-280	W	Wolfe Rd DIAG. Off-Ramp to Wolfe Rd DIAG. On-Ramp	0.43
1626685248	I-680	S	Capitol Expy L. Off-Ramp to Capitol Expy L. On-Ramp	0.41
1626621718	I-680	S	Capitol Expy L. On-Ramp to Capitol Expy L. On-Ramp	0.17
1626638777	I-680	S	Capitol Expy L. On-Ramp to Jackson Ave DIAG. On-Ramp	0.30
1626746471	I-680	S	Jackson Ave DIAG. On-Ramp to King Rd DIAG. Off-Ramp	0.15
1626634499	I-680	S	King Rd DIAG. Off-Ramp to US-101 DIAG. Off-Ramp	0.28
1626706530	I-880	N	Stevens Creek Blvd DIAG. Off-Ramp to Stevens Creek Blvd DIAG. On-Ramp	0.21
1626608804	I-880	N	Stevens Creek Blvd DIAG. On-Ramp to Bascom Ave DIAG. Off-Ramp	0.51
1626654762	I-880	N	Bascom Ave DIAG. Off-Ramp to I-880	0.13
1626720857	I-880	N	I-880 to Bascom Ave DIAG. On-Ramp	0.12
1626618430	I-880	N	Bascom Ave DIAG. On-Ramp to The Alameda DIAG. Off-Ramp	0.50
1626669571	I-880	N	The Alameda DIAG. Off-Ramp to Coleman Ave L. Off-Ramp	0.69
1626612065	I-880	N	Coleman Ave L. Off-Ramp to Coleman Ave DIAG. On-Ramp	0.36
1626634100	I-880	N	Coleman Ave DIAG. On-Ramp to 1st St DIAG. Off-Ramp	0.41
1626695924	I-880	N	1st St DIAG. Off-Ramp to I-880	0.16
1626610096	I-880	N	I-880 to 1nd St DIAG. On-Ramp	0.22
1626638805	I-880	N	1nd St DIAG. On-Ramp to US-101 DIAG. Off-Ramp	0.14
1626701921	I-880	N	US-101 DIAG. Off-Ramp to I-880	0.17
1626668509	I-880	N	I-880 to US-101 DIAG. On-Ramp	0.14
1626712532	I-880	S	Brokaw Rd DIAG. On-Ramp to Old Bayshore Hwy DIAG. Off-Ramp	0.46



INRIX Segment	Facility	Direction	Segment Name	Miles
429476521	I-880	S	Old Bayshore Hwy DIAG. Off-Ramp to US-101 L. On-Ramp	0.81
1626666253	US-101	N	I-680 DIAG. On-Ramp to Alum Rock Ave DIAG. Off-Ramp	0.32
429467096	US-101	N	Alum Rock Ave DIAG. Off-Ramp to McKee Rd DIAG. Off-Ramp	0.18
1626683080	US-101	N	McKee Rd DIAG. Off-Ramp to McKee Rd DIAG. On-Ramp	0.50
429467098	US-101	N	McKee Rd DIAG. On-Ramp to McKee Rd DIAG. On-Ramp	0.17
1626739065	US-101	N	McKee Rd DIAG. On-Ramp to US-101/Taylor St	0.57
1626739047	US-101	N	US-101/Taylor St to Oakland Rd DIAG. Off-Ramp	0.58
1626646555	US-101	N	Oakland Rd DIAG. Off-Ramp to Oakland Rd DIAG. On-Ramp	0.41
1626715445	US-101	N	Oakland Rd DIAG. On-Ramp to Old Bayshore Hwy DIAG. Off-Ramp	0.73
1626665076	US-101	N	Old Bayshore Hwy DIAG. Off-Ramp to Old Bayshore Hwy DIAG. On-Ramp	0.18
1626670077	US-101	N	Old Bayshore Hwy DIAG. On-Ramp to Brokaw Rd DIAG. Off-Ramp	0.24
1626721975	US-101	N	Brokaw Rd DIAG. Off-Ramp to N 1st St DIAG. On-Ramp	0.23
1626721995	US-101	N	N 1st St DIAG. On-Ramp to Brokaw Rd DIAG. On-Ramp	0.37
400281757	US-101	N	Brokaw Rd DIAG. On-Ramp to Trimble Rd DIAG. Off-Ramp	0.15
429466920	US-101	N	Trimble Rd DIAG. Off-Ramp to SR-87 DIAG. On-Ramp	0.37
1626717135	US-101	N	Moffett Blvd L. On-Ramp to Shoreline Blvd DIAG. Off-Ramp	0.18
429466326	US-101	N	Shoreline Blvd DIAG. Off-Ramp to SR-85 DIAG. On-Ramp	0.31
1626611926	US-101	N	SR-85 DIAG. On-Ramp to Shoreline Blvd DIAG. On-Ramp	0.15
1626736062	US-101	N	Shoreline Blvd DIAG. On-Ramp to Shoreline Blvd DIAG. On-Ramp	0.17
1626612153	US-101	S	Embarcadero Rd DIAG. Off-Ramp to Oregon Expy DIAG. On-Ramp	0.62

Table 4.4: Exempt Freeway Segments Operating at LOS F in 2024, PM Peak Period

INRIX Segment	Facility	Direction	Segment Name	Miles
1626649617	CA-85	E	El Camino Real DIAG. Off-Ramp to El Camino Real DIAG. On-Ramp	0.18
1626649540	CA-85	E	El Camino Real DIAG. On-Ramp to SR-85	0.49
1626678136	CA-85	E	Freemont Ave DIAG. Off-Ramp to Freemont Ave DIAG. On-Ramp	0.43
449825561	CA-237	E	Middlefield Rd DIAG. On-Ramp to Mathilda Ave DIAG. Off-Ramp	0.74
1626670237	CA-237	E	Lawrence Expy DIAG. Off-Ramp to Lawrence Expy DIAG. On-Ramp	0.60
1626727850	CA-237	E	Lawrence Expy DIAG. On-Ramp to Great America Pkwy DIAG. Off-Ramp	0.61
1626721108	CA-237	E	Great America Pkwy DIAG. Off-Ramp to Great America Pkwy DIAG. On-Ramp	0.77
1626750231	CA-237	E	N 1st St DIAG. Off-Ramp to N 1st St DIAG. On-Ramp	0.33
1626747790	CA-237	E	N 1st St DIAG. On-Ramp to Zanker Rd DIAG. Off-Ramp	0.58
1626757296	CA-237	E	Zanker Rd DIAG. Off-Ramp to SR-237	0.32
1626757798	CA-237	E	SR-237 to McCarthy Blvd DIAG. On-Ramp	0.44
1626621935	I-280	E	Foothill Blvd DIAG. Off-Ramp to Foothill Blvd DIAG. On-Ramp	0.65
1626621943	I-280	E	Foothill Blvd DIAG. On-Ramp to SR-85 DIAG. Off-Ramp	0.03

INRIX Segment	Facility	Direction	Segment Name	Miles
1626659636	I-280	E	SR-85 DIAG. Off-Ramp to I-280	0.30
1626659517	I-280	E	I-280 to SR-85 DIAG. On-Ramp	0.19
1626621806	I-280	E	SR-85 DIAG. On-Ramp to De Anza Blvd DIAG. Off-Ramp	0.73
1626753228	I-280	E	De Anza Blvd DIAG. Off-Ramp to De Anza Blvd DIAG. On-Ramp	0.41
1626681549	I-280	E	De Anza Blvd DIAG. On-Ramp to Wolfe Rd DIAG. Off-Ramp	0.14
1626701491	I-280	E	Wolfe Rd DIAG. Off-Ramp to Wolfe Rd DIAG. On-Ramp	0.43
1626719841	I-280	E	Wolfe Rd DIAG. On-Ramp to Stevens Creek Blvd DIAG. Off-Ramp	0.44
1626621825	I-280	E	Stevens Creek Blvd DIAG. Off-Ramp to Lawrence Expy DIAG. On-Ramp	0.47
1626616199	I-280	E	Lawrence Expy DIAG. On-Ramp to Saratoga Ave DIAG. Off-Ramp	0.48
1626623476	I-280	E	Saratoga Ave DIAG. Off-Ramp to Saratoga Ave DIAG. On-Ramp	0.22
1626621842	I-280	E	Saratoga Ave DIAG. On-Ramp to Moorpark Ave Off-Ramp	0.27
1626621861	I-280	E	Moorpark Ave Off-Ramp to SR-17 DIAG. Off-Ramp	0.22
449824472	I-880	N	Dixon Landing DIAG. Off-Ramp to Dixon Landing DIAG. On-Ramp	0.81
1626615505	I-880	S	Montague Expy DIAG. Off-Ramp to Montague Expy DIAG. On-Ramp	0.57
1626676776	I-880	S	Montague Expy DIAG. On-Ramp to Brokaw Rd DIAG. Off-Ramp	0.73
1626763767	I-880	S	Brokaw Rd DIAG. Off-Ramp to Brokaw Rd DIAG. On-Ramp	0.61
1626712532	I-880	S	Brokaw Rd DIAG. On-Ramp to Old Bayshore Hwy DIAG. Off-Ramp	0.46
429476521	I-880	S	Old Bayshore Hwy DIAG. Off-Ramp to US-101 L. On-Ramp	0.81
1626620860	I-880	S	US-101 DIAG. On-Ramp to 1st St DIAG. Off-Ramp	0.16
1626745280	I-880	S	1st St DIAG. Off-Ramp to 1st St DIAG. On-Ramp	0.23
1626695947	I-880	S	1st St DIAG. On-Ramp to Coleman Ave DIAG. Off-Ramp	0.44
1626646100	I-880	S	Coleman Ave DIAG. Off-Ramp to Coleman Ave DIAG. On-Ramp	0.37
429473618	US-101	N	San Antonio Rd DIAG. On-Ramp to US-101	0.57
1626646000	US-101	N	US-101 to Oregon Expy DIAG. Off-Ramp	0.66
1626612153	US-101	S	Embarcadero Rd DIAG. Off-Ramp to Oregon Expy DIAG. On-Ramp	0.62
170746739	US-101	S	Oregon Expy DIAG. On-Ramp to US-101	0.37
170045873	US-101	S	US-101 to US-101	0.59
1626762777	US-101	S	San Antonio Rd DIAG. Off-Ramp to Charleston Rd On-Ramp	0.58
1626742606	US-101	S	Charleston Rd On-Ramp to Rengstorff Ave DIAG. On-Ramp	0.16
449831297	US-101	S	Shoreline Blvd L. On-Ramp to Shoreline Blvd L. On-Ramp	0.07
1626736804	US-101	S	Shoreline Blvd L. On-Ramp to Moffett Blvd L. Off-Ramp	0.44
1626717279	US-101	S	Moffett Blvd L. Off-Ramp to Moffett Blvd L. Off-Ramp	0.12
1626651150	US-101	S	Bowers Ave DIAG. Off-Ramp to Bowers Ave DIAG. On-Ramp	0.43
1626659166	US-101	S	Bowers Ave DIAG. On-Ramp to Bowers Ave DIAG. On-Ramp	0.21
1626696066	US-101	S	Bowers Ave DIAG. On-Ramp to San Tomas Expy DIAG. Off-Ramp	0.18
1626640912	US-101	S	San Tomas Expy DIAG. Off-Ramp to San Tomas Expy DIAG. On-Ramp	0.58
1626653939	US-101	S	San Tomas Expy DIAG. On-Ramp to De La Cruz Blvd DIAG. Off-Ramp	0.78
1626737517	US-101	S	De La Cruz Blvd DIAG. Off-Ramp to De La Cruz Blvd DIAG. On-Ramp	0.20
1626751285	US-101	S	De La Cruz Blvd DIAG. On-Ramp to De La Cruz Blvd DIAG. On-Ramp	0.16
1626768748	US-101	S	De La Cruz Blvd DIAG. On-Ramp to SR-87 DIAG. Off-Ramp	0.45
400140304	US-101	S	SR-87 DIAG. Off-Ramp to Airport Pkwy DIAG. Off-Ramp	0.44



INRIX Segment	Facility	Direction	Segment Name	Miles
1626721852	US-101	S	Airport Pkwy DIAG. Off-Ramp to 4th St DIAG. On-Ramp	0.79
1626741728	US-101	S	4th St DIAG. On-Ramp to I-880 DIAG. Off-Ramp	0.35
1626715467	US-101	S	I-880 DIAG. Off-Ramp to I-880 DIAG. On-Ramp	0.19
1626741749	US-101	S	I-880 DIAG. On-Ramp to I-880 DIAG. On-Ramp	0.21
1626698857	US-101	S	I-880 DIAG. On-Ramp to Oakland Rd DIAG. Off-Ramp	0.13
1626761591	US-101	S	Oakland Rd DIAG. Off-Ramp to Oakland Rd DIAG. On-Ramp	0.39
1626683392	US-101	S	Oakland Rd DIAG. On-Ramp to US-101/Taylor St	0.62
429467097	US-101	S	McKee Rd DIAG. Off-Ramp to Santa Clara St DIAG. Off-Ramp	0.21
1626763488	US-101	S	Santa Clara St DIAG. Off-Ramp to McKee Rd DIAG. On-Ramp	0.34
429467095	US-101	S	McKee Rd DIAG. On-Ramp to Santa Clara St DIAG. On-Ramp	0.19

Table 4.5: Non-Exempt Freeway Segments Operating at LOS F in 2024, AM Peak Period

INRIX Segment	Facility	Direction	Segment Name	Miles
1626713941	CA - 17	N	Rundell Wy to Bear Creek Rd	0.58
429466615	CA - 17	N	Bear Creek Rd to Old Santa Cruz Hwy DIAG. On-Ramp	0.17
1626634363	CA - 17	N	SR-85 DIAG. On-Ramp to Camden Ave DIAG. Off-Ramp	0.54
1626733373	CA - 17	N	Camden Ave DIAG. Off-Ramp to 0.5 miles north of Camden Ave DIAG. Off-Ramp	0.47
1626744734	CA - 17	N	0.5 miles north of Camden Ave DIAG. Off-Ramp to San Tomas Expy DIAG. On-Ramp	0.18
1626629253	CA - 17	N	San Tomas Expy DIAG. On-Ramp to 0.3 miles south of E Campbell Avenue	0.66
1626629114	CA - 17	N	0.3 miles south of E Campbell Avenue to Hamilton Ave DIAG. Off-Ramp	0.61
1626737315	CA - 17	N	Hamilton Ave DIAG. Off-Ramp to Hamilton Ave DIAG. On-Ramp	0.20
1626726689	CA - 17	N	Hamilton Ave DIAG. On-Ramp to Hamilton Ave DIAG. On-Ramp	0.20
1626667337	CA - 17	N	Hamilton Ave DIAG. On-Ramp to I-280 DIAG. Off-Ramp	0.96
1626755000	CA - 17	S	Lark Ave DIAG. Off-Ramp to Lark Ave DIAG. On-Ramp	0.25
1626622280	CA - 17	S	Lark Ave DIAG. On-Ramp to 0.52 miles south of Lark Ave DIAG. On-Ramp	0.52
1626622299	CA - 17	S	0.52 miles south of Lark Ave DIAG. On-Ramp to Blossom Hill Road	0.52
1626622317	CA - 17	S	Blossom Hill Road to SR-9 DIAG. Off-Ramp	0.48
1626683809	CA-85	W	Bernal Rd DIAG. On-Ramp to US-101 DIAG. On-Ramp	0.27
429479484	CA-85	W	US-101 DIAG. On-Ramp to Great Oaks Blvd DIAG. On-Ramp	0.17
1626683773	CA-85	W	Great Oaks Blvd DIAG. On-Ramp to Cottle Rd DIAG. Off-Ramp	0.81
1626683753	CA-85	W	Cottle Rd DIAG. Off-Ramp to Cottle Rd DIAG. On-Ramp	0.32
1626683577	CA-85	W	Cottle Rd DIAG. On-Ramp to Cottle Rd DIAG. On-Ramp	0.22

INRIX Segment	Facility	Direction	Segment Name	Miles
1626683559	CA-85	W	Cottle Rd DIAG. On-Ramp to SR-85	0.44
400282935	CA-85	W	SR-85 to SR-85	0.44
1626683540	CA-85	W	SR-85 to Blossom Hill Rd DIAG. Off-Ramp	0.44
1626683519	CA-85	W	Blossom Hill Rd DIAG. Off-Ramp to Blossom Hill Rd DIAG. On-Ramp	0.43
1626683429	CA-85	W	Camden Ave DIAG. On-Ramp to Union Ave DIAG. Off-Ramp	0.85
1626683256	CA-85	W	Union Ave DIAG. Off-Ramp to Union Ave DIAG. On-Ramp	0.32
1626683448	CA-85	W	Camden Ave DIAG. Off-Ramp to Camden Ave DIAG. On-Ramp	0.44
1626683469	CA-85	W	SR-85 to Camden Ave DIAG. Off-Ramp	0.49
1626683499	CA-85	W	Blossom Hill Rd DIAG. On-Ramp to Blossom Hill Rd DIAG. On-Ramp	0.15
1626683237	CA-85	W	Union Ave DIAG. On-Ramp to S. Bascom Ave DIAG. Off-Ramp	0.50
1626683487	CA-85	W	SR-85 to SR-85	0.49
1626683640	CA-85	W	Blossom Hill Rd DIAG. On-Ramp to SR-87 DIAG. Off-Ramp	0.56
1626683215	CA-85	W	S. Bascom Ave DIAG. Off-Ramp to SR-17 DIAG. Off-Ramp	0.23
1626683196	CA-85	W	SR-17 DIAG. Off-Ramp to SR-17 DIAG. On-Ramp	0.54
1626683347	CA-85	W	Almaden Expwy DIAG. On-Ramp to SR-85	0.49
1626683622	CA-85	W	SR-87 DIAG. Off-Ramp to SR-87 DIAG. Off-Ramp	0.25
1626683601	CA-85	W	SR-87 DIAG. Off-Ramp to SR-87 DIAG. On-Ramp	0.28
1626683583	CA-85	W	SR-87 DIAG. On-Ramp to SR-87 DIAG. On-Ramp	0.25
1626683410	CA-85	W	SR-87 DIAG. On-Ramp to Almaden Expwy DIAG. Off-Ramp	0.40
1626683366	CA-85	W	Almaden Expwy DIAG. On-Ramp to Almaden Expwy DIAG. On-Ramp	0.25
1626683389	CA-85	W	Almaden Expwy DIAG. Off-Ramp to Almaden Expwy DIAG. On-Ramp	0.26
1626683336	CA-85	W	SR-17 DIAG. On-Ramp to SR-17 DIAG. On-Ramp	0.38
1626683318	CA-85	W	SR-17 DIAG. On-Ramp to Winchester Blvd DIAG. On-Ramp	0.27
1626683297	CA-85	W	Winchester Blvd DIAG. On-Ramp to SR-85	0.42
1626683279	CA-85	W	SR-85 to SR-85	0.42
1626683104	CA-85	W	SR-85 to SR-85	0.42
1626683085	CA-85	W	SR-85 to SR-85/Quito Rd	0.42
1626683062	CA-85	W	SR-85/Quito Rd to Saratoga Ave DIAG. Off-Ramp	0.47
1626683042	CA-85	W	Saratoga Ave DIAG. Off-Ramp to Saratoga Ave DIAG. On-Ramp	0.59
1626683183	CA-85	W	Saratoga Ave DIAG. On-Ramp to SR-85	0.46
1626683165	CA-85	W	SR-85 to SR-85	0.46
1626683144	CA-85	W	SR-85 to S De Anza Blvd DIAG. Off-Ramp	0.52
1626683126	CA-85	W	S De Anza Blvd DIAG. Off-Ramp to S De Anza Blvd DIAG. On-Ramp	0.68
1626771644	CA-85	W	Stevens Creek Blvd DIAG. Off-Ramp to Stevens Creek Blvd DIAG. On-Ramp	0.28
1626682890	CA-85	W	Stevens Creek Blvd DIAG. On-Ramp to I-280 DIAG. On-Ramp	0.71
1626682876	CA-85	W	I-280 DIAG. On-Ramp to I-280 DIAG. On-Ramp	0.27
1626682955	CA-85	W	Fremont Ave On-Ramp to SR-85	0.48
1626682781	CA-85	W	SR-85 to SR-85	0.48
1626682759	CA-85	W	SR-85 to El Camino Real Off-Ramp	0.49
1626682738	CA-85	W	El Camino Real Off-Ramp to El Camino Real On-Ramp	0.19



INRIX Segment	Facility	Direction	Segment Name	Miles
1626682723	CA-85	W	El Camino Real On-Ramp to El Camino Real On-Ramp	0.02
1626682860	CA-85	W	El Camino Real On-Ramp to El Camino Real On-Ramp	0.15
1626749401	CA-237	E	SR-85 DIAG. On-Ramp to Dana St. Off-Ramp	0.06
1626633625	CA-237	E	Dana St. Off-Ramp to Sylvan Ave/Dana St. DIAG. On-Ramp	0.35
1626727606	CA-237	W	I-880 DIAG. Off-Ramp to I-880 DIAG. Off-Ramp	0.09
1626669941	CA-237	W	I-880 DIAG. Off-Ramp to SR-237	0.06
1626629666	CA-237	W	SR-237 to SR-237	0.10
1626715964	CA-237	W	America Center Dr DIAG. Off-Ramp to America Center Dr DIAG. On-Ramp	0.72
1626674629	CA-237	W	America Center Dr DIAG. On-Ramp to Lawrence Expy DIAG. Off-Ramp	0.59
1626644633	CA-237	W	Lawrence Expy DIAG. Off-Ramp to Lawrence Expy DIAG. On-Ramp	0.58
1626727750	CA-237	W	Lawrence Expy DIAG. On-Ramp to Java Dr DIAG. On-Ramp	0.52
1626693019	CA-237	W	Java Dr DIAG. On-Ramp to Mathilda Ave DIAG Off-Ramp	0.56
1626668823	CA-237	W	Mathilda Ave DIAG Off-Ramp to Mathilda Ave DIAG On-Ramp	0.46
1626682060	CA-237	W	US-101 L. On-Ramp to Maude Ave DIAG. Off-Ramp	0.47
1626684232	CA-237	W	Maude Ave DIAG. Off-Ramp to Middlefield DIAG. On-Ramp	0.80
1626676017	CA-237	W	Middlefield DIAG. On-Ramp to Whisman Rd DIAG. Off-Ramp	0.46
1626615995	CA-237	W	Whisman Rd DIAG. Off-Ramp to Whisman Rd DIAG. On-Ramp	0.20
1626743703	CA-237	W	Whisman Rd On-Ramp to SR-85 L. Off-Ramp	0.15
1626621411	GUADALUPE	N	SR-87 DIAG. On-Ramp to Capitol Expy DIAG. Off-Ramp	0.75
1626644613	GUADALUPE	N	Capitol Expy DIAG. Off-Ramp to Capitol Expy DIAG. On-Ramp	0.36
400228610	GUADALUPE	N	Capitol Expy DIAG. On-Ramp to SR-87	0.51
1626666705	GUADALUPE	N	SR-87 to Curtner Ave DIAG. Off-Ramp	0.51
1626765793	GUADALUPE	N	Curtner Ave DIAG. Off-Ramp to Curtner Ave DIAG. On-Ramp	0.51
1626752462	GUADALUPE	N	Curtner Ave DIAG. On-Ramp to Almaden Expy DIAG. On-Ramp	0.45
1626669915	GUADALUPE	N	Santa Clara St DIAG. Off-Ramp to Julian St DIAG. Off-Ramp	0.45
1626758773	GUADALUPE	N	Skyport Dr. DIAG. Off-Ramp to Skyport Dr. DIAG. On-Ramp	0.65
1626679058	GUADALUPE	N	Skyport Dr. DIAG. On-Ramp to US-101 DIAG. Off-Ramp	0.36
1626647480	I-280	W	US-101 DIAG. Off-Ramp to I-280	0.36
1626744376	I-280	W	I-280 to US 101 DIAG. On-Ramp	0.50
1626647500	I-280	W	US 101 DIAG. On-Ramp to McLaughlin Ave L. On-Ramp	0.26
1626647519	I-280	W	McLaughlin Ave L. On-Ramp to 11th St DIAG. Off-Ramp	0.48
1626681686	I-280	W	11th St DIAG. Off-Ramp to 10th St DIAG. Off-Ramp	0.24
1626672315	I-280	W	10th St DIAG. Off-Ramp to 10th St DIAG. On-Ramp	0.33



INRIX Segment	Facility	Direction	Segment Name	Miles
1626647391	I-280	W	10th St DIAG. On-Ramp to 4th St DIAG. On-Ramp	0.26
1626623743	I-280	W	4th St DIAG. On-Ramp to SR-87 DIAG. Off-Ramp	0.27
1626625066	I-280	W	SR-87 DIAG. Off-Ramp to I-280	0.18
1626647409	I-280	W	I-280 to I-280	0.35
429475764	I-280	W	I-280 to SR-87 DIAG. On-Ramp	0.14
1626724717	I-280	W	SR-87 DIAG. On-Ramp to SR-280 DIAG. On-Ramp	0.23
1626651238	I-280	W	SR-280 DIAG. On-Ramp to Race St DIAG. Off-Ramp	0.31
1626685683	I-280	W	Race St DIAG. Off-Ramp to I-280	0.35
1626647428	I-280	W	I-280 to Meridian Ave L. On-Ramp	0.46
1626647327	I-280	W	Bascom Avenue to I-880 DIAG. Off-Ramp	0.08
1626659614	I-280	W	SR-85 DIAG. Off-Ramp to I-280	0.28
1626659496	I-280	W	I-280 to SR-85 DIAG. On-Ramp	0.43
1626685366	I-280	W	SR-85 DIAG. On-Ramp to Foothill Blvd DIAG. Off-Ramp	0.13
1626647196	I-280	W	Foothill Blvd DIAG. Off-Ramp to Foothill Blvd L. On-Ramp	0.25
1626647087	I-280	W	El monte Rd DIAG. On-Ramp to I-280	0.54
1626621590	I-680	N	US-101 DIAG. On-Ramp to US-101 DIAG. On-Ramp	0.17
1626622859	I-680	N	US-101 DIAG. On-Ramp to Capitol Expy DIAG. Off-Ramp/ Jackson Ave	0.28
1626698593	I-680	N	Capitol Expy DIAG. Off-Ramp/ Jackson Ave to Capitol Expy DIAG. Off-Ramp	0.20
1626664768	I-680	N	Capitol Expy DIAG. Off-Ramp to Alum Rock Ave DIAG. Off-Ramp	0.25
1626645017	I-680	N	Alum Rock Ave DIAG. Off-Ramp to Capitol Expy DIAG. On-Ramp	0.34
1626685228	I-680	N	Capitol Expy DIAG. On-Ramp to Alum Rock Ave DIAG. On-Ramp	0.13
1626734254	I-680	N	Alum Rock Ave DIAG. On-Ramp to Alum Rock Ave DIAG. On-Ramp	0.16
1626767638	I-680	N	Alum Rock Ave DIAG. On-Ramp to McKee Rd DIAG. Off-Ramp	0.11
1626625357	I-680	N	McKee Rd DIAG. Off-Ramp to McKee Rd DIAG. On-Ramp	0.59
400149705	I-880	N	I-880 to I-880	0.04
1626678132	I-880	S	Dixon Landing DIAG. Off-Ramp to Dixon Landing DIAG. On-Ramp	0.41
449824473	I-880	S	Dixon Landing DIAG. On-Ramp to I-880	0.19
1626763767	I-880	S	Brokaw Rd DIAG. Off-Ramp to Brokaw Rd DIAG. On-Ramp	0.61
1626620860	I-880	S	US-101 DIAG. On-Ramp to 1st St DIAG. Off-Ramp	0.16
1626745280	I-880	S	1st St DIAG. Off-Ramp to 1st St DIAG. On-Ramp	0.23
1626620880	I-880	S	Coleman Ave DIAG. On-Ramp to Bascom Ave DIAG. Off-Ramp	0.99
1626721001	I-880	S	Bascom Ave DIAG. Off-Ramp to I-880	0.16
1626668280	I-880	S	I-880 to Bascom Ave DIAG. On-Ramp	0.09
1626728541	I-880	S	Bascom Ave DIAG. On-Ramp to Stevens Creek Blvd DIAG. Off-Ramp	0.52
1626620899	I-880	S	Stevens Creek Blvd DIAG. Off-Ramp to I-280 DIAG. Off-Ramp	0.34
1626668482	US-101	N	Masten Ave DIAG. On-Ramp to US-101/Gilroy Inspection Facility Off-Ramp	0.60
1626668498	US-101	N	US-101/Gilroy Inspection Facility Off-Ramp to US-101/Gilroy Inspection Facility On-Ramp	0.60



INRIX Segment	Facility	Direction	Segment Name	Miles
162668361	US-101	N	US-101/Gilroy Inspection Facility On-Ramp to San Martin Ave DIAG. Off-Ramp	0.52
1626684813	US-101	N	San Martin Ave DIAG. Off-Ramp to San Martin Ave DIAG. On-Ramp	0.46
1626682045	US-101	N	San Martin Ave DIAG. On-Ramp to US-101	0.42
1626682066	US-101	N	US-101 to US-101	0.42
1626682085	US-101	N	US-101 to US-101	0.42
1626681949	US-101	N	US-101 to US-101	0.42
1626681961	US-101	N	US-101 to Tennant Ave DIAG. Off-Ramp	0.36
1626631673	US-101	N	Tennant Ave DIAG. Off-Ramp to Tennant Ave DIAG. On-Ramp	0.42
1626665550	US-101	N	Tennant Ave DIAG. On-Ramp to Tennant Ave DIAG. On-Ramp	0.13
1626701296	US-101	N	Tennant Ave DIAG. On-Ramp to Dunne Ave DIAG. Off-Ramp	0.38
1626760629	US-101	N	Dunne Ave DIAG. Off-Ramp to Dunne Ave DIAG. On-Ramp	0.45
1626650942	US-101	N	Dunne Ave DIAG. On-Ramp to Dunne Ave DIAG. On-Ramp	0.13
1626696074	US-101	N	Dunne Ave DIAG. On-Ramp to US-101	0.62
1626697790	US-101	N	Silver Creek Valley Rd DIAG. On-Ramp to Silver Creek Valley Rd DIAG. On-Ramp	0.27
449838186	US-101	N	Silver Creek Valley Rd DIAG. On-Ramp to US-101	0.46
449838187	US-101	N	US-101 to US-101	0.46
449838188	US-101	N	US-101 to Hellyer Ave DIAG. Off-Ramp	0.46
1626696554	US-101	N	Hellyer Ave DIAG. Off-Ramp to Hellyer Ave L. On-Ramp	0.22
1626630314	US-101	N	Hellyer Ave L. On-Ramp to Yerba Buena Rd L. Off-Ramp	0.72
1626696137	US-101	N	Yerba Buena Rd L. Off-Ramp to Capitol Expy DIAG. Off-Ramp	0.22
1626681679	US-101	N	Capitol Expy DIAG. Off-Ramp to Capitol Expy DIAG. Off-Ramp	0.54
429465190	US-101	N	Capitol Expy DIAG. Off-Ramp to Capitol Expy DIAG. On-Ramp	0.25
1626659914	US-101	N	Capitol Expy DIAG. On-Ramp to Capitol Expy DIAG. On-Ramp	0.15
1626673140	US-101	N	Capitol Expy DIAG. On-Ramp to Tully Rd DIAG. Off-Ramp	0.73
1626704558	US-101	N	Tully Rd DIAG. Off-Ramp to Tully Rd DIAG. On-Ramp	0.47
449823164	US-101	N	Tully Rd DIAG. On-Ramp to Tully Rd DIAG. On-Ramp	0.13
1626663809	US-101	N	Tully Rd DIAG. On-Ramp to I-680 DIAG. Off-Ramp	0.70
1626711464	US-101	N	I-680 DIAG. Off-Ramp to Story Rd DIAG. Off-Ramp	0.24
1626701979	US-101	N	Story Rd DIAG. Off-Ramp to Story Rd DIAG. On-Ramp	0.79
1626725138	US-101	N	Story Rd DIAG. On-Ramp to I-680 DIAG. On-Ramp	0.19
1626768769	US-101	N	SR-87 DIAG. On-Ramp to De La Cruz Blvd DIAG. On-Ramp	0.56
1626701925	US-101	N	De La Cruz Blvd DIAG. On-Ramp to De La Cruz Blvd DIAG. On-Ramp	0.19
1626620518	US-101	N	De La Cruz Blvd DIAG. On-Ramp to San Tomas Expy DIAG. Off-Ramp	0.72
1626704361	US-101	N	San Tomas Expy DIAG. Off-Ramp to San Tomas Expy DIAG. On-Ramp	0.59
1626681752	US-101	N	San Tomas Expy DIAG. On-Ramp to Great America Pkwy DIAG. Off-Ramp	0.15
1626757004	US-101	N	Great America Pkwy DIAG. Off-Ramp to Great America Pkwy DIAG. On-Ramp	0.34
1626695558	US-101	N	Great America Pkwy DIAG. On-Ramp to Great America Pkwy DIAG. On-Ramp	0.26



INRIX Segment	Facility	Direction	Segment Name	Miles
1626681617	US-101	N	Great America Pkwy DIAG. On-Ramp to Lawrence Expy DIAG. Off-Ramp	0.61
1626622376	US-101	N	Lawrence Expy DIAG. Off-Ramp to Lawrence Expy DIAG. On-Ramp	0.25
1626644055	US-101	N	Lawrence Expy DIAG. On-Ramp to Lawrence Expy DIAG. On-Ramp	0.17
1626622394	US-101	N	Lawrence Expy DIAG. On-Ramp to Fair Oaks Avenue DIAG. Off-Ramp	0.60
1626642550	US-101	N	Fair Oaks Avenue DIAG. Off-Ramp to Fair Oaks Avenue DIAG. On-Ramp	0.29
1626629089	US-101	N	Fair Oaks Avenue DIAG. On-Ramp to Mathilda Ave DIAG. Off-Ramp	0.53
1626730433	US-101	N	Mathilda Ave DIAG. Off-Ramp to Mathilda Ave L. On-Ramp	0.18
1626625723	US-101	N	Mathilda Ave L. On-Ramp to Southbay Fwy L. Off-Ramp	0.42
1626726077	US-101	N	Southbay Fwy L. Off-Ramp to Southbay Fwy DIAG. On-Ramp	0.21
1626685565	US-101	N	Southbay Fwy DIAG. On-Ramp to Ellis St DIAG. Off-Ramp	0.48
1626693336	US-101	N	Ellis St DIAG. Off-Ramp to Ellis St DIAG. On-Ramp	0.48
1626700711	US-101	N	Ellis St DIAG. On-Ramp to Moffett Blvd DIAG. Off-Ramp	0.43
1626656193	US-101	N	Moffett Blvd DIAG. Off-Ramp to Moffett Blvd L. On-Ramp	0.18
461693334	US-101	S	Oregon Expy DIAG. On-Ramp to Oregon Expy DIAG. On-Ramp	0.08
1626743494	US-101	S	Ellis St DIAG. Off-Ramp to Ellis St DIAG. On-Ramp	0.62

Table 4.6: Non-Exempt Freeway Segments Operating at LOS F in 2024, PM Peak Period

INRIX Segment	Facility	Direction	Segment Name	Miles
1626620866	CA - 17	S	I-280 DIAG. Off-Ramp to I-280 DIAG. On-Ramp	0.30
1626716767	CA - 17	S	I-280 DIAG. On-Ramp to Downing Avenue Pedestrian Bridge	0.52
1626716791	CA - 17	S	Downing Avenue Pedestrian Bridge to Hamilton Ave DIAG. Off-Ramp	0.52
1626756371	CA - 17	S	SR-85 DIAG. On-Ramp to Lark Ave DIAG. Off-Ramp	0.16
1626755000	CA - 17	S	Lark Ave DIAG. Off-Ramp to Lark Ave DIAG. On-Ramp	0.25
1626622280	CA - 17	S	Lark Ave DIAG. On-Ramp to 0.52 miles south of Lark Ave DIAG. On-Ramp	0.52
400252415	CA-85	E	US-101 DIAG. On-Ramp to Moffett Blvd L. Off-Ramp	0.19
1626694727	CA-85	E	Moffett Blvd L. Off-Ramp to Central Expy DIAG. Off-Ramp	0.49
1626695506	CA-85	E	Central Expy DIAG. Off-Ramp to Central Expy DIAG. On-Ramp	0.47
1626765635	CA-85	E	Central Expy DIAG. On-Ramp to El Camino Real DIAG. Off-Ramp	0.70
1626627445	CA-85	E	Central Expy DIAG. On-Ramp to El Camino Real DIAG. Off-Ramp	0.03
1626649559	CA-85	E	SR-85 to SR-85	0.49
1626649579	CA-85	E	SR-85 to Fremont Ave DIAG. Off-Ramp	0.49
1626690229	CA-85	E	I-280 DIAG. On-Ramp to I-280 DIAG. On-Ramp	0.34
1626666358	CA-85	E	I-280 DIAG. On-Ramp to Stevens Creek Blvd DIAG. Off-Ramp	0.20

INRIX Segment	Facility	Direction	Segment Name	Miles
1626684219	CA-85	E	Stevens Creek Blvd DIAG. Off-Ramp to Stevens Creek Blvd DIAG. On-Ramp	0.52
1626673111	CA-85	E	Stevens Creek Blvd DIAG. On-Ramp to SR-85	0.44
400138614	CA-85	E	SR-85 to SR-85	0.44
1626673129	CA-85	E	SR-85 to S De Anza Blvd DIAG. Off-Ramp	0.44
1626703799	CA-85	E	S De Anza Blvd DIAG. Off-Ramp to S De Anza Blvd DIAG. On-Ramp	0.46
1626744263	CA-85	E	S De Anza Blvd DIAG. On-Ramp to SR-85	0.53
1626744284	CA-85	E	SR-85 to SR-85	0.53
1626744145	CA-85	E	SR-85 to Saratoga Ave DIAG. Off-Ramp	0.59
1626745604	CA-85	E	Saratoga Ave DIAG. Off-Ramp to Saratoga Ave DIAG. On-Ramp	0.54
1626629094	CA-85	E	Saratoga Ave DIAG. On-Ramp to SR-85/Quito Rd	0.44
1626629072	CA-85	E	SR-85/Quito Rd to SR-85	0.44
1626629052	CA-85	E	SR-85 to SR-85	0.44
1626629032	CA-85	E	SR-85 to SR-85	0.44
1626628860	CA-85	E	SR-85 to Winchester Blvd DIAG. Off-Ramp	0.42
1626712018	CA-85	E	Winchester Blvd DIAG. Off-Ramp to SR-17 DIAG. Off-Ramp	0.34
1626720658	CA-85	E	SR-17 DIAG. Off-Ramp to SR-17 DIAG. Off-Ramp	0.33
1626611815	CA-85	E	SR-17 DIAG. Off-Ramp to SR-17 DIAG. On-Ramp	0.61
1626626964	CA-85	E	SR-87 DIAG. Off-Ramp to Santa Teresa Blvd DIAG. On-Ramp	0.52
1626699534	CA-85	E	Santa Teresa Blvd DIAG. On-Ramp to SR-87 DIAG. On-Ramp	0.27
1626671195	CA-85	E	SR-87 DIAG. On-Ramp to Blossom Hill Rd DIAG. Off-Ramp	0.45
1626748725	CA-85	E	SR-17 DIAG. On-Ramp to S Bascom Ave DIAG. On-Ramp	0.20
1626705795	CA-85	E	S Bascom Ave DIAG. On-Ramp to Union Ave DIAG. Off-Ramp	0.34
1626635824	CA-85	E	Union Ave DIAG. Off-Ramp to Union Ave DIAG. On-Ramp	0.62
1626662269	CA-85	E	Camden DIAG. Off-Ramp to Camden DIAG. On-Ramp	0.30
1626647578	CA-85	E	Union Ave DIAG. On-Ramp to Camden DIAG. Off-Ramp	0.81
449824486	CA-237	E	Middlefield Rd DIAG. Off-Ramp to Middlefield Rd DIAG. On-Ramp	0.80
1626757895	CA-237	E	Mathilda Ave DIAG. Off-Ramp to Mathilda Ave DIAG. On-Ramp	0.44
1626652250	CA-237	E	Mathilda Ave DIAG. On-Ramp to Fair Oaks Way DIAG. Off-Ramp	0.53
1626757913	CA-237	E	Fair Oaks Way DIAG. Off-Ramp to Lawrence Expy DIAG. Off-Ramp	0.51
1626771275	CA-237	E	Great America Pkwy DIAG. On-Ramp to N 1st St DIAG. Off-Ramp	0.58
1626753059	CA-237	E	SR-237 to Zanker Rd DIAG. On-Ramp	0.17
1626727606	CA-237	W	I-880 DIAG. Off-Ramp to I-880 DIAG. Off-Ramp	0.09
1626669941	CA-237	W	I-880 DIAG. Off-Ramp to SR-237	0.06
1626644633	CA-237	W	Lawrence Expy DIAG. Off-Ramp to Lawrence Expy DIAG. On-Ramp	0.58
1626727750	CA-237	W	Lawrence Expy DIAG. On-Ramp to Java Dr. DIAG. On-Ramp	0.52
1626693019	CA-237	W	Java Dr. DIAG. On-Ramp to Mathilda Ave DIAG Off-Ramp	0.56
1626668823	CA-237	W	Mathilda Ave DIAG Off-Ramp to Mathilda Ave DIAG On-Ramp	0.46
1626668684	CA-237	W	Mathilda Ave DIAG On-Ramp to US-101 DIAG. Off-Ramp	0.06
1626659861	CA-237	W	US-101 DIAG. Off-Ramp to US-101 L. On-Ramp	0.25



INRIX Segment	Facility	Direction	Segment Name	Miles
1626682060	CA-237	W	US-101 L. On-Ramp to Maude Ave DIAG. Off-Ramp	0.47
1626684232	CA-237	W	Maude Ave DIAG. Off-Ramp to Middlefield DIAG. On-Ramp	0.80
1626676017	CA-237	W	Middlefield DIAG. On-Ramp to Whisman Rd DIAG. Off-Ramp	0.46
1626615995	CA-237	W	Whisman Rd DIAG. Off-Ramp to Whisman Rd DIAG. On-Ramp	0.20
1626743703	CA-237	W	Whisman Rd On-Ramp to SR-85 L. Off-Ramp	0.15
1626749392	GUADALUPE	N	Almaden Expy DIAG. On-Ramp to Lelong St DIAG. On-Ramp	0.85
1626739167	GUADALUPE	N	Lelong St DIAG. On-Ramp to I-280 DIAG. Off-Ramp	0.30
1626684252	GUADALUPE	S	US-101 DIAG. On-Ramp to Skyport Dr. DIAG. Off-Ramp	0.23
1626739793	GUADALUPE	S	Skyport Dr. DIAG. Off-Ramp to Skyport Dr. DIAG. On-Ramp	0.65
1626745765	GUADALUPE	S	Skyport Dr DIAG. On-Ramp to Taylor St DIAG. Off-Ramp	0.90
170330297	GUADALUPE	S	Taylor St DIAG. Off-Ramp to Taylor St DIAG. On-Ramp	0.57
1626715183	GUADALUPE	S	Taylor St DIAG. On-Ramp to Coleman Ave/Julian St DIAG Off-Ramp	0.21
1626694160	GUADALUPE	S	Coleman Ave/Julian St DIAG Off-Ramp to Julian St DIAG. On-Ramp	0.30
1626748701	GUADALUPE	S	Julian St DIAG. On-Ramp to SR-87	0.18
1626659583	GUADALUPE	S	SR-87 to Park Ave DIAG. Off-Ramp	0.13
1626669895	GUADALUPE	S	Park Ave DIAG. Off-Ramp to I-280 DIAG. Off-Ramp	0.23
1626696878	GUADALUPE	S	I-280 DIAG. Off-Ramp to Auzerais Ave. DIAG On-Ramp	0.31
1626705269	GUADALUPE	S	Auzerais Ave. DIAG On-Ramp to SR-87	0.22
1626745623	GUADALUPE	S	SR-87 to Lelong St DIAG. Off-Ramp	0.73
170344644	GUADALUPE	S	Lelong St DIAG. Off-Ramp to Almaden Expy DIAG. Off-Ramp	0.74
1626739813	GUADALUPE	S	Almaden Expy DIAG. On-Ramp to Curtner Ave DIAG. Off-Ramp	0.24
1626662089	GUADALUPE	S	Curtner Ave DIAG. Off-Ramp to Curtner Ave DIAG. On-Ramp	0.22
1626622185	I-280	E	I-280 to Alpine Rd DIAG. On-Ramp	0.18
1626622048	I-280	E	Alpine Rd DIAG. On-Ramp to I-280	0.57
1626622067	I-280	E	I-280 to I-280	0.57
1626622086	I-280	E	I-280 to Page Mill Rd DIAG. Off-Ramp	0.57
1626622486	I-280	E	Page Mill Rd DIAG. Off-Ramp to Page Mill Rd DIAG. On-Ramp	0.61
1626622116	I-280	E	Page Mill Rd DIAG. On-Ramp to I-280	0.54
1626621977	I-280	E	I-280 to I-280	0.54
1626621997	I-280	E	I-280 to I-280	0.54
1626622015	I-280	E	I-280 to I-280	0.54
1626622033	I-280	E	I-280 to El Monte Rd DIAG. Off-Ramp	0.57
1626621896	I-280	E	El Monte Rd DIAG. Off-Ramp to El Monte Rd DIAG. On-Ramp	0.58
1626676795	I-280	E	El Monte Rd DIAG. On-Ramp to Magdalena Ave DIAG. Off-Ramp	0.38
1626637061	I-280	E	Foothill Blvd DIAG. On-Ramp to Foothill Blvd DIAG. On-Ramp	0.41
1626621723	I-280	E	SR-17 DIAG. Off-Ramp to I-280	0.16
1626709653	I-280	E	I-280 to SR-17 DIAG. On-Ramp	0.76
450503992	I-280	E	SR-17 DIAG. On-Ramp to Moorpark Ave Off-Ramp	0.27
1626774813	I-280	E	SR-17 DIAG. On-Ramp to Southwest Expy DIAG. Off-Ramp	0.12



INRIX Segment	Facility	Direction	Segment Name	Miles
1626745528	I-280	E	Southwest Expy DIAG. Off-Ramp to Southwest Expy DIAG. On-Ramp	0.39
1626685547	I-280	E	Southwest Expy DIAG. On-Ramp to Bird Ave DIAG. Off-Ramp	0.21
1626651100	I-280	E	Bird Ave DIAG. Off-Ramp to I-280	0.19
1626621762	I-280	E	I-280 to SR-87 DIAG. Off-Ramp	0.72
1626612349	I-280	E	SR-87 DIAG. Off-Ramp to SR-87 DIAG. On-Ramp	0.48
1626621790	I-280	E	SR-87 DIAG. On-Ramp to SR-87 DIAG. On-Ramp	0.20
1626634634	I-280	E	SR-87 DIAG. On-Ramp to 1st St L. On-Ramp	0.60
1626659124	I-280	E	1st St L. On-Ramp to 6th St DIAG. Off-Ramp	0.21
1626692319	I-280	E	6th St DIAG. Off-Ramp to 10th St DIAG. Off-Ramp	0.66
1626692340	I-280	E	10th St DIAG. Off-Ramp to 10th St DIAG. On-Ramp	0.41
1626686356	I-280	E	10th St DIAG. On-Ramp to 11th St DIAG. On-Ramp	0.42
1626736543	I-280	W	Page Mill Rd DIAG. Off-Ramp to Page Mill Rd DIAG. On-Ramp	0.63
1626690322	I-280	W	Page Mill Rd DIAG. On-Ramp to I-280	0.57
1626690342	I-280	W	I-280 to I-280	0.75
1626690356	I-280	W	I-280 to Alpine Rd DIAG. Off-Ramp	0.41
1626647022	I-280	W	Alpine Rd DIAG. Off-Ramp to Alpine Rd DIAG. On-Ramp	0.47
1626679604	I-680	N	Jacklin Rd DIAG. On-Ramp to Scott Creek Rd DIAG. Off-Ramp	0.95
1626611309	I-680	S	Jacklin Rd DIAG. Off-Ramp to Jacklin Rd DIAG. On-Ramp	0.57
1626624933	I-680	S	Jacklin Rd DIAG. On-Ramp to Calaveras Blvd DIAG. Off Ramp	0.11
1626680222	I-680	S	Calaveras Blvd DIAG. Off Ramp to Calaveras Blvd DIAG. On Ramp	0.91
1626742767	I-680	S	Calaveras Blvd DIAG. On Ramp to Montague Expy DIAG. Off-Ramp	0.62
1626635891	I-680	S	Montague Expy DIAG. Off-Ramp to Montague Expy DIAG. On-Ramp	0.71
1626743978	I-680	S	Montague Expy DIAG. On-Ramp to Capitol Expy DIAG. Off-Ramp	0.44
1626671418	I-680	S	Capitol Expy DIAG. Off-Ramp to Capitol Expy DIAG. On-Ramp	0.52
1626728352	I-680	S	Capitol Expy DIAG. On-Ramp to Hostetter Rd L. On-Ramp	0.52
1626680242	I-680	S	Hostetter Rd L. On-Ramp to Berryessa Rd DIAG. Off-Ramp	0.19
1626752253	I-680	S	Berryessa Rd DIAG. Off-Ramp to Berryessa Rd DIAG. On-Ramp	0.63
1626716166	I-680	S	McKee Rd DIAG. Off-Ramp to McKee Rd DIAG. On-Ramp	0.62
1626706530	I-880	N	Stevens Creek Blvd DIAG. Off-Ramp to Stevens Creek Blvd DIAG. On-Ramp	0.21
1626608804	I-880	N	Stevens Creek Blvd DIAG. On-Ramp to Bascom Ave DIAG. Off-Ramp	0.51
1626654762	I-880	N	Bascom Ave DIAG. Off-Ramp to I-880	0.13
1626720857	I-880	N	I-880 to Bascom Ave DIAG. On-Ramp	0.12
1626618430	I-880	N	Bascom Ave DIAG. On-Ramp to The Alameda DIAG. Off-Ramp	0.50
1626669571	I-880	N	The Alameda DIAG. Off-Ramp to Coleman Ave L. Off-Ramp	0.69
1626612065	I-880	N	Coleman Ave L. Off-Ramp to Coleman Ave DIAG. On-Ramp	0.36
1626634100	I-880	N	Coleman Ave DIAG. On-Ramp to 1st St DIAG. Off-Ramp	0.41
1626695924	I-880	N	1st St DIAG. Off-Ramp to I-880	0.16
1626610096	I-880	N	I-880 to 1nd St DIAG. On-Ramp	0.22



INRIX Segment	Facility	Direction	Segment Name	Miles
1626638805	I-880	N	1nd St DIAG. On-Ramp to US-101 DIAG. Off-Ramp	0.14
1626668509	I-880	N	I-880 to US-101 DIAG. On-Ramp	0.14
1626620981	I-880	S	SR-237 DIAG. On-Ramp to I-880	0.50
1626640017	I-880	S	I-880 to Great Mall Pkwy DIAG. On-Ramp	0.33
1626669690	I-880	S	Great Mall Pkwy DIAG. On-Ramp to Montague Expy DIAG. Off-Ramp	0.47
1626750843	I-880	S	Coleman Ave DIAG. On-Ramp to Coleman Ave DIAG. On-Ramp	0.13
1626620880	I-880	S	Coleman Ave DIAG. On-Ramp to Bascom Ave DIAG. Off-Ramp	0.99
1626721001	I-880	S	Bascom Ave DIAG. Off-Ramp to I-880	0.16
1626668280	I-880	S	I-880 to Bascom Ave DIAG. On-Ramp	0.09
1626728541	I-880	S	Bascom Ave DIAG. On-Ramp to Stevens Creek Blvd DIAG. Off-Ramp	0.52
1626693336	US-101	N	Ellis St DIAG. Off-Ramp to Ellis St DIAG. On-Ramp	0.48
1626700711	US-101	N	Ellis St DIAG. On-Ramp to Moffett Blvd DIAG. Off-Ramp	0.43
1626656193	US-101	N	Moffett Blvd DIAG. Off-Ramp to Moffett Blvd L. On-Ramp	0.18
1626717135	US-101	N	Moffett Blvd L. On-Ramp to Shoreline Blvd DIAG. Off-Ramp	0.18
429466326	US-101	N	Shoreline Blvd DIAG. Off-Ramp to SR-85 DIAG. On-Ramp	0.31
1626611926	US-101	N	SR-85 DIAG. On-Ramp to Shoreline Blvd DIAG. On-Ramp	0.15
1626736062	US-101	N	Shoreline Blvd DIAG. On-Ramp to Shoreline Blvd DIAG. On-Ramp	0.17
429466327	US-101	N	Shoreline Blvd DIAG. On-Ramp to Shoreline Blvd DIAG. On-Ramp	0.37
1626633521	US-101	N	Shoreline Blvd DIAG. On-Ramp to Rengstorff Ave DIAG. Off-Ramp	0.41
1626742626	US-101	N	Rengstorff Ave DIAG. Off-Ramp to Rengstorff Ave DIAG. Off-Ramp	0.17
1626620509	US-101	N	Rengstorff Ave DIAG. Off-Ramp to Rengstorff Ave DIAG. On-Ramp	0.21
400245313	US-101	N	Rengstorff Ave DIAG. On-Ramp to San Antonio Rd DIAG. On-Ramp	0.57
461702205	US-101	N	Embarcadero Rd DIAG. Off-Ramp to Oregon Expy DIAG. On-Ramp	0.75
461693334	US-101	S	Oregon Expy DIAG. On-Ramp to Oregon Expy DIAG. On-Ramp	0.08
1626736899	US-101	S	US-101 to San Antonio Rd DIAG. Off-Ramp	0.59
1626736900	US-101	S	Charleston Rd On-Ramp to Charleston Rd On-Ramp	0.02
1626656047	US-101	S	Moffett Blvd L. Off-Ramp to Moffett Blvd DIAG. On-Ramp	0.13
1626670097	US-101	S	Moffett Blvd DIAG. On-Ramp to Ellis St DIAG. Off-Ramp	0.62
1626743494	US-101	S	Ellis St DIAG. Off-Ramp to Ellis St DIAG. On-Ramp	0.62
429471280	US-101	S	Ellis St DIAG. On-Ramp to Mathilda Ave. DIAG. Off-Ramp	0.62
1626767008	US-101	S	Mathilda Ave. DIAG. Off-Ramp to Mathilda Ave. DIAG. On-Ramp	0.20
1626720491	US-101	S	Mathilda Ave. DIAG. On-Ramp to Mathilda Ave. DIAG. On-Ramp	0.11
1626649483	US-101	S	Mathilda Ave. DIAG. On-Ramp to Fair Oaks Ave DIAG. Off-Ramp	0.52
1626628951	US-101	S	Fair Oaks Ave DIAG. Off-Ramp to Fair Oaks Ave DIAG. On-Ramp	0.22
1626626216	US-101	S	Fair Oaks Ave DIAG. On-Ramp to Fair Oaks Ave DIAG. Off-Ramp	0.02
1626642567	US-101	S	Fair Oaks Ave DIAG. On-Ramp to Fair Oaks Ave DIAG. On-Ramp	0.18
1626693578	US-101	S	Fair Oaks Ave DIAG. On-Ramp to Lawrence Expy DIAG. Off-Ramp	0.56
1626760105	US-101	S	Lawrence Expy DIAG. Off-Ramp to Lawrence Expy DIAG. On-Ramp	0.30



INRIX Segment	Facility	Direction	Segment Name	Miles
1626766438	US-101	S	Lawrence Expy DIAG. On-Ramp to Lawrence Expy DIAG. On-Ramp	0.18
1626741709	US-101	S	Lawrence Expy DIAG. On-Ramp to Bowers Ave DIAG. Off-Ramp	0.49
1626695531	US-101	S	De La Cruz Blvd DIAG. On-Ramp to De La Cruz Blvd DIAG. On-Ramp	0.02
1626683678	US-101	S	I-880 DIAG. On-Ramp to I-880 DIAG. On-Ramp	0.01
1626683421	US-101	S	US-101/Taylor St to McKee Rd DIAG. Off-Ramp	0.62
1626754947	US-101	S	Santa Clara St DIAG. On-Ramp to I-680 DIAG. Off-Ramp	0.29
1626665661	US-101	S	Story Rd DIAG. Off-Ramp to Story Rd DIAG. On-Ramp	0.60
1626619566	US-101	S	Story Rd DIAG. On-Ramp to I-680 DIAG. On-Ramp	0.29
1626676599	US-101	S	SR-85 DIAG. On-Ramp to US-101	0.55
1626744814	US-101	S	US-101 to US-101	0.66
1626705200	US-101	S	Bailey Ave DIAG. Off-Ramp to US-101/Bailey Ave DIAG. On-Ramp	0.88
1626765303	US-101	S	US-101/Bailey Ave DIAG. On-Ramp to US-101	0.66
1626765324	US-101	S	US-101 to Coyote Creek Golf Dr DIAG. Off-Ramp	0.86
1626765179	US-101	S	Coyote Creek Golf Dr DIAG. Off-Ramp to Coyote Creek Golf Dr DIAG. On-Ramp	0.45
1626765202	US-101	S	Coyote Creek Golf Dr DIAG. On-Ramp to US-101	0.66
1626765221	US-101	S	US-101 to US-101	0.66
1626765244	US-101	S	US-101 to US-101	0.66
1626765100	US-101	S	US-101 to Cochrane Rd DIAG. Off-Ramp	0.66
1626632335	US-101	S	Cochrane Rd DIAG. Off-Ramp to Cochrane Rd DIAG. On-Ramp	0.45
1626690593	US-101	S	Cochrane Rd DIAG. On-Ramp to Cochrane Rd DIAG. On-Ramp	0.31
1626735813	US-101	S	Cochrane Rd DIAG. On-Ramp to US-101	0.60
1626696198	US-101	S	Dunne Ave DIAG. Off-Ramp to Dunne Ave DIAG. On-Ramp	0.51
1626690360	US-101	S	Dunne Ave DIAG. On-Ramp to Tennant Ave DIAG. Off-Ramp	0.39
1626631556	US-101	S	Tennant Ave DIAG. Off-Ramp to Tennant Ave DIAG. On-Ramp	0.54
1626709118	US-101	S	Tennant Ave DIAG. On-Ramp to US-101	0.43
1626663700	US-101	S	Monterey Rd DIAG. Off-Ramp to Monterey Rd DIAG. On-Ramp	0.63
1626614502	US-101	S	Monterey Rd DIAG. On-Ramp to US-101/Castro Valley Rd	0.99
1626766814	US-101	S	US-101/Castro Valley Rd to SR-25 DIAG. Off-Ramp	0.55



Figure 4.5: LOS Segments Operating at LOS F, AM Peak Period 2024

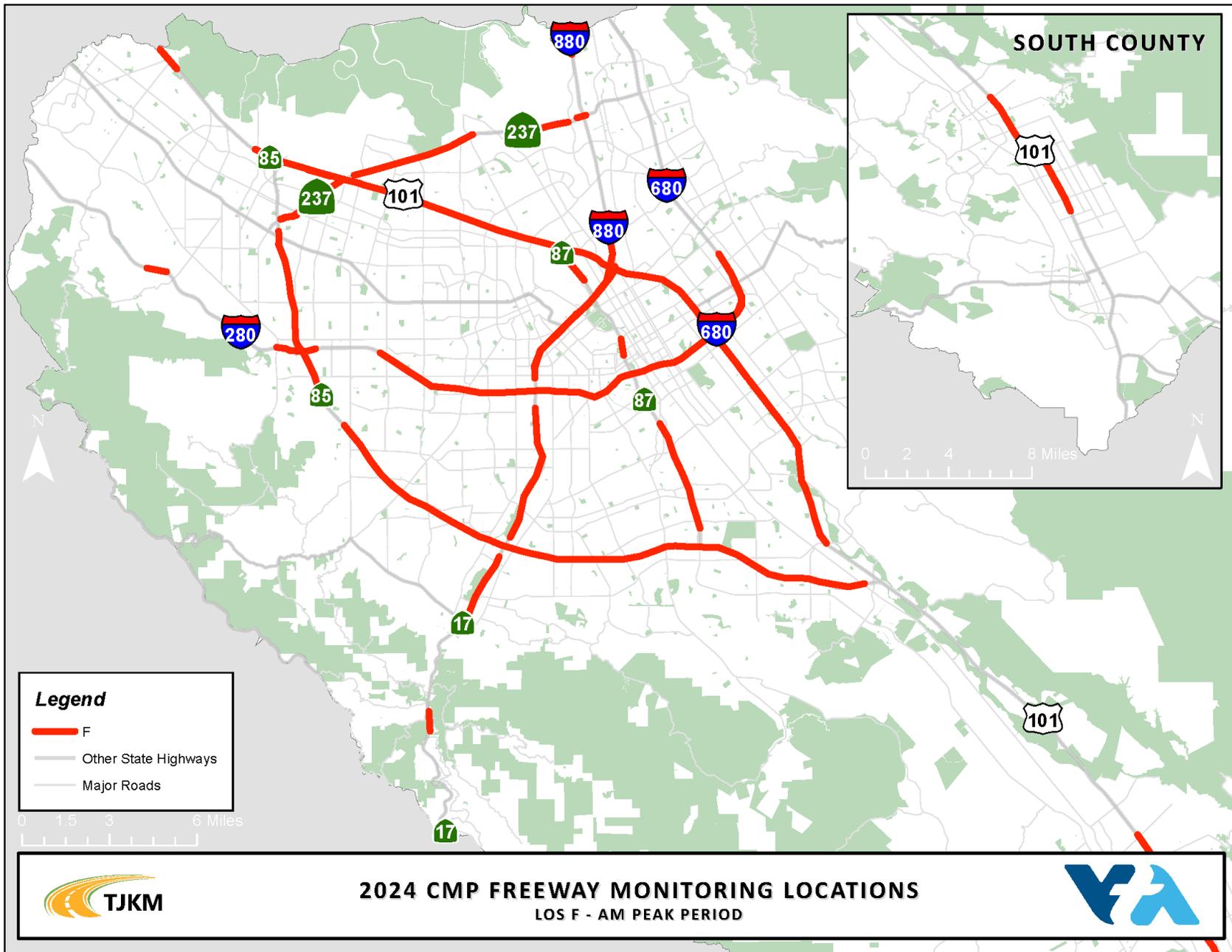
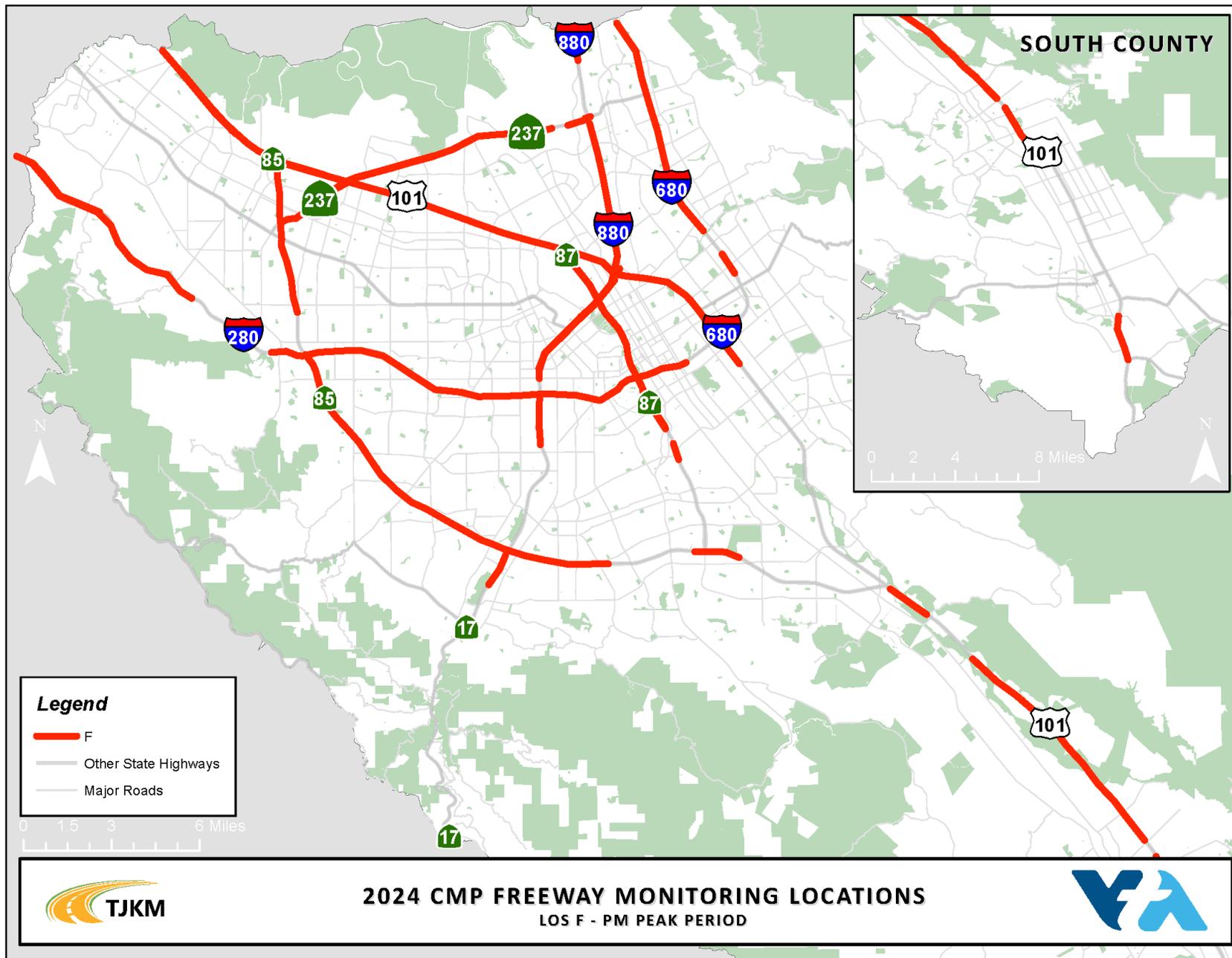


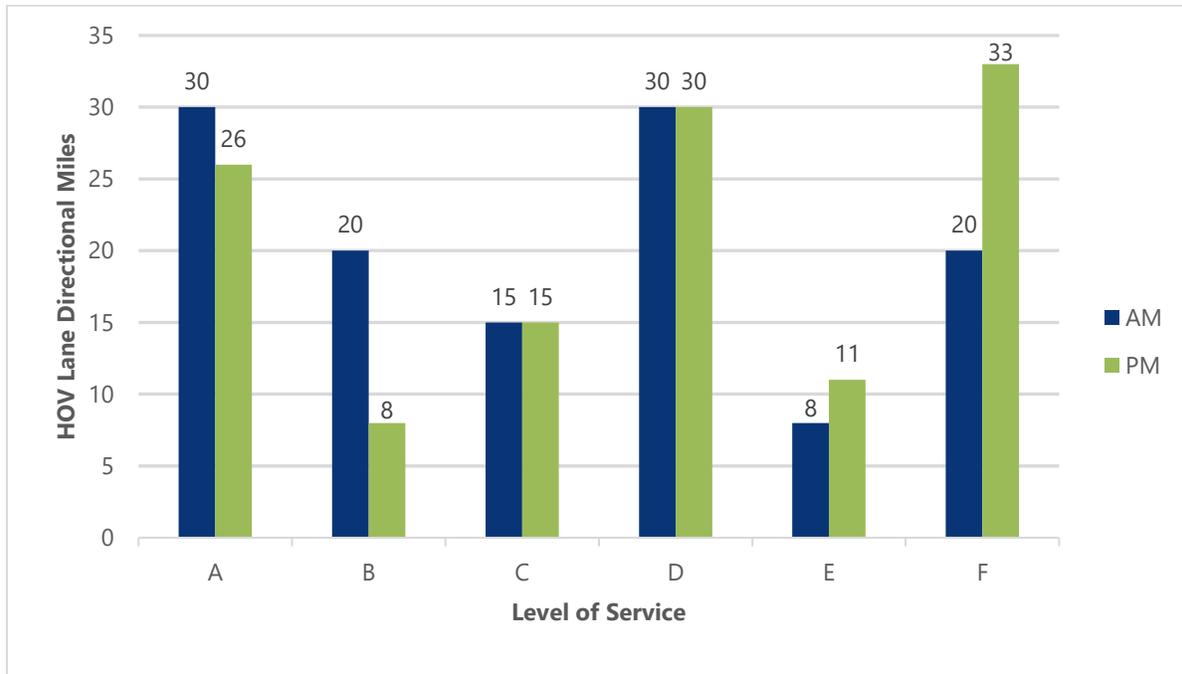
Figure 4.6: LOS Segments Operating at LOS F, PM Peak Period 2024



2024 HOV Lanes

In the region's network of HOV lanes, 53% of the directional miles in the AM peak period and 40% of the directional miles in the PM peak period operated at LOS C or better during the AM and PM peak periods. During the AM peak period, 23 percent of the directional miles and 36 percent of the direction during the PM peak period operated at LOS E or worse. **Fig 4.7** shows the results of the HOV lane directional miles in the LOS categories. Only 16% and 27% of the miles operated at LOS F during the AM and PM peak periods, respectively.

Figure 4.7: 2024 HOV Lanes Directional Miles in LOS Categories



Most of the miles of HOV lanes that were observed to operate at LOS F were on CA-85, with 11.34 miles in the westbound direction at LOS F in the AM peak period and 10.66 miles in the eastbound direction at LOS F in the PM peak period. **Table 4.7** identifies the mileage of HOV facilities by freeway and the directional miles at LOS F by facility.

Table 4.7: HOV Directional Miles at LOS F

Facility	Direction	Total HOV Miles	LOS F AM Period Miles (% of Total)	LOS F PM Period Miles (% of Total)
CA-237	EB	5.94	0.0 (0%)	3.92 (66%)
	WB	5.67	0.56 (10%)	0.56 (10%)
CA-85	EB	23.89	0.0 (0%)	10.66 (45%)
	WB	24.23	11.34 (47%)	0.0 (0%)
I-280	EB	10.38	0.12 (1%)	5.68 (55%)
	WB	12.93	7.22 (56%)	1.15 (9%)
I-880	NB	6.57	0.0 (0%)	0.0 (0%)
	SB	7.13	0.81 (11%)	3.07 (43%)
US-101	NB	11.11	0.0 (0%)	0.0 (0%)
	SB	15.50	0.20 (1%)	8.24 (53%)

Figure 4.8 and **Figure 4.9** shows that of the HOV lane directional miles operating at LOS F, 56% were on CA-85, 36% were on I-280, 4% on I-880, 3% were on CA-237, and 1% on US-101 during the AM peak period. During the PM peak period 32% were on CA-85, 25% on US-101, 21% on I-280, 13% on CA-237, and 9% on I-880.

Figure 4.8: 2024 HOV Lanes Directional Miles operating at LOS F AM Peak Period

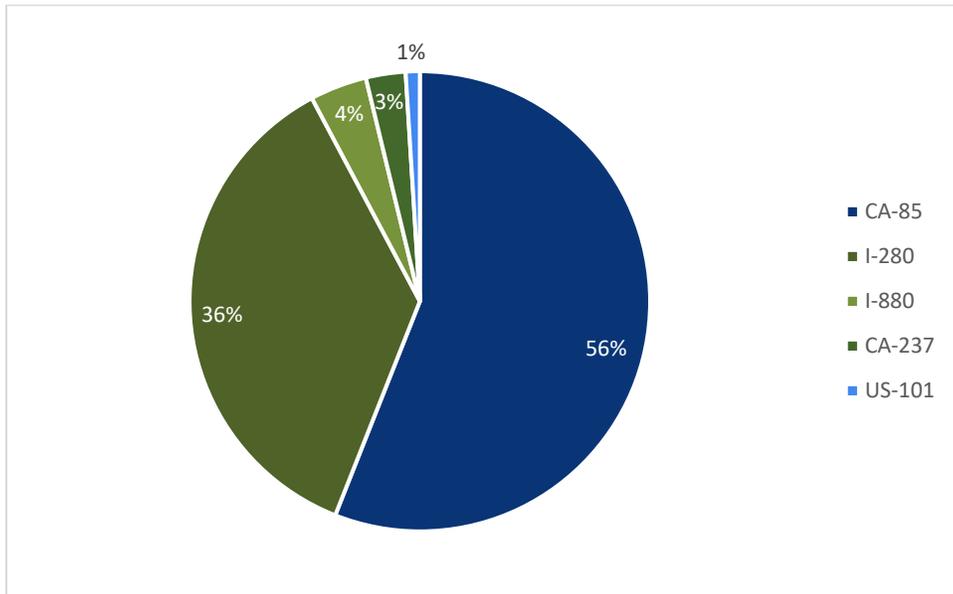


Figure 4.9: 2024 HOV Lanes Directional Miles operating at LOS F PM Peak Period

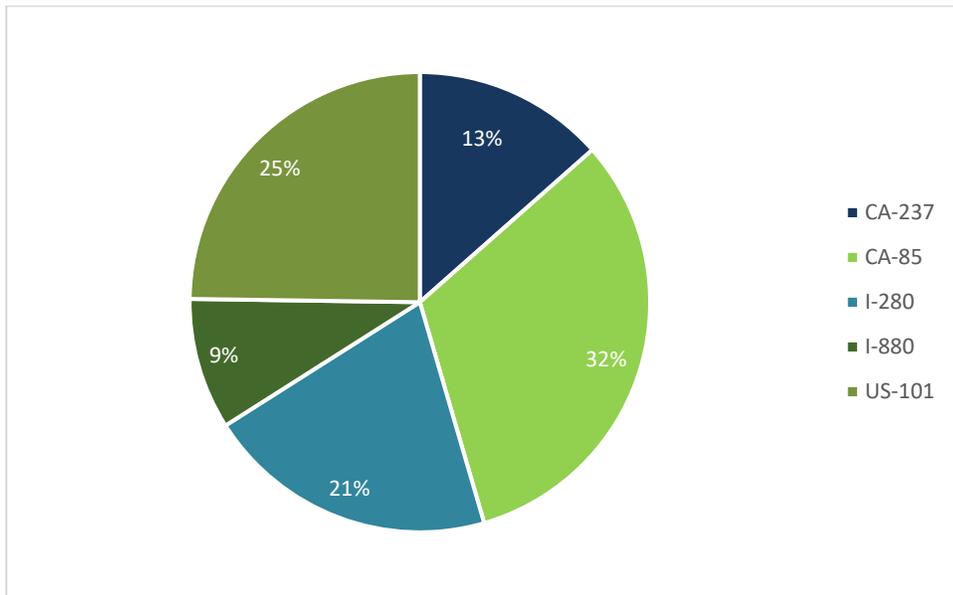


Table 4.8: 2024 HOV Segments Operating at LOS F in AM Peak Period

INRIX ID	Facility	Direction	Segment	Length (miles)	Speed (MPH)
1626683753	CA-85	W	Cottle Rd DIAG. Off-Ramp to Cottle Rd DIAG. On-Ramp	0.32	26.9
1626683577	CA-85	W	Cottle Rd DIAG. On-Ramp to Cottle Rd DIAG. On-Ramp	0.22	28.9
1626683559	CA-85	W	Cottle Rd DIAG. On-Ramp to SR-85	0.44	23.7
400282935	CA-85	W	SR-85 to SR-85	0.44	25.0
1626683519	CA-85	W	Blossom Hill Rd DIAG. Off-Ramp to Blossom Hill Rd DIAG. On-Ramp	0.43	25.0
1626683429	CA-85	W	Camden Ave DIAG. On-Ramp to Union Ave DIAG. Off-Ramp	0.85	28.0
1626683448	CA-85	W	Camden Ave DIAG. Off-Ramp to Camden Ave DIAG. On-Ramp	0.44	19.0
1626683469	CA-85	W	SR-85 to Camden Ave DIAG. Off-Ramp	0.49	20.5
1626683499	CA-85	W	Blossom Hill Rd DIAG. On-Ramp to Blossom Hill Rd DIAG. On-Ramp	0.15	16.7
1626683487	CA-85	W	SR-85 to SR-85	0.49	19.8
1626683215	CA-85	W	S. Bascom Ave DIAG. Off-Ramp to SR-17 DIAG. Off-Ramp	0.23	11.9
1626683196	CA-85	W	SR-17 DIAG. Off-Ramp to SR-17 DIAG. On-Ramp	0.54	9.1
1626683347	CA-85	W	Almaden Expwy DIAG. On-Ramp to SR-85	0.49	17.1
1626683622	CA-85	W	SR-87 DIAG. Off-Ramp to SR-87 DIAG. Off-Ramp	0.25	9.9
1626683601	CA-85	W	SR-87 DIAG. Off-Ramp to SR-87 DIAG. On-Ramp	0.28	11.4
1626683583	CA-85	W	SR-87 DIAG. On-Ramp to SR-87 DIAG. On-Ramp	0.25	7.4
1626683410	CA-85	W	SR-87 DIAG. On-Ramp to Almaden Expwy DIAG. Off-Ramp	0.40	12.0
1626683366	CA-85	W	Almaden Expwy DIAG. On-Ramp to Almaden Expwy DIAG. On-Ramp	0.25	14.2
1626683389	CA-85	W	Almaden Expwy DIAG. Off-Ramp to Almaden Expwy DIAG. On-Ramp	0.26	11.3
1626683336	CA-85	W	SR-17 DIAG. On-Ramp to SR-17 DIAG. On-Ramp	0.38	9.3
1626683318	CA-85	W	SR-17 DIAG. On-Ramp to Winchester Blvd DIAG. On-Ramp	0.27	11.4
1626683297	CA-85	W	Winchester Blvd DIAG. On-Ramp to SR-85	0.42	16.1
1626683279	CA-85	W	SR-85 to SR-85	0.42	27.2
1626683183	CA-85	W	Saratoga Ave DIAG. On-Ramp to SR-85	0.46	22.4
1626683165	CA-85	W	SR-85 to SR-85	0.46	28.1
1626683144	CA-85	W	SR-85 to S De Anza Blvd DIAG. Off-Ramp	0.52	27.4
1626683126	CA-85	W	S De Anza Blvd DIAG. Off-Ramp to S De Anza Blvd DIAG. On-Ramp	0.68	21.4
1626682955	CA-85	W	Fremont Ave On-Ramp to SR-85	0.48	29.8
1626682723	CA-85	W	El Camino Real On-Ramp to El Camino Real On-Ramp	0.02	24.2
1626693019	CA-237	W	Java Dr DIAG. On-Ramp to Mathilda Ave DIAG Off-Ramp	0.56	24.3
1626774813	I-280	E	SR-17 DIAG. On-Ramp to Southwest Expy DIAG. Off-Ramp	0.12	13.9
1626647428	I-280	W	I-280 to Meridian Ave L. On-Ramp	0.46	29.4
429466802	I-280	W	Meridian Ave L. On-Ramp to SR-280 DIAG. On-Ramp	0.39	8.6
1626774353	I-280	W	SR-280 DIAG. On-Ramp to Bascom Avenue	0.26	10.2
1626627832	I-280	W	I-880 DIAG. Off-Ramp to I-280	0.19	9.7
1626647327	I-280	W	Bascom Avenue to I-880 DIAG. Off-Ramp	0.08	8.4
1626647347	I-280	W	I-280 to I-280	0.30	12.6
1626647367	I-280	W	I-280 to I-880 DIAG. On-Ramp	0.26	15.1
1626764707	I-280	W	I-880 DIAG. On-Ramp to Winchester Blvd L. On-Ramp	0.55	15.0



INRIX ID	Facility	Direction	Segment	Length (miles)	Speed (MPH)
1626689030	I-280	W	Winchester Blvd L. On-Ramp to Saratoga Ave DIAG. Off-Ramp	0.72	21.2
1626647239	I-280	W	Saratoga Ave DIAG. Off-Ramp to Saratoga Ave DIAG. On-Ramp	0.55	21.2
1626647258	I-280	W	Saratoga Ave DIAG. On-Ramp to Lawrence Expy DIAG. Off-Ramp	0.76	15.8
1626647295	I-280	W	Stevens Creek Blvd DIAG. On-Ramp to Wolfe Rd DIAG. Off-Ramp	0.47	17.4
1626647157	I-280	W	Wolfe Rd DIAG. Off-Ramp to Wolfe Rd DIAG. On-Ramp	0.43	24.1
1626699817	I-280	W	Wolfe Rd DIAG. On-Ramp to De Anza Blvd DIAG. Off-Ramp	0.62	19.2
1626651216	I-280	W	De Anza Blvd DIAG. Off-Ramp to De Anza Blvd DIAG. On-Ramp	0.47	20.8
1626647176	I-280	W	De Anza Blvd DIAG. On-Ramp to SR-85 DIAG. Off-Ramp	0.72	20.9
429476521	I-880	S	Old Bayshore Hwy DIAG. Off-Ramp to US-101 L. On-Ramp	0.81	28.0
1626737517	US-101	S	De La Cruz Blvd DIAG. Off-Ramp to De La Cruz Blvd DIAG. On-Ramp	0.20	6.4

Table 4.8 and **Table 4.9** lists the HOV segments operating at LOS F in the AM and PM peak periods, respectively. For all of the HOV lane segments operating at LOS F, the adjacent mixed-flow lanes are also at LOS F.

Table 4.9: 2024 HOV Segments Operating at LOS F in the PM Peak Period

INRIX ID	Facility	Direction	Segment	Length (miles)	Speed (MPH)
1626649617	CA-85	E	El Camino Real DIAG. Off-Ramp to El Camino Real DIAG. On-Ramp	0.18	25.2
1626649540	CA-85	E	El Camino Real DIAG. On-Ramp to SR-85	0.49	22.8
1626690229	CA-85	E	I-280 DIAG. On-Ramp to I-280 DIAG. On-Ramp	0.34	20.0
1626666358	CA-85	E	I-280 DIAG. On-Ramp to Stevens Creek Blvd DIAG. Off-Ramp	0.20	10.1
1626684219	CA-85	E	Stevens Creek Blvd DIAG. Off-Ramp to Stevens Creek Blvd DIAG. On-Ramp	0.52	9.9
1626673111	CA-85	E	Stevens Creek Blvd DIAG. On-Ramp to SR-85	0.44	19.3
400138614	CA-85	E	SR-85 to SR-85	0.44	18.5
1626673129	CA-85	E	SR-85 to S De Anza Blvd DIAG. Off-Ramp	0.44	17.5
1626703799	CA-85	E	S De Anza Blvd DIAG. Off-Ramp to S De Anza Blvd DIAG. On-Ramp	0.46	15.3
1626744263	CA-85	E	S De Anza Blvd DIAG. On-Ramp to SR-85	0.53	17.9
1626744284	CA-85	E	SR-85 to SR-85	0.53	13.2
1626744145	CA-85	E	SR-85 to Saratoga Ave DIAG. Off-Ramp	0.59	16.0
1626745604	CA-85	E	Saratoga Ave DIAG. Off-Ramp to Saratoga Ave DIAG. On-Ramp	0.54	24.6
1626629094	CA-85	E	Saratoga Ave DIAG. On-Ramp to SR-85/Quito Rd	0.44	17.8
1626629072	CA-85	E	SR-85/Quito Rd to SR-85	0.44	23.7
1626629052	CA-85	E	SR-85 to SR-85	0.44	28.9
1626712018	CA-85	E	Winchester Blvd DIAG. Off-Ramp to SR-17 DIAG. Off-Ramp	0.34	9.5
1626720658	CA-85	E	SR-17 DIAG. Off-Ramp to SR-17 DIAG. Off-Ramp	0.33	8.4
1626611815	CA-85	E	SR-17 DIAG. Off-Ramp to SR-17 DIAG. On-Ramp	0.61	9.6
1626671195	CA-85	E	SR-87 DIAG. On-Ramp to Blossom Hill Rd DIAG. Off-Ramp	0.45	23.8
1626748725	CA-85	E	SR-17 DIAG. On-Ramp to S Bascom Ave DIAG. On-Ramp	0.20	10.3
1626705795	CA-85	E	S Bascom Ave DIAG. On-Ramp to Union Ave DIAG. Off-Ramp	0.34	15.7
1626635824	CA-85	E	Union Ave DIAG. Off-Ramp to Union Ave DIAG. On-Ramp	0.62	22.6
1626696360	CA-85	E	Camden DIAG. On-Ramp to SR-85/Meridian Ave	0.48	28.1
1626662269	CA-85	E	Camden DIAG. Off-Ramp to Camden DIAG. On-Ramp	0.30	21.9
1626652250	CA-237	E	Mathilda Ave DIAG. On-Ramp to Fair Oaks Way DIAG. Off-Ramp	0.53	25.8
1626757913	CA-237	E	Fair Oaks Way DIAG. Off-Ramp to Lawrence Expy DIAG. Off-Ramp	0.51	10.5
1626670237	CA-237	E	Lawrence Expy DIAG. Off-Ramp to Lawrence Expy DIAG. On-Ramp	0.60	18.0
1626727850	CA-237	E	Lawrence Expy DIAG. On-Ramp to Great America Pkwy DIAG. Off-Ramp	0.61	12.1
1626721108	CA-237	E	Great America Pkwy DIAG. Off-Ramp to Great America Pkwy DIAG. On-Ramp	0.77	16.0
1626771275	CA-237	E	Great America Pkwy DIAG. On-Ramp to N 1st St DIAG. Off-Ramp	0.58	17.6
1626750231	CA-237	E	N 1st St DIAG. Off-Ramp to N 1st St DIAG. On-Ramp	0.33	22.6



INRIX ID	Facility	Direction	Segment	Length (miles)	Speed (MPH)
1626693019	CA-237	W	Java Dr DIAG. On-Ramp to Mathilda Ave DIAG Off-Ramp	0.56	21.8
1626676795	I-280	E	El Monte Rd DIAG. On-Ramp to Magdalena Ave DIAG. Off-Ramp	0.38	22.3
1626621806	I-280	E	SR-85 DIAG. On-Ramp to De Anza Blvd DIAG. Off-Ramp	0.73	16.2
1626753228	I-280	E	De Anza Blvd DIAG. Off-Ramp to De Anza Blvd DIAG. On-Ramp	0.41	8.0
1626681549	I-280	E	De Anza Blvd DIAG. On-Ramp to Wolfe Rd DIAG. Off-Ramp	0.14	26.3
1626701491	I-280	E	Wolfe Rd DIAG. Off-Ramp to Wolfe Rd DIAG. On-Ramp	0.43	19.9
1626719841	I-280	E	Wolfe Rd DIAG. On-Ramp to Stevens Creek Blvd DIAG. Off-Ramp	0.44	19.7
1626621825	I-280	E	Stevens Creek Blvd DIAG. Off-Ramp to Lawrence Expy DIAG. On-Ramp	0.47	18.6
1626616199	I-280	E	Lawrence Expy DIAG. On-Ramp to Saratoga Ave DIAG. Off-Ramp	0.48	21.9
1626621842	I-280	E	Saratoga Ave DIAG. On-Ramp to Moorpark Ave Off-Ramp	0.27	16.2
1626621861	I-280	E	Moorpark Ave Off-Ramp to SR-17 DIAG. Off-Ramp	0.22	9.0
1626621723	I-280	E	SR-17 DIAG. Off-Ramp to I-280	0.16	10.9
1626709653	I-280	E	I-280 to SR-17 DIAG. On-Ramp	0.76	11.2
450503992	I-280	E	SR-17 DIAG. On-Ramp to Moorpark Ave Off-Ramp	0.27	7.6
1626774813	I-280	E	SR-17 DIAG. On-Ramp to Southwest Expy DIAG. Off-Ramp	0.12	7.8
1626745528	I-280	E	Southwest Expy DIAG. Off-Ramp to Southwest Expy DIAG. On-Ramp	0.39	7.9
1626647428	I-280	W	I-280 to Meridian Ave L. On-Ramp	0.46	20.7
1626764707	I-280	W	I-880 DIAG. On-Ramp to Winchester Blvd L. On-Ramp	0.55	17.7
1626685366	I-280	W	SR-85 DIAG. On-Ramp to Foothill Blvd DIAG. Off-Ramp	0.13	20.5
1626669690	I-880	S	Great Mall Pkwy DIAG. On-Ramp to Montague Expy DIAG. Off-Ramp	0.47	14.7
1626676776	I-880	S	Montague Expy DIAG. On-Ramp to Brokaw Rd DIAG. Off-Ramp	0.73	15.6
1626763767	I-880	S	Brokaw Rd DIAG. Off-Ramp to Brokaw Rd DIAG. On-Ramp	0.61	24.2
1626712532	I-880	S	Brokaw Rd DIAG. On-Ramp to Old Bayshore Hwy DIAG. Off-Ramp	0.46	14.3
429476521	I-880	S	Old Bayshore Hwy DIAG. Off-Ramp to US-101 L. On-Ramp	0.81	17.0
1626612153	US-101	S	Embarcadero Rd DIAG. Off-Ramp to Oregon Expy DIAG. On-Ramp	0.62	15.3
461693334	US-101	S	Oregon Expy DIAG. On-Ramp to Oregon Expy DIAG. On-Ramp	0.08	23.6
170746739	US-101	S	Oregon Expy DIAG. On-Ramp to US-101	0.37	23.9
1626717279	US-101	S	Moffett Blvd L. Off-Ramp to Moffett Blvd L. Off-Ramp	0.12	21.9
1626656047	US-101	S	Moffett Blvd L. Off-Ramp to Moffett Blvd DIAG. On-Ramp	0.13	22.1
1626670097	US-101	S	Moffett Blvd DIAG. On-Ramp to Ellis St DIAG. Off-Ramp	0.62	26.7
1626720491	US-101	S	Mathilda Ave. DIAG. On-Ramp to Mathilda Ave. DIAG. On-Ramp	0.11	25.3



INRIX ID	Facility	Direction	Segment	Length (miles)	Speed (MPH)
1626628951	US-101	S	Fair Oaks Ave DIAG. Off-Ramp to Fair Oaks Ave DIAG. On-Ramp	0.22	27.4
1626642567	US-101	S	Fair Oaks Ave DIAG. On-Ramp to Fair Oaks Ave DIAG. On-Ramp	0.18	19.0
1626693578	US-101	S	Fair Oaks Ave DIAG. On-Ramp to Lawrence Expy DIAG. Off-Ramp	0.56	13.4
1626760105	US-101	S	Lawrence Expy DIAG. Off-Ramp to Lawrence Expy DIAG. On-Ramp	0.30	12.3
1626766438	US-101	S	Lawrence Expy DIAG. On-Ramp to Lawrence Expy DIAG. On-Ramp	0.18	13.7
1626741709	US-101	S	Lawrence Expy DIAG. On-Ramp to Bowers Ave DIAG. Off-Ramp	0.49	12.8
1626651150	US-101	S	Bowers Ave DIAG. Off-Ramp to Bowers Ave DIAG. On-Ramp	0.43	16.3
1626659166	US-101	S	Bowers Ave DIAG. On-Ramp to Bowers Ave DIAG. On-Ramp	0.21	11.5
1626696066	US-101	S	Bowers Ave DIAG. On-Ramp to San Tomas Expy DIAG. Off-Ramp	0.18	13.5
1626640912	US-101	S	San Tomas Expy DIAG. Off-Ramp to San Tomas Expy DIAG. On-Ramp	0.58	16.3
1626653939	US-101	S	San Tomas Expy DIAG. On-Ramp to De La Cruz Blvd DIAG. Off-Ramp	0.78	23.4
1626721852	US-101	S	Airport Pkwy DIAG. Off-Ramp to 4th St DIAG. On-Ramp	0.79	7.4
1626741728	US-101	S	4th St DIAG. On-Ramp to I-880 DIAG. Off-Ramp	0.35	9.4
1626715467	US-101	S	I-880 DIAG. Off-Ramp to I-880 DIAG. On-Ramp	0.19	13.5
1626683678	US-101	S	I-880 DIAG. On-Ramp to I-880 DIAG. On-Ramp	0.01	16.0
1626741749	US-101	S	I-880 DIAG. On-Ramp to I-880 DIAG. On-Ramp	0.21	11.8
1626698857	US-101	S	I-880 DIAG. On-Ramp to Oakland Rd DIAG. Off-Ramp	0.13	12.9
1626761591	US-101	S	Oakland Rd DIAG. Off-Ramp to Oakland Rd DIAG. On-Ramp	0.39	23.0

2024 Duration of Congestion Results

Duration of congestion is a metric that measures the number of hours that drivers spend in congestion on freeway facilities. In 2024, this was calculated as the number of congested hours in the AM and PM peak periods where travel speeds were less than 35 mph.

Figure 4.10 shows the directional miles in duration of congestion categories. Congestion in 2024 was 103 miles and 120 miles in the AM and PM peak hours respectively, compared with 97 miles and 107 miles in congestion in the AM and PM peak hours respectively in 2023. Even with this increase, this represents a continued decrease from 2018 which experienced 118 miles of congestion during the AM peak hour and 133 miles of congestion during the PM peak hour. Here both peak periods were congested for a total of over 100 hours each.



Figure 4.10: 2024 Directional Miles in Duration of Congestion by Peak Period

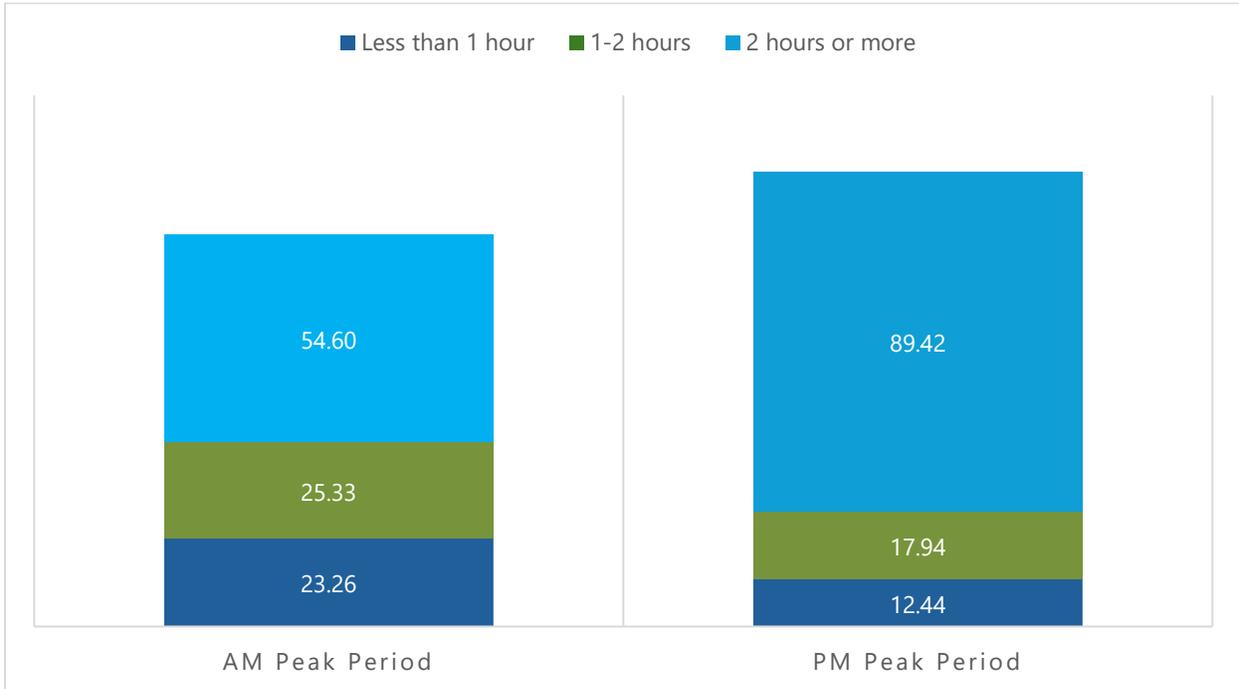
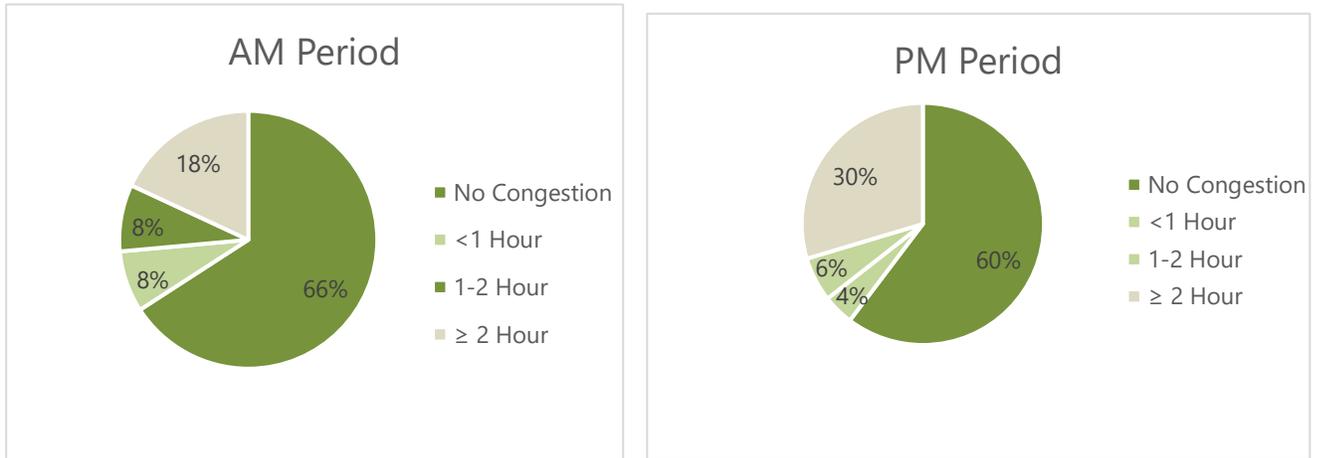


Figure 4.11: 2024 Percent of Duration of Congestion in AM & PM Peak Period



In 2024, 66 percent of AM peak period segments and 60 percent of PM peak period segments experienced no measurable duration of congestion. **Figure 4.12** shows the percentage of duration of congestion in the AM and PM Peak Periods. The PM peak period experienced slightly more congestion than the AM peak period, with a total of 120 miles in congestion, compared to 103 miles in the AM peak period. Severely congested segments which experience congestion for two or more hours occurred on 54 miles of freeway in the AM peak period and 89 miles of freeway in the PM peak period.

In the AM peak period, congestion that lasted more than 2 hours was experienced on SR-17, SR-237, SR-85, SR-87, I-280, I-680, I-880 and US-101, with the majority of the miles being on US-101.

In the PM peak period, congestion that lasted more than 2 hours occurred on all the facilities, except SR-17, with the most number of miles being on US-101.

The breakdown of percentage of the facility spent in congestion is shown in **Figure 4.12** (AM Peak Period), and **Figure 4.13** (PM Peak Period).

Figure 4.12: Duration of Congestion by Facility; AM Peak Period 2024

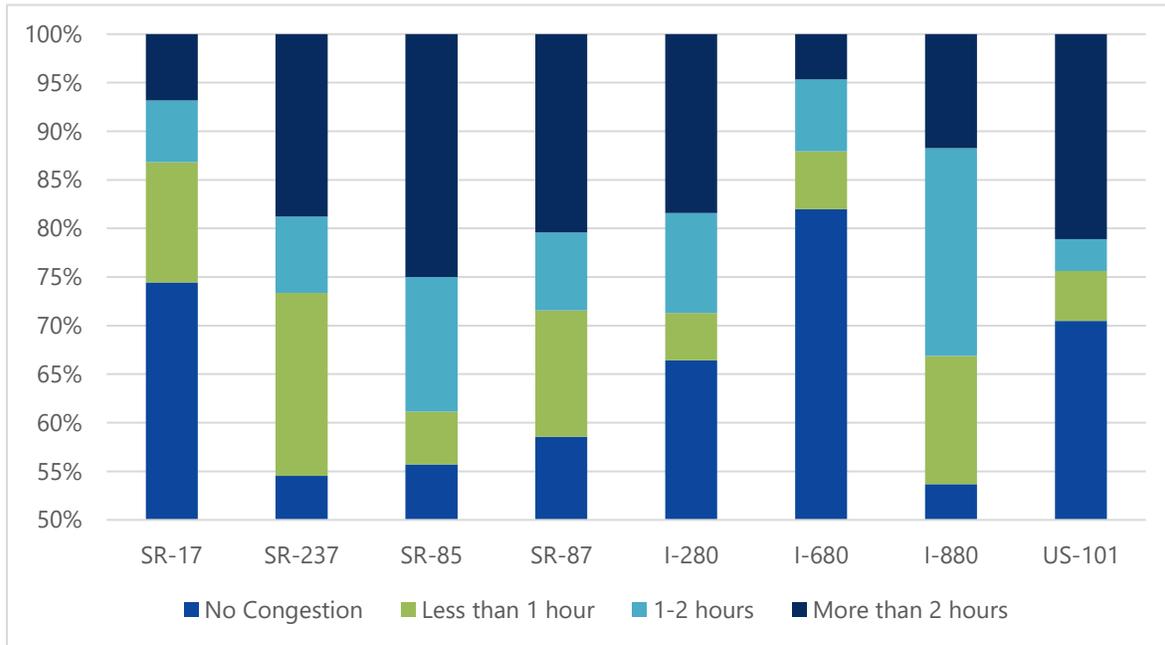
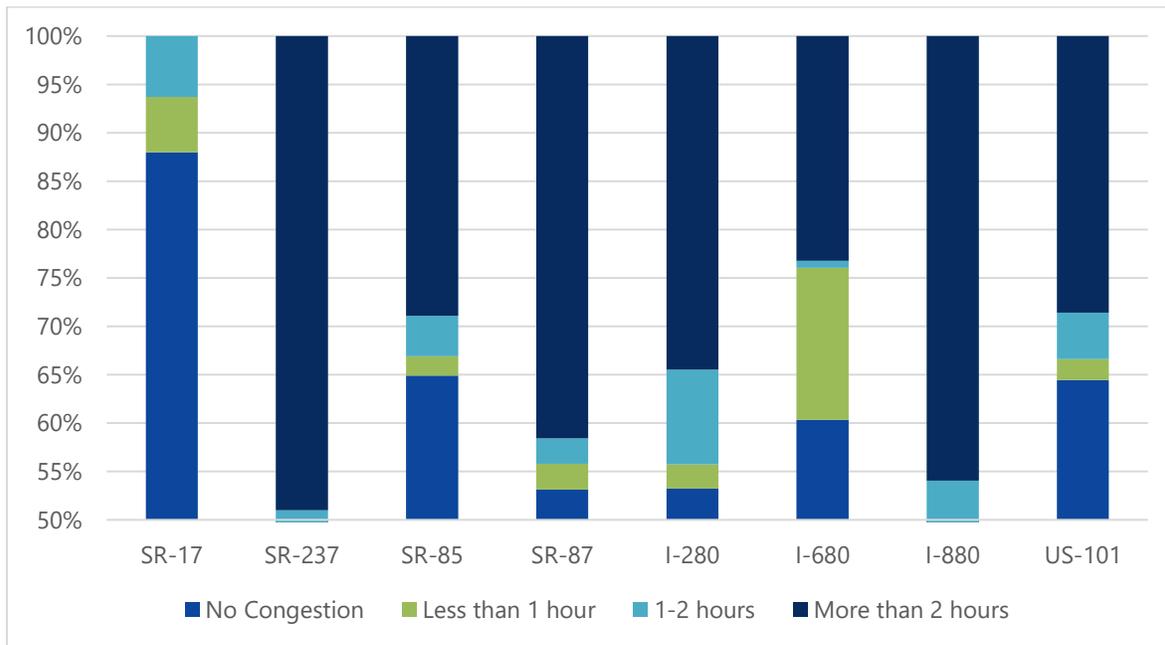


Figure 4.13: Duration of Congestion by Facility; PM Peak Period 2024



2024 Delay Results

Measuring delay is one important aspect of evaluating the level of congestion, which measures the additional travel time experienced by a driver due to congestion. The top 10 segments with the highest delay occurred on SR-87 in the northbound direction and I-880 in the southbound direction during the AM peak period. During the PM peak period, the highest delay occurred on US-101 in the southbound direction and on I-880 in the northbound direction. **Table 4.10 and Table 4.11** show the segments with the worst ten rankings during AM and PM peak period (measured in minutes).

Table 4.10: Top 10 Segments with Worst Delay; AM Peak Period 2024

INRIX ID	Facility	Direction	Miles	Location	Delay (min)
1626621411	SR-87	N	0.75	SR-87 DIAG. On-Ramp to Capitol Expy DIAG. Off-Ramp	4.15
429476521	I-880	S	0.81	Old Bayshore Hwy DIAG. Off-Ramp to US-101 L. On-Ramp	3.47
1626630314	US-101	N	0.72	Hellyer Ave L. On-Ramp to Yerba Buena Rd L. Off-Ramp	3.08
1626701979	US-101	N	0.79	Story Rd DIAG. Off-Ramp to Story Rd DIAG. On-Ramp	3.00
400228610	SR-87	N	0.51	Capitol Expy DIAG. On-Ramp to SR-87	2.95
1626629253	SR-17	N	0.66	San Tomas Expy DIAG. On-Ramp to 0.3 miles south of E Campbell Avenue	2.46
449838188	US-101	N	0.46	US-101 to Hellyer Ave DIAG. Off-Ramp	2.26
1626765793	SR-87	N	0.51	Curtner Ave DIAG. Off-Ramp to Curtner Ave DIAG. On-Ramp	2.19
1626666705	SR-87	N	0.51	SR-87 to Curtner Ave DIAG. Off-Ramp	2.18
1626681679	US-101	N	0.54	Capitol Expy DIAG. Off-Ramp to Capitol Expy DIAG. Off-Ramp	2.17

Table 4.11: Top 10 Segments with Worst Delay; PM Peak Period 2024

INRIX ID	Facility	Direction	Miles	Location	Delay (min)
1626721852	US-101	S	0.79	Airport Pkwy DIAG. Off-Ramp to 4th St DIAG. On-Ramp	5.61
1626669571	I-880	N	0.69	The Alameda DIAG. Off-Ramp to Coleman Ave L. Off-Ramp	4.02
1626608804	I-880	N	0.51	Stevens Creek Blvd DIAG. On-Ramp to Bascom Ave DIAG. Off-Ramp	2.98
1626721108	SR-237	E	0.77	Great America Pkwy DIAG. Off-Ramp to Great America Pkwy DIAG. On-Ramp	2.95
1626670237	SR-237	E	0.60	Lawrence Expy DIAG. Off-Ramp to Lawrence Expy DIAG. On-Ramp	2.91
1626680222	I-680	S	0.91	Calaveras Blvd DIAG. Off Ramp to Calaveras Blvd DIAG. On Ramp	2.89
1626739793	SR-87	S	0.65	Skyport Dr DIAG. Off-Ramp to Skyport Dr DIAG. On-Ramp	2.83
1626618430	I-880	N	0.50	Bascom Ave DIAG. On-Ramp to The Alameda DIAG. Off-Ramp	2.81
1626742767	I-680	S	0.62	Calaveras Blvd DIAG. On Ramp to Montague Expy DIAG. Off-Ramp	2.73
1626727850	SR-237	E	0.61	Lawrence Expy DIAG. On-Ramp to Great America Pkwy DIAG. Off-Ramp	2.60

4.4: 2024 Travel Time Reliability

Travel time reliability is the consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day. Travel time reliability is significant to many transportation users. Driver's value reliability as it allows them to plan their trips and make better use of their time. Many transportation planners and decision makers have started to consider travel time reliability as a performance measure throughout the United States. A more extensive discussion of these measures can be found in the Federal Highway Administration (FHWA) publication Travel Time Reliability, including guidance on the calculation methodology and application of travel time reliability measures.

Travel time reliability measures are relatively new, but a few have proven effective. Most measures compare high-delay days to those with an average delay. The most effective methods of measuring travel time reliability are 90th or 95th percentile travel times, buffer index, and planning time index, and are explained in the following sections. Related measurements include average travel time and free flow travel time.

The 90th (or 95th) percentile travel time is perhaps the simplest method to measure travel time reliability. It estimates how bad delay will be on specific routes during the heaviest traffic days. The one or two bad days each month mark the 95th or 90th percentile, respectively. Users familiar with a route (such as commuters) can see how bad traffic is during those few bad days and plan their trips accordingly. This measure is reported in minutes.

The buffer index represents the extra time (or time cushion) that travelers must add to their average travel time when planning trips to ensure on-time arrival. For example, a buffer index of 40 percent means that for a trip that usually takes 20 minutes a traveler should budget an additional eight minutes (40 percent of 20 minutes) to ensure on-time arrival. The additional eight minutes is called the buffer time. Therefore, the traveler should allow 28 minutes for the trip in order to ensure on-time arrival 95 percent of the time.

The planning time index represents how much total time a traveler should allow to ensure on-time arrival. While the buffer index shows the additional travel time that is necessary, the planning time index shows the total travel time that is necessary. The Planning Time Index is the ratio of the 95th percentile travel time to the free-flow travel time. For example, a planning time index of 1.60 means that for a trip that takes 15 minutes in light traffic a traveler should budget a total of 24 minutes to ensure on-time arrival 95 percent of the time.

TJKM prepared travel time reliability charts for all freeways in Santa Clara County where the data was available. This included I-280, I-680, I-880, US-101, SR-17, SR-85, SR-87, and SR-237. Charts were prepared for the entire freeway from one end of the county to the other, or from the freeway’s end to end for those that begin and end in Santa Clara County. Each graph compares the travel time along the corridor under free flow conditions to the northbound/eastbound and southbound/westbound 95th percentile travel times between 5 a.m.-9 p.m. Planning time index data was collected by TJKM from the Caltrans Performance Measurement System (PeMS) for midweek days during September and October 2024, excluding holidays and any days with adverse weather. Caltrans assumes a free flow speed of 60 mph for calculating free flow travel time. As this speed is below the posted speed limit of 65 mph, speeds increase during off peak times and result in actual 95th percentile travel times below the calculated free flow travel time.

Overall, most freeways in Santa Clara County are showing travel times that exceed free flow travel times in the peak direction. This indicates that travel time are more similar to patterns pre-pandemic.

Figure 4.14: 2024 Travel Time Reliability - I-280

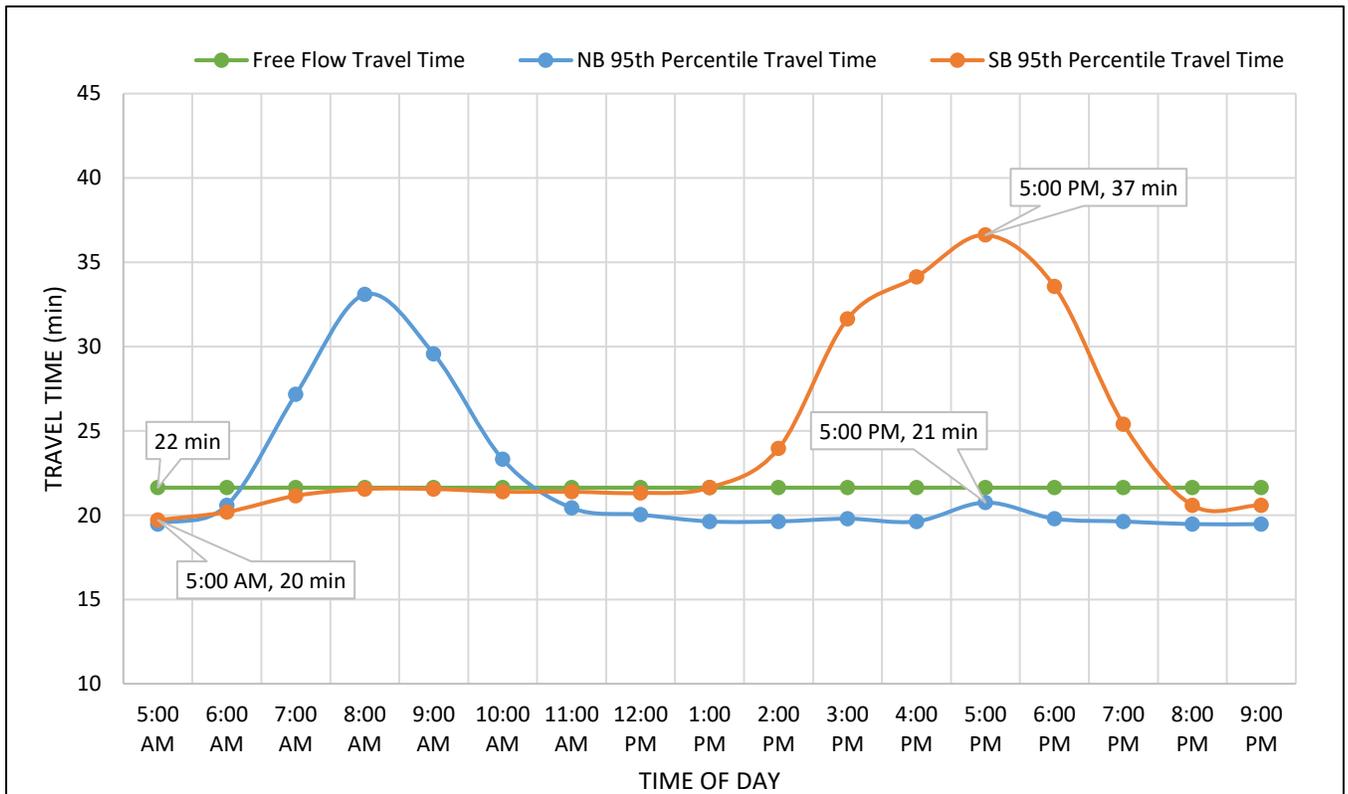


Figure 4.14 indicates that on I-280, southbound travel times are double the free flow travel time at the peak of 37 minutes at 5:00 p.m. The southbound afternoon period with travel times longer than free flow travel times are from approximately 3:00 PM until 6:00 PM. Southbound travel times are near free flow except between 8:00 a.m. – 2:00 p.m. with the peak travel time of 37 minutes at 5:00 p.m.

Figure 4.15: 2024 Travel Time Reliability Chart - I-680

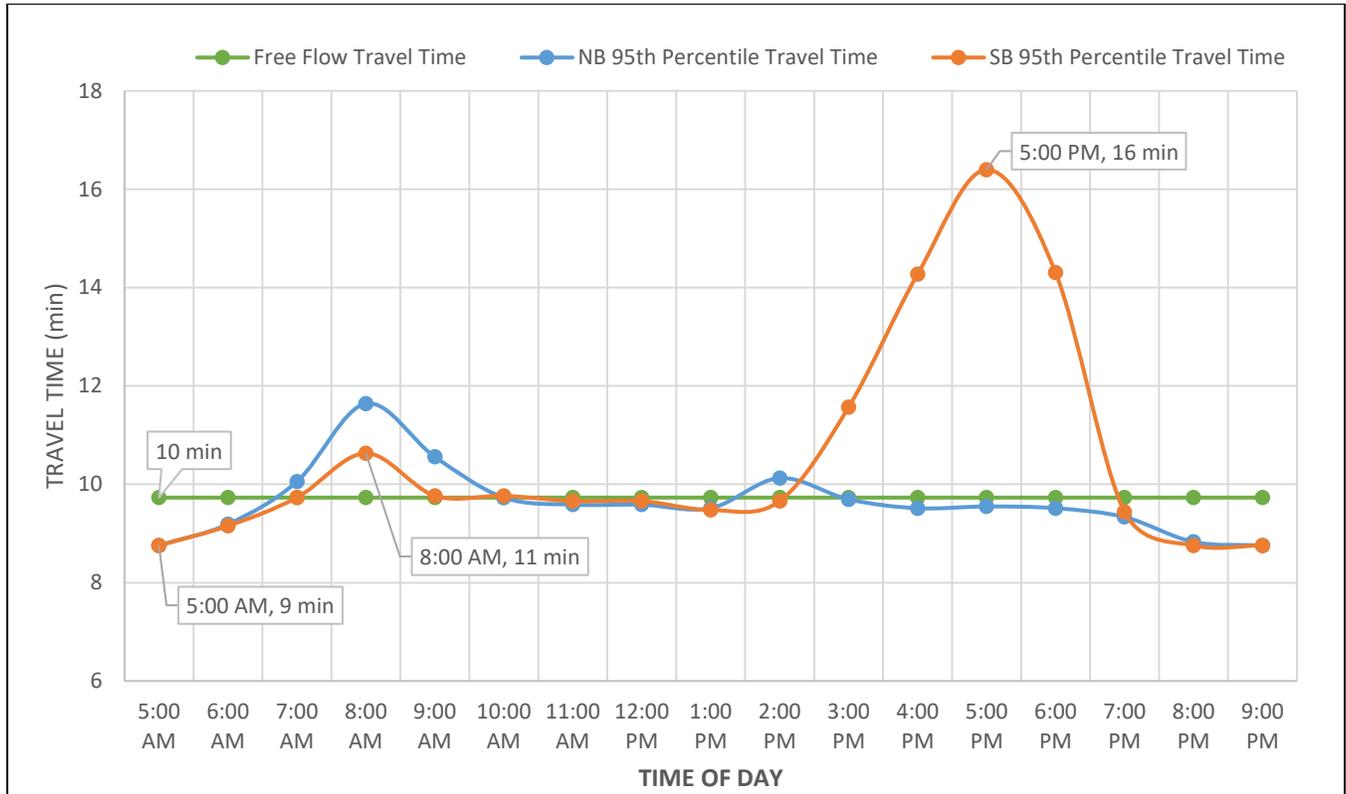


Figure 4.15 indicates that the free flow travel time is 10 minutes. During the AM peak period, the travel time in the southbound direction is 11 minutes, slightly higher than free flow, while the travel time further increases to 12 minutes in northbound direction at the peak of 8:00 AM. During the PM peak period, the travel time in the southbound direction increases to 16 minutes at the peak of 5:00 PM, and lower than free flow travel time in the northbound direction.

Figure 4.16: 2024 Travel Time Reliability Chart - I-880

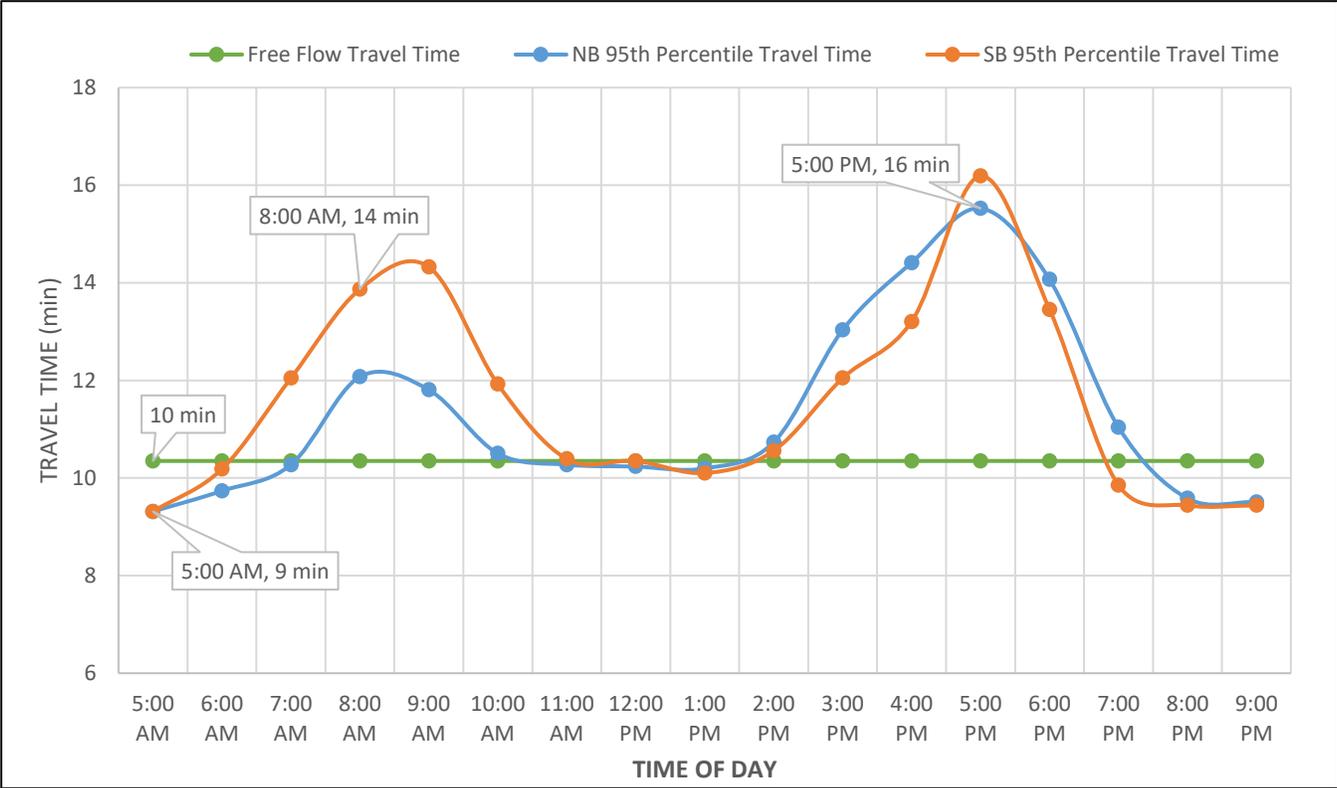


Figure 4.16 indicates that the free flow travel time is 10 minutes. During the AM peak period, the travel time in the southbound direction continues to rise greater than 14 minutes, while the travel time increases to 12 minutes in northbound direction at the peak of 8:00 AM. During the PM peak period, the travel time increases around 16 minutes at the peak of 5:00 PM in the northbound and southbound directions.

Figure 4.17: 2024 Travel Time Reliability Chart - US-101

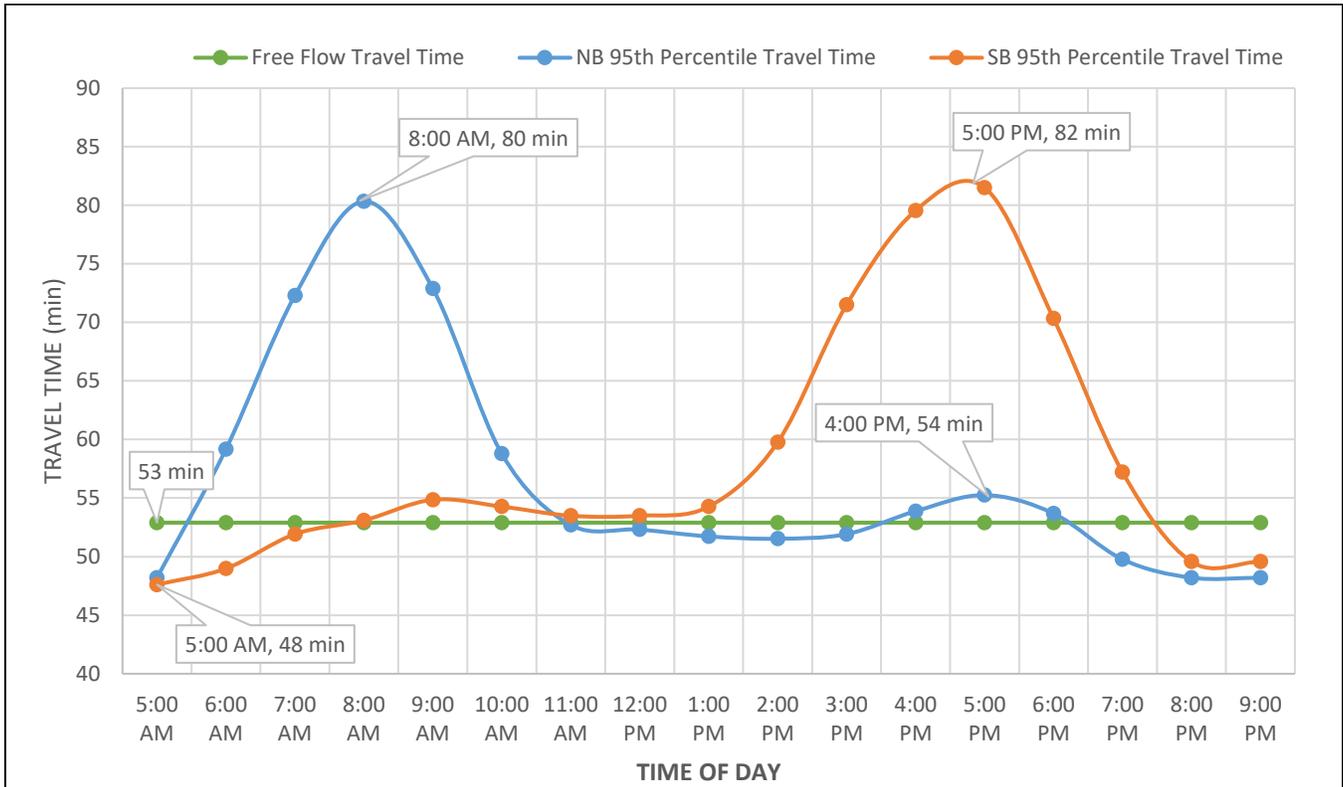


Figure 4.17 indicates that the free flow travel time is 53 minutes. During the AM peak period, the travel time in the southbound direction is about the same with free flow, while the travel time increases to 80 minutes in northbound direction at the peak of 8:00 AM. During the PM peak period, the travel time in the southbound direction increases to 82 minutes at the peak of 5:00 PM, and is just above free flow travel time in the northbound direction.

Figure 4.18: 2024 Travel Time Reliability Chart - SR-17

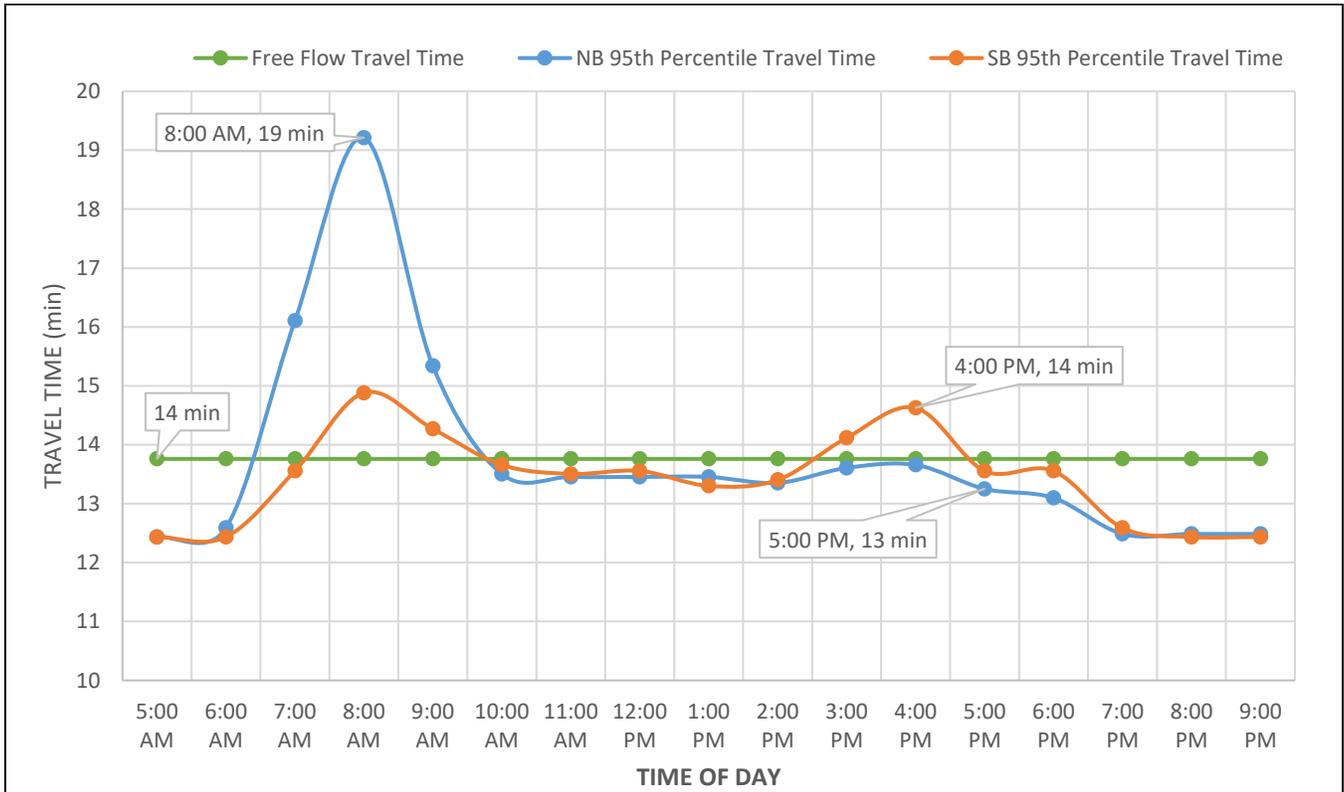


Figure 4.18 indicates that the free flow travel time is 14 minutes. During the AM peak period, the travel time in the northbound direction peaks at 19 minutes, while the travel time is slightly more than free flow travel time in southbound direction at the peak of 8:00 AM. During the PM peak period, the travel time in the southbound and northbound direction at the peak of 4:00 PM is near free flow travel time.

Figure 4.19: 2024 Travel Time Reliability Chart - SR-85

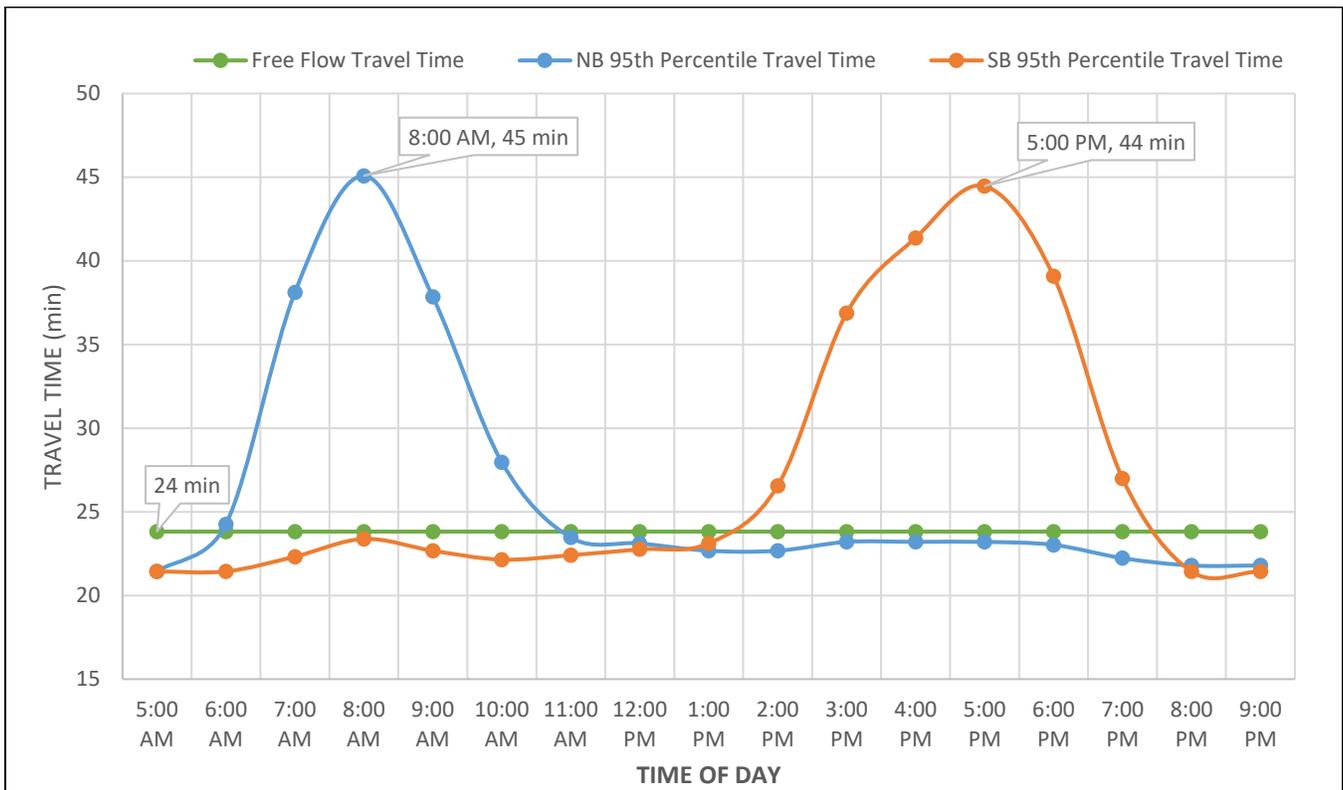


Figure 4.19 indicates that the free flow travel time is 24 minutes. During the AM peak period, the travel time in the northbound direction peaks at 45 minutes, while the travel time is close to free flow travel time in southbound direction at the peak of 8:00 AM. During the PM peak period, the travel time in the southbound direction peaks at 44 minutes at 5:00 PM while the northbound direction is near free flow travel time.

Figure 4.20: 2024 Travel Time Reliability Chart - SR-87

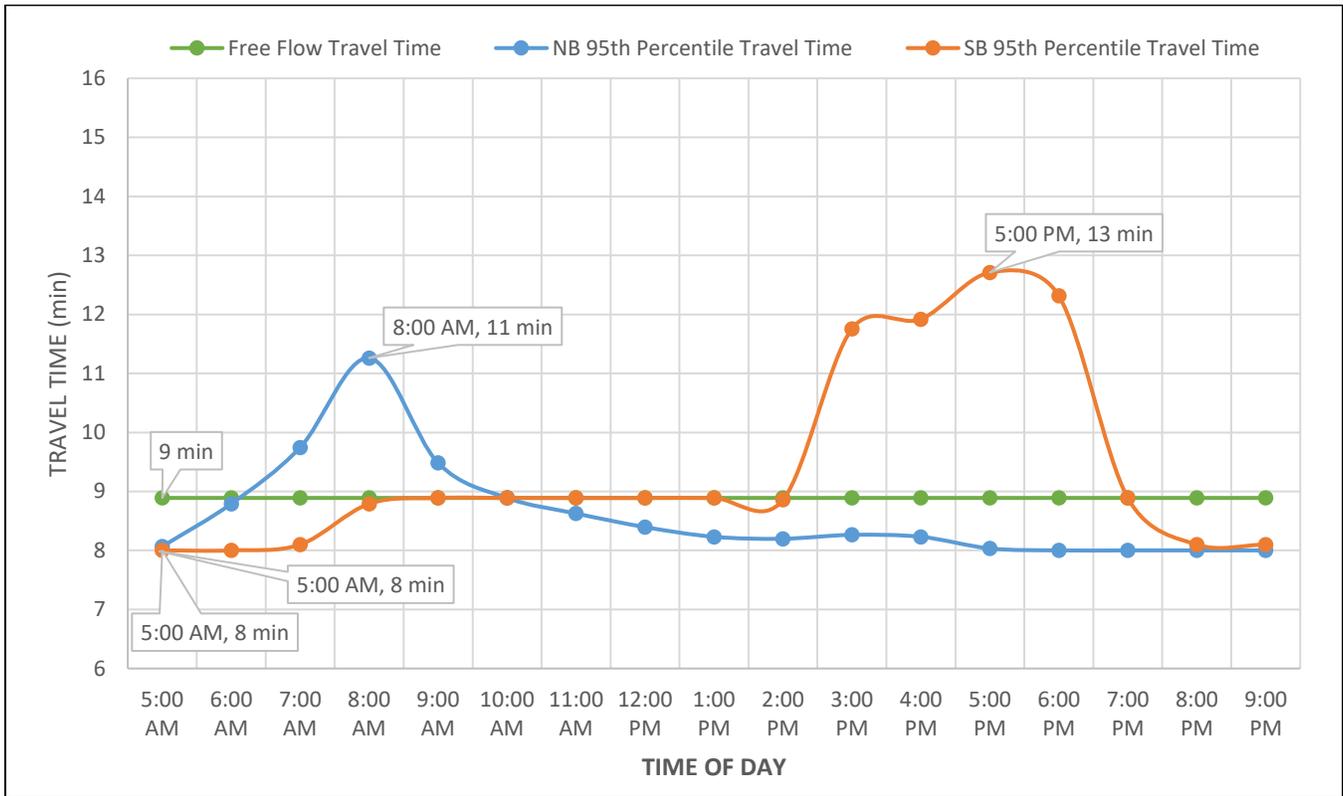


Figure 4.20 indicates that the free flow travel time is 9 minutes. During the AM peak period, the travel time in the northbound direction peaks at 11 minutes, while the travel time is close to free flow travel time in southbound direction at the peak of 8:00 AM. During the PM peak period, the travel time in the southbound direction peaks at 13 minutes at 5:00 PM while the northbound direction is lower than free flow travel time.

Figure 4.21: 2024 Travel Time Reliability Chart - SR-237

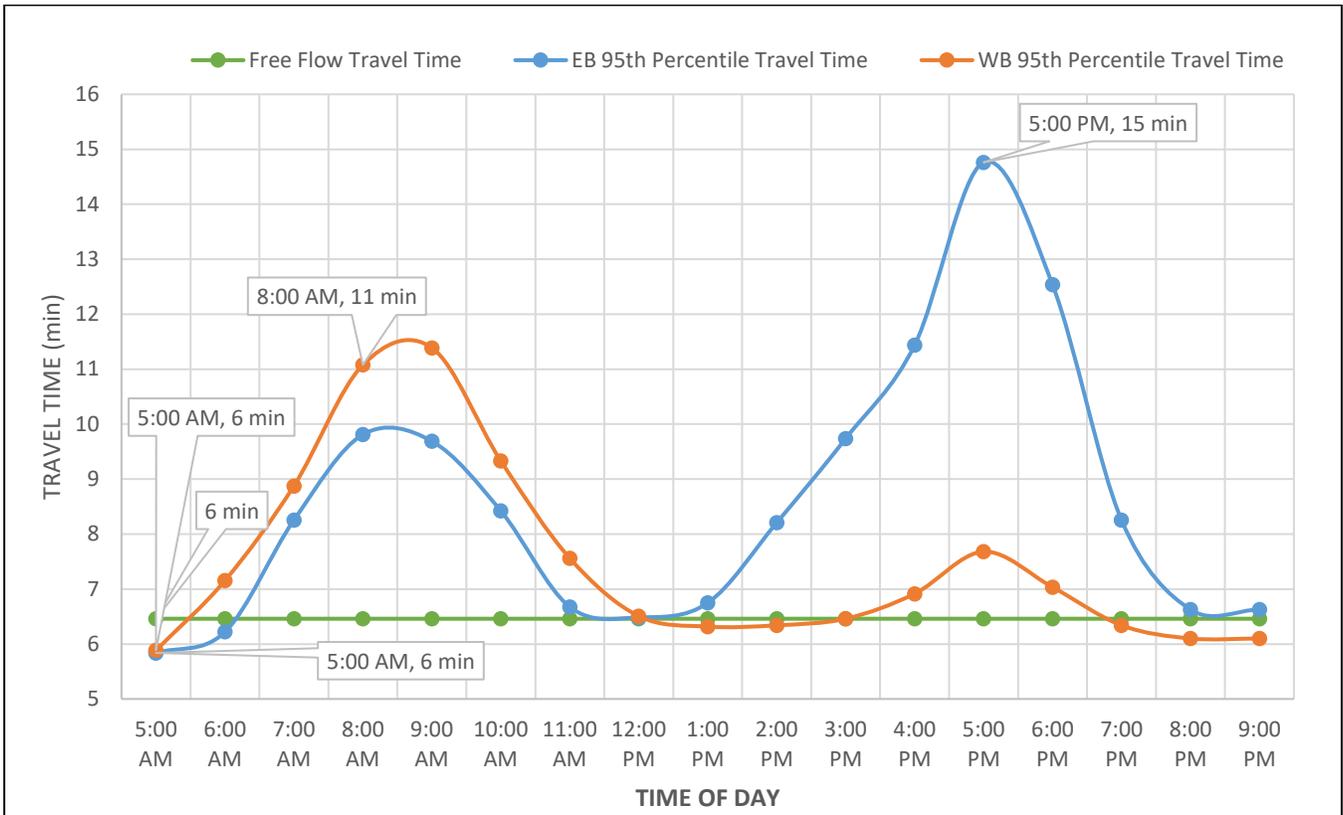


Figure 4.20 indicates that the free flow travel time is around 6 minutes. Westbound and eastbound travel time increased in the AM peak period is greater than 9 minutes travel time. In the PM peak period, eastbound increases to 15 minutes travel time while westbound is slightly higher than free flow travel time.

4.5: Freeway Gateway Counts

Santa Clara County has four major “gateways”. These gateways are the locations through which traffic from other parts of the region enter and exit Santa Clara County. The four gateways and the freeways that serve them are:

- Peninsula: This gateway connects Santa Clara County to the destinations on the peninsula including San Mateo County and San Francisco. The freeways serving this gateway are US-101 and I-280.
- East Bay: This gateway connects Santa Clara County to the east bay counties of Alameda and Contra Costa. The freeways serving this gateway are primarily I-680 and I-880.
- Santa Cruz: This gateway connects Santa Clara County to Santa Cruz County. State Route 17 is the primary freeway connection.
- Southern: This gateway connects Santa Clara County to the southern counties of San Benito and Monterey. This connection is primarily served by US-101.

These four gateways are served by five freeways, US-101, I-280, I-680, I-880, and SR-17. Traffic counts were collected at these freeway locations at or near the county line. Observations were made using video recording techniques, with manual counts of vehicles conducted via review of the videos.

The 2024 counts were conducted for three hours for both the AM and PM peak periods. The comparisons are based on the three-hour data collection period (6:30-9:30 AM and 4:00-7:00 PM).

Freeway Gateway Volumes in AM Peak Period

Table 4.12 presents a comparison between the counts collected in 2024 and those collected in 2022 and 2018. When compared to 2022 volumes, it was found that in 2024:

- The total inflow gateway volumes increased by 16.04%
- The total outflow gateway volumes decreased by 4.34%
- The ratio of inflow to outflow changed from 1.05 to 1.27, which means that volumes are less balanced and more traffic is flowing in during the AM peak hour than is flowing out at the gateways.

When compared to 2018 volumes, it was found that in 2024:

- The total inflow gateway volumes increased by 1.5%
- The total outflow gateway volumes decreased by 3.84%
- The ratio of inflow to outflow changed from 1.21 to 1.27, which means that volumes are less balanced and more traffic is flowing in during the AM peak hour than is flowing out at the gateways.

Please note that these numbers account only for the volumes on freeways at each gateway and are not intended to represent total gateway flows. A true “screenline” of each gateway would include urban arterials and rural roads also carrying traffic to and from the county.

Table 4.12: AM Peak Period Inflow and Outflow Comparison 2018 - 2024

Gateway	2018	2021	2022	2024	% Change (2018-2024)	% Change (2022-2024)
INFLOWS						
Peninsula Gateway	29,899	28,184	32,038	37,519	25.49%	17.11%
East Bay Gateway	42,449	33,996	35,937	39,080	-7.94%	8.75%
Santa Cruz Gateway	10,246	8,182	8,909	9,688	-5.45%	8.74%
Southern Gateway	16,313	16,754	16,857	14,130	-13.38%	46.39%
TOTAL	98,907	87,116	93,741	100,417	1.53%	16.04%
OUTFLOWS						
Peninsula Gateway	40,802	28,429	29,119	31,613	-22.52%	8.56%
East Bay Gateway	27,321	29,473	31,656	32,232	17.98%	1.82%
Santa Cruz Gateway	3,818	4,365	4,602	4,824	26.35%	4.82%
Southern Gateway	9,749	9,919	9,652	9,997	2.54%	-40.70%
TOTAL	81,690	72,186	75,029	78,666	-3.70%	-4.34%

Freeway gateway volumes have been separated between inflows and outflows since 2010. Figure 4.22 shows a graphic representation of how the inflows into Santa Clara County have varied over the last 14 years for each of the four gateways. Figure 4.23 shows a graphic representation of how the outflows out of Santa Clara County have varied over the last 14 years.

As the figure shows, the gateways have remained relatively consistent until 2018. 2018 saw a decrease in the inflow of the Peninsula Gateway and that decrease remained consistent in 2021. 2024 saw an increase in the inflow at all the Gateways when compared to 2022.

Figure 4.22: Gateway Inflows during the AM Peak Period Since 2010

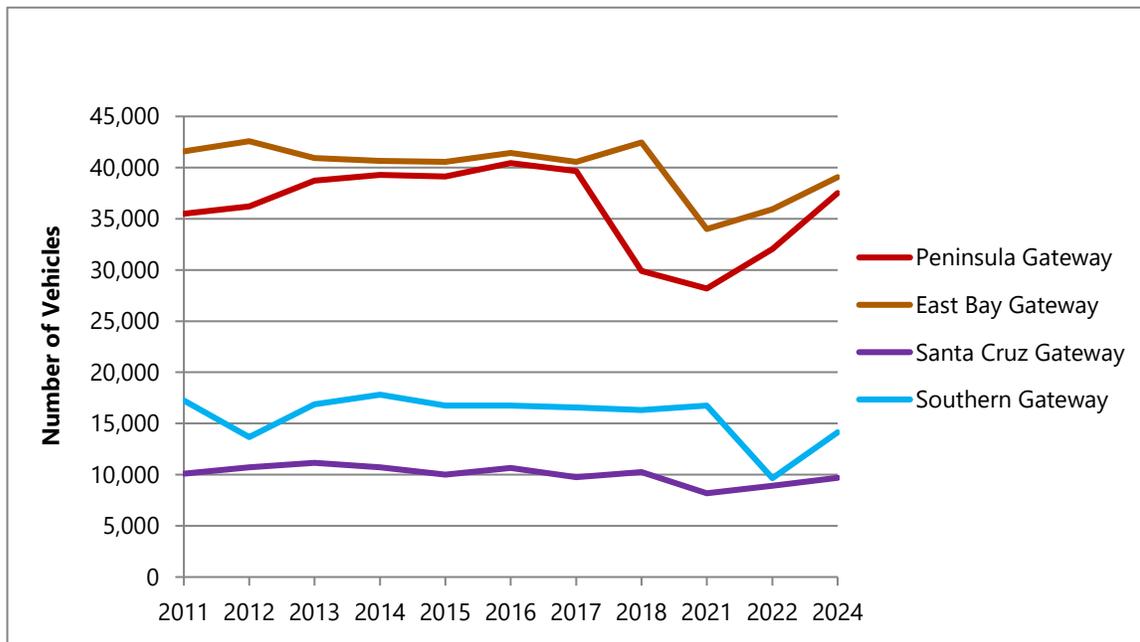


Figure 4.23: Gateway Outflows during the AM Peak Period Since 2010

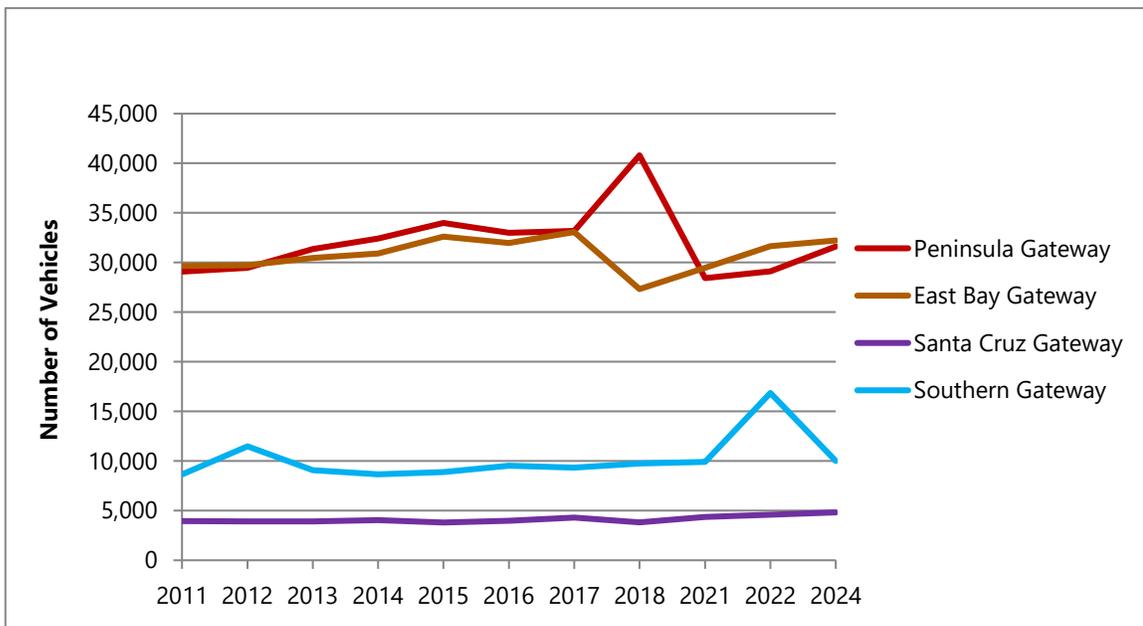
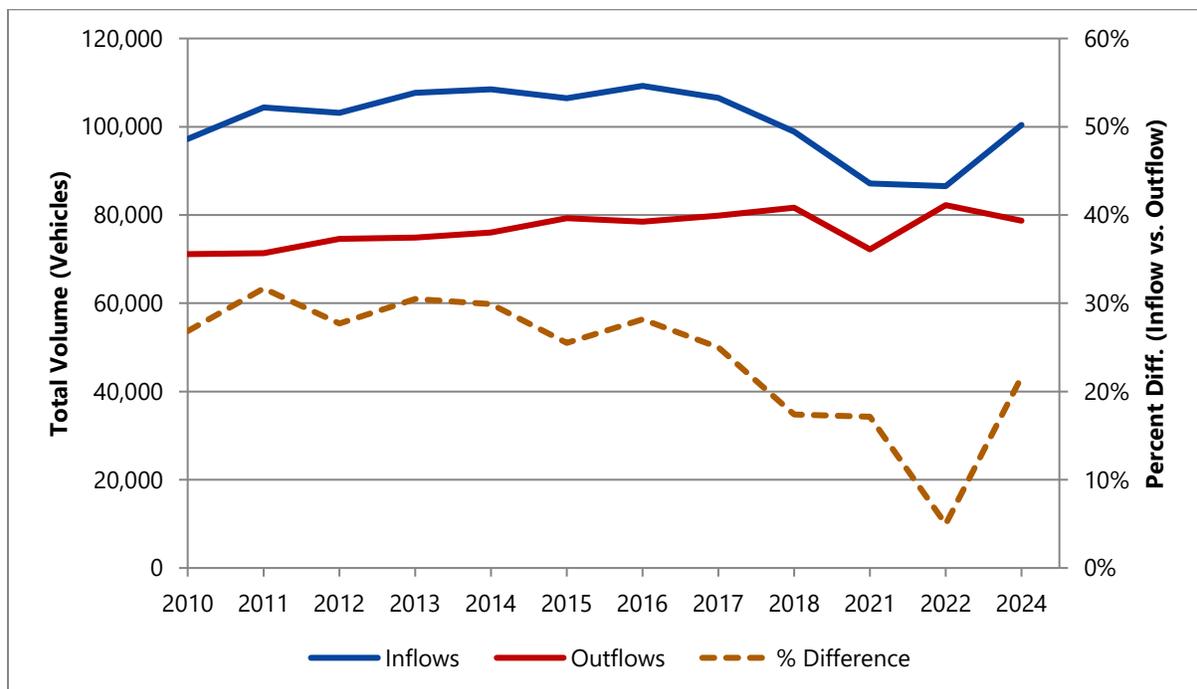


Figure 4.24: Comparison of Total Gateway Inflows and Outflows in the AM Peak Period



Freeway Gateway Volumes in PM Peak Period

Table 4.13 presents a comparison between the counts collected in 2024 and those collected in 2022 and 2018. When compared to 2022 volumes, it was found that in 2024:

- The total inflow gateway volumes reduced by 0.57%
- The total outflow gateway volumes increased by 7.85%
- The ratio of inflow to outflow changed from 0.93 to 0.86, which means that volumes are less balanced and more traffic is flowing out in the PM peak hour than is flowing in at the gateways.

When compared to 2018 volumes, it was found that in 2024:

- The total inflow gateway volumes decreased by 1.21%
- The total outflow gateway volumes increased by 18.38%
- The ratio of inflow to outflow changed from 1.02 to 0.86, which means that volumes are continuing to trend less balanced and more traffic is flowing out in the PM peak hour than is flowing in at the gateways.

Please note that these numbers account only for the volumes on freeways at each gateway and are not intended to represent total gateway flows. A true “screenline” of each gateway would include urban arterials and rural roads also carrying traffic to and from the county.

Table 4.13: PM Peak Period Inflow and Outflow Comparison between 2018 and 2024

Gateway	2018	2021	2022	2024	% Change (2018-2024)	% Change (2022-2024)
INFLOWS						
Peninsula Gateway	33,315	28,720	28,879	30,835	-7.44%	6.77%
East Bay Gateway	35,427	35,005	35,637	34,528	-2.54%	-3.11%
Santa Cruz Gateway	4,923	5,626	5,678	6,363	29.25%	12.06%
Southern Gateway	11,449	10,709	11,126	12,362	7.97%	-14.02%
TOTAL	85,114	80,060	84,572	84,088	-1.21%	-0.57%
OUTFLOWS						
Peninsula Gateway	31,150	30,938	35,270	38,069	22.21%	7.94%
East Bay Gateway	27,131	32,160	35,591	36,685	35.21%	3.07%
Santa Cruz Gateway	9,443	8,146	8,899	8,837	-6.42%	-0.70%
Southern Gateway	15,083	14,317	11,126	14,434	-4.30%	29.73%
TOTAL	82,807	85,561	90,886	98,025	18.38%	7.85%

Freeway gateway volumes have also been observed as inflows and outflows during the PM peak period since 2010. Figure 4.25 show how the inflows into Santa Clara County have varied over the last 14 years. Figure 4.26 shows a graphic representation of how the outflows out of Santa Clara County have varied over the last 14 years. While there is variation from year to year, inflows from the Peninsula saw a steep decline since 2018 while the other gateways remained fairly consistent. Whereas the trend for outflows saw a steep increase in the East Bay Gateway.

Figure 4.25: Gateway Inflows during the PM Peak Period Since 2010

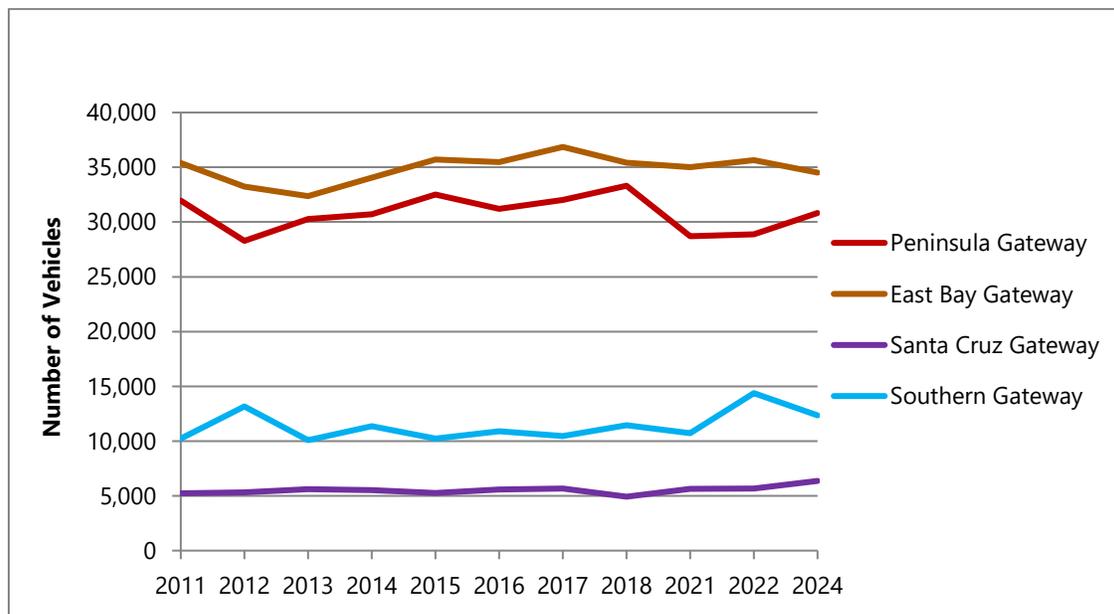


Figure 4.26: Gateway Outflows during the PM Peak Period Since 2010

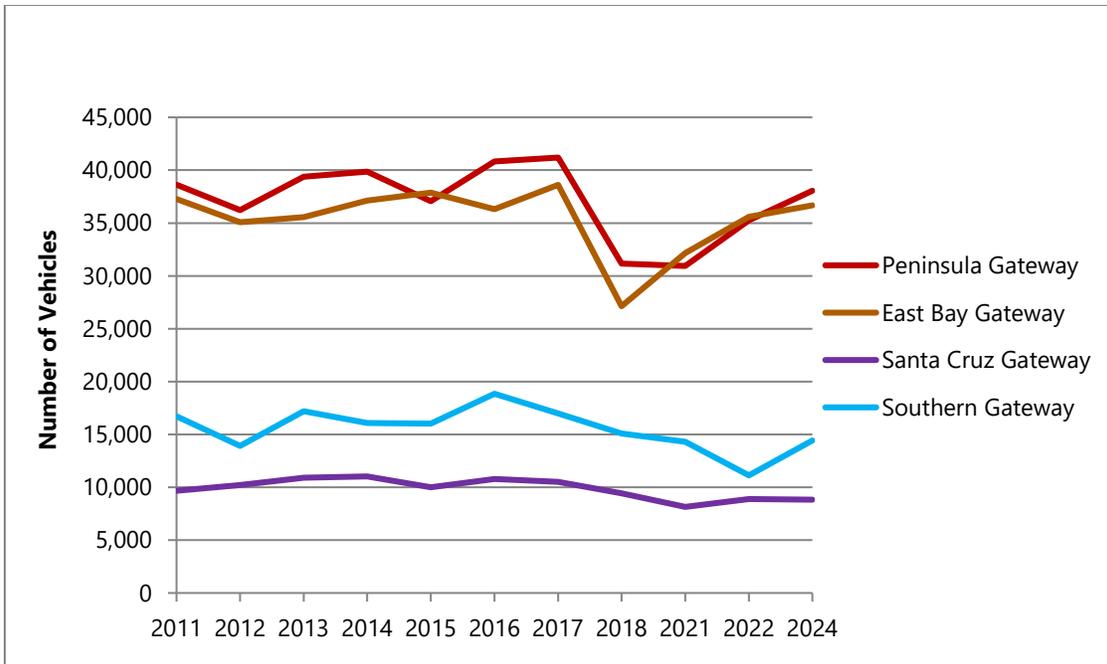
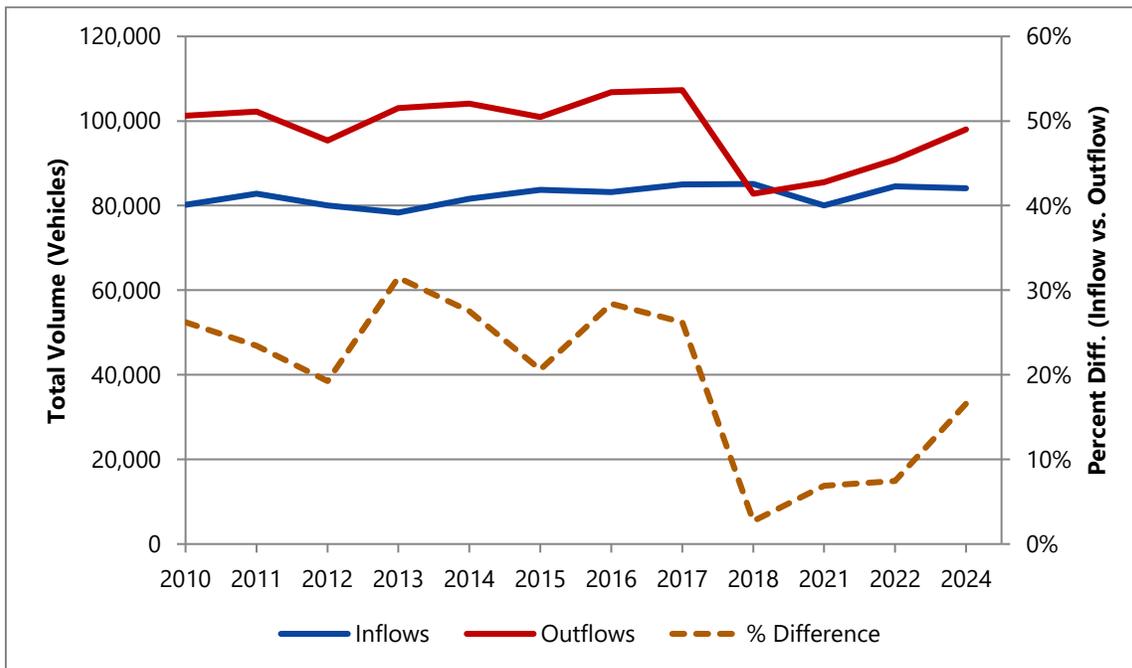


Figure 4.27: Comparison of Total Gateway Inflows and Outflows in the PM Peak Period



CHAPTER 5: RURAL HIGHWAYS

Every other year, the VTA monitors the LOS on seven (7) state maintained rural highways located within Santa Clara County. LOS on these rural highways are determined by using the Highway Capacity Manual (HCM) 7th Edition methodologies and field collected traffic volumes and roadway characteristics along one or more of their segments. Twelve (12) rural highway segments are selected to be representative of these seven rural highways as shown in **Figure 5.3**. The following subsections include the description of HCM methodologies, data collection, and monitoring results.

5.1: Methodology

THE HIGHWAY CAPACITY MANUAL (HCM) 7TH EDITION IS USED TO DETERMINE THE LEVEL OF SERVICE (LOS) OF RURAL HIGHWAYS. OF THE 12 ANALYSIS LOCATIONS, NINE LOCATIONS OPERATE AS TWO-LANE HIGHWAYS WHILE THE OTHER THREE LOCATIONS OPERATE AS MULTILANE HIGHWAYS. CHAPTER 14 OF THE HCM IS USED TO DETERMINE LOS FOR MULTILANE HIGHWAYS AND CHAPTER 15 IS USED FOR TWO-LANE HIGHWAYS.

The two-lane highway methodology includes different procedures for three types of two-lane highways. Class I highways are facilities where mobility is critical to motorists. Class II highways are facilities where mobility is less critical to motorists and usually serves shorter trips. Class III highways serving moderately developed areas. LOS on Class I highways is determined on the performance measures percent time-spent-following (PTSF) and average travel speed (ATS). However, LOS on Class II highways is based on PTSF and Class III highways is based on percent of free-flow speed (PFFS). These performance measures are calculated using peak hour traffic volumes, peak hour factor, directional distribution of hourly volume between two directions, percent trucks and buses, and roadway characteristics (e.g. type of terrain, shoulder width, lane width, access point density, etc.). LOS criteria for two-lane highways are listed in **Table 5.1**.

The multilane highway procedures use the performance measure of density for the determination of LOS. Density on a multilane highway segment is calculated using directional peak hour traffic volumes, peak hour factor, field-measured free-flow speed, percent trucks and buses, and roadway characteristics. **Table 5.2** lists the LOS criteria for multilane highways.

Table 5.1: LOS Criteria for Two-Lane Highways

LOS	Class I Highways		Class II Highways	Class III Highways	Description
	PTSF	ATS (mph)	PTSF	PFSS	
A	≤ 35	>55	≤ 40	> 91.7	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	>40-55	>83.3-91.7	Drivers are delayed in platoons up to 50 percent of the time. On Class II highways, speeds may fall below 50 mph, but motorists will not be delayed in platoons for more than 55 percent of their travel time. On Class III highways, it becomes difficult to maintain FFS operation, but the speed reduction is still relatively small.
C	>50-65	>45-50	>55-70	>75.0-83.3	Noticeable increases in platoon formation, platoon size, and frequency of passing impediments. The average speed still exceeds 45 mph on level-terrain Class I highways, even though unrestricted passing demand exceeds passing capacity. On Class II & Class III highways, speeds may fall below 45 mi/h, but motorists will not be delayed in platoons for more than 70 percent of their travel time. On Class III highways, speeds may fall below 45 mi/h, but motorists will not be delayed in platoons for more than 75 percent of their travel time.
D	>65-80	>40-45	>70-85	>66.7-75.0	Unstable traffic flow where 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. On Class III highways, the fall-off from FFS is now significant.
E	>80	≤ 40	>85	≤66.7	Passing is virtually impossible at LOS E, and platooning becomes intense, as slower vehicles or other interruptions are encountered. On Class III highways, speed is less than two-thirds the FFS.
F	Applies whenever flow rate exceeds the segment capacity				Heavily congested flow with traffic demand exceeding capacity. Volumes are lower than capacity and speeds are highly variable.

Source: Highway Capacity Manual 7th Edition

Notes: PTSF = percent time-spent-following. ATS = average travel speed. PFSS = percent of free-flow speed. mph = miles per hour.

Table 5.2: LOS Criteria for Multilane Highways

LOS	Free Flow Speed (mph)	Density (pc/mi/ln)	Description
A	All	>0-11	Completely free flow conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles. .
B	All	>11-18	Also free-flow conditions although the presence of other vehicles becomes noticeable. Average travel speeds are the same as LOS A but drivers have slightly less freedom to maneuver.
C	All	>18-26	The influence of traffic density becomes obvious. The ability to maneuver within the traffic stream is clearly affected by other vehicles. Minor disruptions can cause serious local deterioration in service and queues will form behind any significant traffic disruption.
D	All	>26-35	The ability to maneuver is severely restricted due to traffic conditions. Travel speed is reduced by the increasing volume. Only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
E	60	> 35-40	Operations are near capacity, an unstable level. Vehicles are operating with the minimum spacing for maintaining uniform flow. Disruptions cannot be dissipated readily, often causing queues to form and service to deteriorate to LOS F.
	55	> 35-41	
	50	> 35-43	
	45	> 35-45	
F	60	> 40	Represents forced or breakdown flow. It occurs either when vehicles arrive at a rate greater than the rate at which they are discharged or when the forecast demand exceeds the computer capacity of a planned facility.
	55	> 41	
	50	> 43	
	45	> 45	

Source: Highway Capacity Manual 7th Edition

Notes: pc/mi/ln = passenger cars per mile per lane

5.2: Data Collection

Traffic counts were collected at specific locations on the 12 selected rural highway segments (**Table 5.3**) on three consecutive days from either Tuesday October 15, 2024 to Thursday October 17, 2024 or Tuesday December 3, 2024 to Thursday December 5, 2024. Road tube counters were used to collect 24-hour directional traffic volumes, travel speed, and vehicle classification data in one hour increments.

TABLE 5.4 LISTS ALL THE KEY INPUTS FOR THE RURAL HIGHWAY LOS ANALYSIS. THE DETAILED TRAFFIC COUNTS ARE PROVIDED IN APPENDIX D.

Table 5.3: Rural Highway Data Collection Locations

Number	Highway	Highway Type	Data Collection Location
1	SR 35	2-lane	North of SR 9
2	SR 35	2-lane	South of SR 9
3*	SR 9	2-lane	West of Sanborn Rd.
4	SR 9	2-lane	South of Big Basin Way
5	Saratoga-Sunnyvale Rd.	4-lane	North of Big Basin Way
6	SR 130 (Mt. Hamilton Rd.)	2-lane	East of Clayton Rd.
7	SR 152	2-lane	West of Santa Teresa Blvd.
8	SR 152	4-lane	West of Holsclaw Rd.
9	SR 25	2-lane	South of Bloomfield Ave.
10	SR 156	2-lane	South of SR 152
11	SR 152	4-lane	East of SR 156
12	SR 9	2-lane	East of SR 35

Notes: SR = State Route

*Segment is not monitored due to construction.

Table 5.4: Inputs for Rural Highway LOS Analysis

No	Location	# of Lanes	Hwy Class	Terrain	Peak Hour	Peak Direction	Directional Split	Peak Hour Factor	Percent Trucks & Buses	2-Way Hourly Volume
1	SR 35 N/O SR 9	2	Class II	Rolling	5 - 6 PM	SB	72/28	0.76	4.70	142
2	SR 35 S/O SR 9	2	Class II	Rolling	5 - 6 PM	SB	69/31	0.77	3.40	56
3	SR 9 W/O Sanborn Road	2	Class II	Rolling	NM					
4	SR 9 S/O Big Basin Way	2	Class II	Level	8 - 9 AM	WB	75/25	0.78	3.30	1,421
5	Saratoga-Sunnyvale Road N/O Big Basin Way	4	-	Level	5 - 6 PM	SB	71/29	0.92	3.30	1,259
6	SR 130 E/O Clayton Road	2	Class II	Rolling	6 - 7 PM	EB	58/42	0.76	5.60	71
7	SR 152 W/O Santa Teresa Boulevard	2	Class II	Level	4 - 5 PM	EB	62/38	0.85	3.40	806
8	SR 152 W/O Holsclaw Road	4	-	Level	3 - 4 PM	EB	65/35	0.88	13.00	1,510
9	SR 25 S/O Bloomfield Avenue	2	Class II	Level	2 - 3 PM	EB	64/36	0.95	8.40	1,812
10	SR 156 S/O SR 152	2	Class I	Level	3 - 4 PM	NB	62/38	0.88	18.00	965
11	SR 152 E/O SR 156	4	-	Level	3 - 4 PM	NB	65/35	0.82	8.00	2,648
12	SR 9 E/O SR 35	2	Class II	Rolling	5 - 6 PM	WB	78/22	0.81	2.70	189

Notes: SR = State Route, N/O = north of, S/O = south of, E/O = east of, W/O = west of
 NM-Segment is not monitored due to construction activity.

Table 5.5: Rural Highway Analysis 1991 – 2024

Location		1991	1992	1993	1994	1996	1997	1998	2000	2001	2002	2004	2005	2006	2007	2008	2009	2010	2012	2014	2016	2018	2021	2022	2024
SR 35 N/O SR 9	Vol	213	152	105	452	161	153	151	288	160	156	143	131	134	145	129	127	121	154	169	241	240	104	111	142
	LOS	A	B	B	C	A	A	A	B	B	A	B	B	B	B	B	A	A	B	B	C	C	B	B	A
SR 35 S/O SR 9	Vol	72	67	76	67	62	65	69	111	62	69	86	85	125	101	91	96	66	83	70	117	79	69	42	56
	LOS	A	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	A	A	A	A
SR 9 W/O Sanborn Rd	Vol	1,566	439	393	344	566	437	399	362	367	332	286	259	305	278	226	291	306	246	212	310	243	172	199	NM
	LOS	E	C	C	B	C	C	C	C	C	C	B	B	B	B	B	B	B	B	B	B	B	C	B	B
SR 9 S/O Big Basin Way	Vol	2,028	1,925	1,798	1,456	1,753	1,706	1,542	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	1,791	973	1,307	1,421
	LOS	E	E	E	E	E	E	E	E	E	E	D	E	E	E	E	E	E	D	D	D	E	D	D	E
SaratogaSunnyvale Rd N/O Big	Vol	2,026	2,003	2,176	1,431	1,837	1,705	1,733	1,302	2,006	2,316	1,579	1,539	1,544	1,842	1,464	1,528	1,527	1,480	1,408	1,596	1,410	1,060	1,217	1,259
	LOS	E	E	E	E	E	E	E	D	E	F	E	E	E	E	E	E	E	A	B	B	B	A	B	E
SR 130 E/O Clayton Rd	Vol	64	31	33	40	60	67	97	70	59	59	55	50	60	54	54	72	44	45	45	62	42	41	56	71
	LOS	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
SR 152 W/O Santa Teresa Blvd	Vol	424	451	510	790	724	1,188	666	664	754	802	707	536	831	779	748	769	699	607	680	711	753	465	787	806
	LOS	B	C	C	C	C	D	C	C	C	C	C	C	D	D	D	C	C	C	C	C	C	C	C	C
SR 152 W/O Holsclaw	Vol	1,162	1,142	1,089	1,346	2,359	2,495	1,455	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	1,616	1,133	1,512	1,510
	LOS	D	D	D	D	F	F	E	F	E	F	E	E	E	E	E	E	E	E	B	A	B	B	B	E
SR 25 S/O Bloomfield Ave	Vol	2,297	1,219	1,323	1,619	1,817	2,791	1,831	2,122	2,662	3,882	1,964	1,997	1,959	2,078	2,044	1,974	1,958	2,123	1,918	2,038	1,701	1,794	1,825	1,812
	LOS	E	E	D	E	E	F	E	E	F	F	E	E	E	E	E	F	E	E	E	E	E	E	E	E
SR 156 S/O SR 152	Vol	760	583	518	793	1,029	650	913	1,005	715	1,565	1,137	1,171	964	1,360	1,006	1,080	1,143	1,134	891	981	953	789	1,046	965
	LOS	C	C	B	C	D	D	D	D	D	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D
SR 152 E/O SR 156 ³	Vol	1,599	1,321	1,282	2,169	2,917	1,890	2,152	2,341	2,697	3,916	2,856	2,812	2,157	2,750	2,656	2,722	2,692	2,529	2,853	2,558	2,362	2,653	2,675	2,648
	LOS	E	B	B	B	B	B	B	B	B	C	C	C	B	B	C	C	B	B	B	B	B	B	B	C
SR 9 E/O SR 35	Vol	363	439	322	428	509	504	437	406	479	446	274	273	352	296	286	288	269	260	241	326	363	192	204	189
	LOS	B	C	B	C	C	C	B	B	B	B	B	B	C	B	B	B	B	B	C	C	C	B	B	A

Vol = Volume is the peak hour two-way volume and 1991 is the baseline year.

¹Saratoga-Sunnyvale Road north of Big Basin Way was evaluated as a two-lane highway until 2010 and as a four-lane divided highway since 2012.

²State Route 152 west of Holsclaw Road was evaluated as a two-lane highway until 2012 and as a four-lane divided highway since 2014.

³State Route 152 east of SR 156 was evaluated as a two-lane highway in 1991 and as a four-lane divided highway after 1991.

5.3: Monitoring Results

The software HCS 7th Edition, by McTrans, was used to conduct the rural highway LOS analysis as part of the 2024 VTA Level of Service Monitoring and Conformance Study. The peak hour two-way volume and LOS result of each study rural highway segment are listed in Table 5.5, together with the historical volumes and LOS results starting in 1991. LOS results for multilane highway segments are reported for the travel direction with the worst LOS. The peak hour two-way volumes were derived based on the average of three days of data collection.

The level of service remained the same for four segments compared to 2022. Most rural highway segments experienced moderate increase in peak hour two-way volumes since 2022 except State Route 152 west of Holsclaw Road (Location #8), State Route 152 east of State Route 156 (Location#11), which experienced an one percent decrease in peak hour volumes. In addition to this, State Route 156 south of State Route 152 (Location#10), and State Route 9 east of State Route 35 (Location#12), which experienced an 8 percent decrease in peak hour volumes.

The following six rural highway segments experienced increases in peak hour volumes compared to 2022 of at least two percent.

- Location #1 State Route 35 north of State Route 9: Peak hour volumes increased by 28 percent since 2022 from 111 vehicles per hour to 142 vehicles per hour. The maximum volume observed in 1994 with 452 vehicles per hour. The minimum volume observed was in 2021 with 104 vehicles per hour.
- Location #2 State Route 35 south of State Route 9: Peak hour volumes increased by 33 percent since 2022 from 42 vehicles per hour to 56 vehicles per hour. The maximum volume observed in 2006 with 125 vehicles per hour. The minimum volume observed was in 2022 with 42 vehicles per hour.
- Location #4 State Route 9 south of Big Basin Way: Peak hour volumes increased by 9 percent since 2022 from 1,307 vehicles per hour to 1,421 vehicles per hour. The maximum volume observed in 1991 with 2,028 vehicles per hour. The minimum volume observed was in 2021 with 973 vehicles per hour.
- Location #5 Saratoga-Sunnyvale Road north of Big Basin Way: Peak hour volumes increased by 3 percent since 2022 from 1,217 vehicles per hour to 1,259 vehicles per hour. The maximum volume observed was in 2002 with 2,316 vehicles per hour. The minimum volume observed was in 2021 with 1,060 vehicles per hour.
- Location #6 State Route 130 east of Clayton Road: Peak hour volumes increased by 27 percent since 2022 from 56 vehicles per hour to 71 vehicles per hour. The maximum volume observed was in 1998 with 97 vehicles per hour. The minimum volume observed was in 1992 with 31 vehicles per hour.
- Location #7 State Route 152 west of Santa Teresa Boulevard: Peak hour volume increased by 2 percent since 2022 from 787 vehicles per hour to 806 vehicles per hour. The maximum volume observed was

in 1997 with 1,188 vehicles per hour. The minimum volume observed was in 1991 with 424 vehicles per hour.

Although many segments had increased in traffic volumes since 2018, over half of the segments had volumes below 2018 volumes. The volume reductions can be attributed to continued changes in travel patterns due to the COVID-19 pandemic.

Five rural highway segments that experienced increases in peak hour volumes of at least one percent since 2018 includes the following:

- Location #6 State Route 130 east of Clayton Road: Peak hour volume increased by 69% since 2018 from 42 vehicles to 71 vehicles during the peak hour. The maximum volume observed since 1991 was in 1998 with 97 vehicles per hour. The minimum volume observed was in 1992 with 31 vehicles per hour.
- Location #7 State Route 152 west of Santa Teresa Boulevard: Peak hour volume increased by 7% since 2018 from 753 vehicles per hour to 806 vehicles per hour. The maximum volume observed since 1991 was in 1997 with 1,188 vehicles per hour. The minimum volume observed was in 1991 with 424 vehicles per hour.
- Location #9 State Route 25 south of Bloomfield Avenue: Peak hour volume increased by 7% since 2018 from 1,701 vehicles per hour to 1,812 vehicles per hour. The maximum peak hour volume observed was in 2002 with 3,882 vehicles. The minimum peak hour volume observed was in 1992 with 1,219 vehicles per hour.
- Location #10 State Route 156 south of State Route 152: Peak hour volume increase by 1% from 953 vehicles per hour to 965 vehicles per hour. The maximum observed peak hour volume was 1,565 vehicles per hour in 2002. The minimum observed peak hour volume was 518 in 1993.
- Location #11 State Route 152 east of State Route 156: Peak hour volume increased by 12 percent since 2018 from 2,362 vehicles per hour to 2,648 vehicles per hour. The maximum observed peak hour volume since 1991 was 3,916 in 2002. The minimum observed peak hour volume was 1,282 in 1993.

5.4: Summary

Twelve rural highway segments were analyzed as part of the 2024 Santa Clara VTA CMP Monitoring and Conformance Report. The key findings from the 2024 study include:

Peak hour traffic volumes in 2024 have gradually increased since 2022 at most of the intersections. The LOS for all the rural highway segments meet the identified CMP standard for the segment as LOS E or better and thus are in conformance.

Five segments in 2024 have peak hour traffic volumes less than peak hour traffic volumes observed in 2022. When compared to 2022, the level of service is the same at the three segments and improved or degraded by one/two grade at the following segments:

- Location #1 State Route 35 north of State Route 9
- Location #4 State Route 9 south of Big Basin Way
- Location #5 Saratoga-Sunnyvale Road north of Big Basin Way
- Location #8 State Route 152 west of Holsclaw Road
- Location #10 State Route 156 south of State Route 152
- Location #11 State Route 152 east of State Route 156
- Location #12 State Route 9 east of State Route 35

CHAPTER 6: EXPRESSWAY STUDY

6.1: 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.

6.2: Methodology

Santa Clara Roads and Airports Department staff installed Bluetooth (BT) readers at selected intersections throughout all eight County expressways in 2016 to collect travel times as part of the Predictive Signal Timing Coordination Project. The BT installation enables the 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.

Prior to the BT installation in 2016, travel time data was collected via floating car runs. With floating car runs, a data point that was collected was the number of stops, however, with this automated collection system, this data point is not available.

THE FOLLOWING FIGURES SHOW THE AVERAGE TRAVEL TIMES FOR EACH EXPRESSWAY FROM 2010 TO 2024. TABLE 6.1 SHOWS THE OVERALL AVERAGE TRAVEL TIME FOR THE YEARS 2010 TO 2024. NOTE THAT THE INFORMATION IS NOT REFLECTIVE OF A STRAIGHT COMPARISON DUE THE CHANGE IN COLLECTION METHODOLOGY IN STARTING IN 2016. APPENDIX E CONTAINS EXPRESSWAY TRAVEL TIME DATA.

6.3: Summary

Overall, travel times on the expressways increased when compared to 2022, ranging from one percent to 13 percent. Montague Expressway experienced the largest increase in travel time of 13% in the westbound direction during the AM peak period. Central Expressway experienced an increase in travel time of 11% in the westbound direction during the PM. Also, Montague Expressway experienced an increase in travel time of 11% in the eastbound direction during the PM.

Table 6.1: Expressway Travel Times – 2010 to 2024

Expressway	Period & Direction	Travel Time (minutes)							
		2010	2012	2014	2016	2018	2021	2022	2024
Almaden Expressway	AM Northbound	13.4	13.6	15.0	8.9	8.9	7.7	9.3	9.6
	AM Southbound	13.7	14.7	16.0	10.4	8.9	8.7	9.2	9.0
	PM Northbound	15.2	14.8	16.1	9.8	10.2	8.5	8.9	8.8
	PM Southbound	12.8	14.9	15.0	9.2	9.2	8.2	8.8	9.0
Capitol Expressway	AM Eastbound/Northbound	18.3	18.7	16.5	14.3	15.8	13.3	16.1	16.8
	AM Westbound/Southbound	16.6	19.5	18.7	15.3	15.3	13.1	14.5	15.5
	PM Eastbound/Northbound	14.9	15.1	17.3	18.2	18.6	15.1	17.4	16.4
	PM Westbound/Southbound	15.1	13.2	16.0	14.9	15.9	14.4	15.0	16.1
Central Expressway	AM Eastbound	14.2	16.4	16.7	16.5	14.4	13.5	13.8	14.2
	AM Westbound	15.9	18.3	16.5	18.0	24.3	14.0	16.7	18.5
	PM Eastbound	17.8	18.5	22.9	22.2	26.8	14.6	21.7	23.1
	PM Westbound	14.3	15.8	15.6	16.5	18.4	13.9	15.4	16.3
Foothill Expressway	AM Northbound	14.8	12.0	16.3	15.8	13.4	10.9	11.1	11.3
	AM Southbound	13.8	14.8	12.4	12.9	11.5	11.2	11.0	10.9
	PM Northbound	13.1	14.3	13.7	13.3	11.7	10.8	11.2	11.2
	PM Southbound	15.9	15.6	20.3	16.1	17.5	10.9	11.7	12.4
Lawrence Expressway	AM Northbound	17.5	14.5	14.7	12.3	15.4	10.3	13.0	13.1
	AM Southbound	15.3	15.1	16.8	11.7	12.2	11.0	12.3	11.7
	PM Northbound	18.4	19.1	21.6	13.1	13.4	11.7	12.8	12.5
	PM Southbound	19.2	21.2	23.5	16.4	22.4	11.4	14.8	15.4
Montague Expressway	AM Eastbound	9.7	9.8	9.8	9.4	8.7	8.9	9.0	8.8
	AM Westbound	14.5	12.8	16.7	14.5	16.7	8.6	12.7	14.4
	PM Eastbound	11.4	14.9	15.1	15.3	16.5	9.7	14.1	15.6
	PM Westbound	11.6	13.6	15.0	11.5	10.9	8.9	9.7	9.8
Page Mill Road/Oregon Expressway	AM Eastbound	9.5	11.5	9.6	10.4	9.5	7.8	8.9	9.4
	AM Westbound	10.5	13.2	10.9	11.3	11.5	8.8	9.8	10.3
	PM Eastbound	11.6	11.8	12.9	12.0	11.0	7.9	9.5	10.4
	PM Westbound	11.3	11.9	11.9	11.2	9.0	7.8	9.0	9.6
San Tomas Expressway	AM Northbound	17.5	21.1	23.8	11.5	15.0	9.3	12.0	11.8
	AM Southbound	17.2	16.6	17.8	11.3	12.7	10.2	11.0	10.6
	PM Northbound	14.9	17.0	18.1	12.5	13.2	10.4	11.2	10.6
	PM Southbound	18.3	18.2	21.0	14.3	16.0	9.9	13.0	13.9

Source: Santa Clara County (INRIX Data Platform)

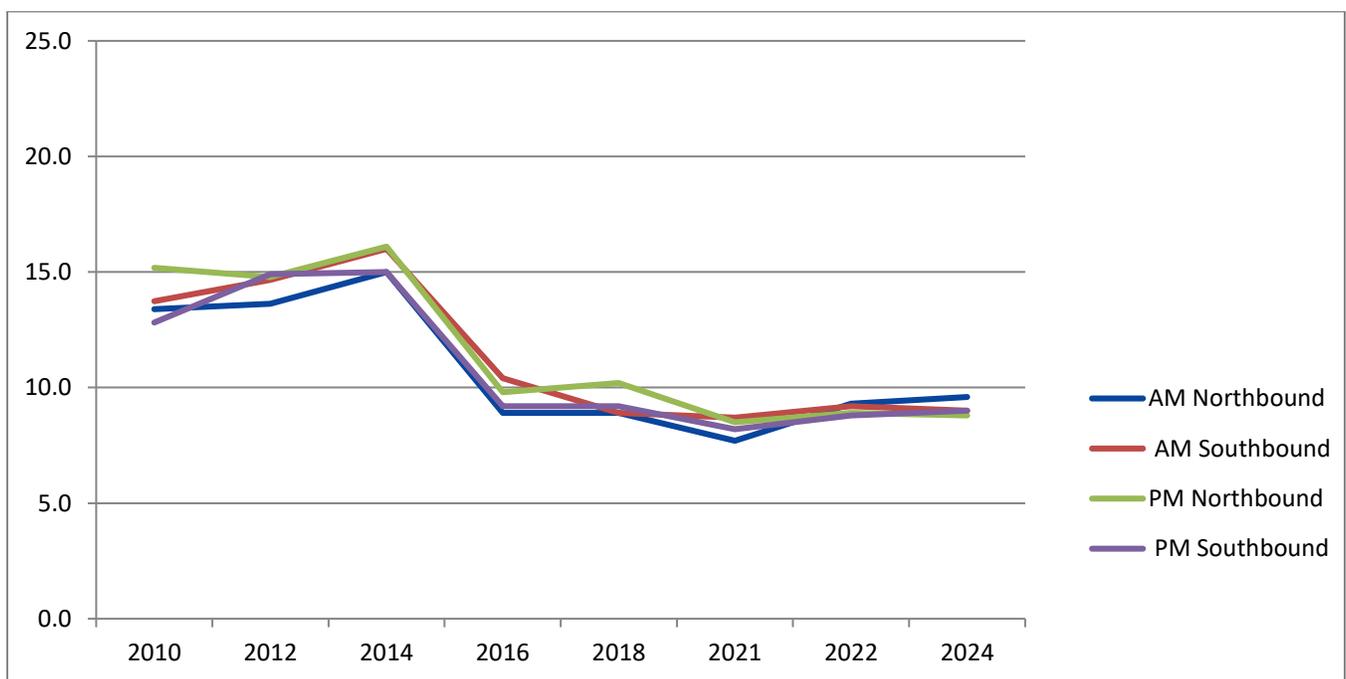




6.4: Almaden Expressway

As shown in **Figure 6.1**, overall travel times for Almaden Expressway have slightly increased since 2022. Travel times have increased by three percent in the AM northbound and two percent in the PM southbound direction. Travel times decreased by two percent in the AM southbound and one percent in the PM northbound direction. Although travel times have increased, they are still less than the peak travel times experienced in 2014.

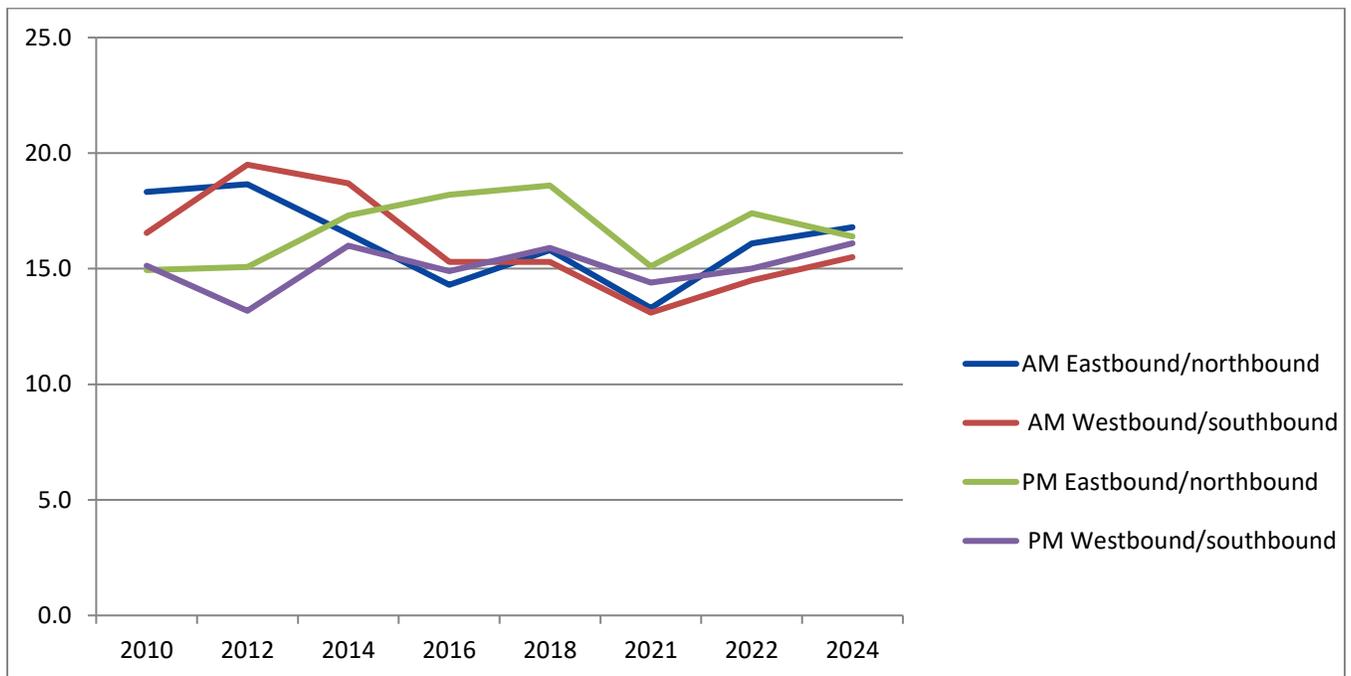
Figure 6.1: Almaden Expressway Travel Times (Minutes) 2010 - 2024



6.5: Capitol Expressway

As shown in **Figure 6.2**, overall travel times for Capitol Expressway have increased since 2022. Please note that Capitol Expressway operates eastbound/westbound between Highway 87 and Interstate 101 then changes direction north of I-101 to northbound/southbound. Travel times have increased by four percent in the AM northbound direction. In the southbound direction, travel times increased by seven percent in the AM and in the PM. Travel times decreased by six percent in the PM northbound direction.

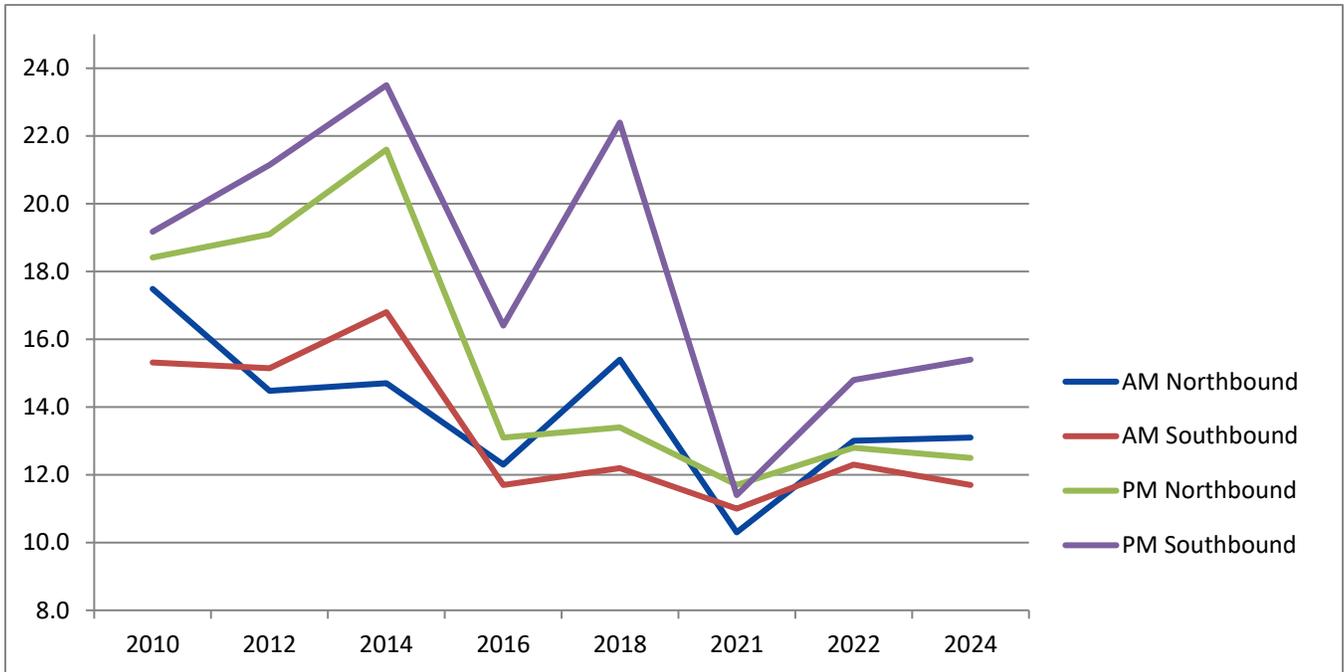
Figure 6.2: Capitol Expressway Travel Times (Minutes) 2010-2024



6.6: Lawrence Expressway

As shown in **Figure 6.3**, travel times for Lawrence Expressway have slightly increased since 2022. Travel times have increased by one percent in the AM northbound direction and four percent in the PM southbound direction. Travel times decreased by five percent in the AM southbound direction and a two percent in the PM northbound direction.

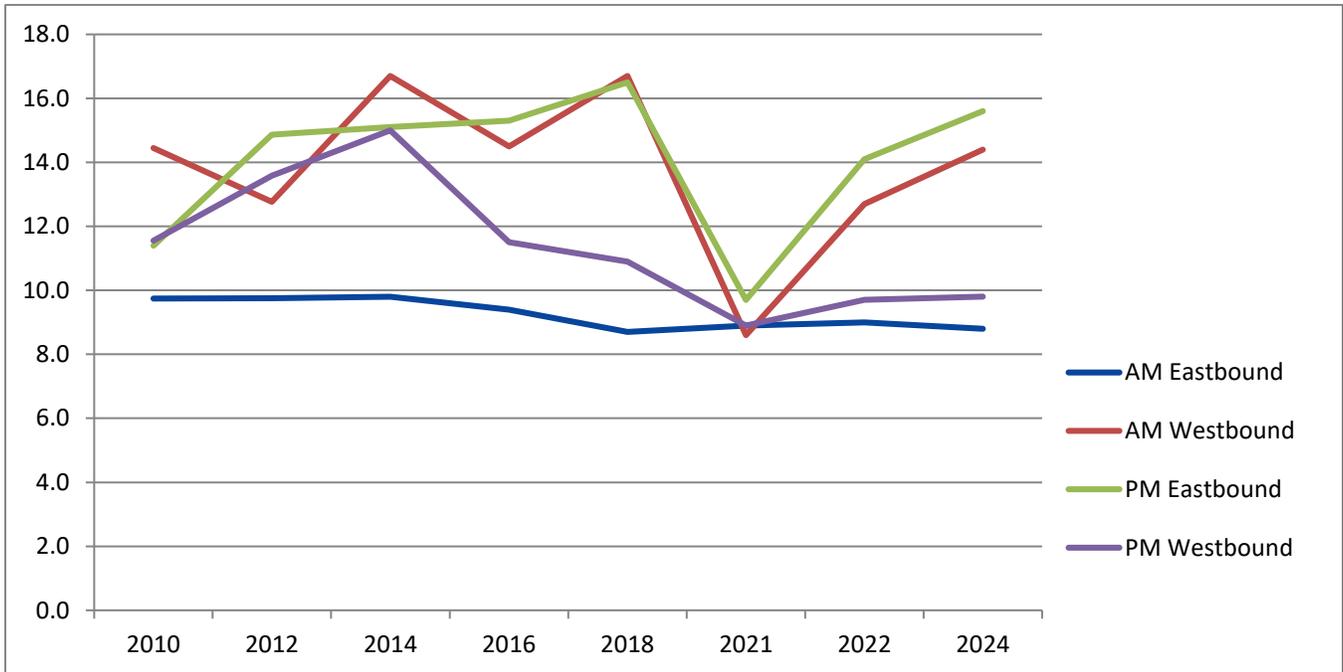
Figure 6.3: Lawrence Expressway Travel Times (Minutes) 2010 - 2024



6.7: Montague Expressway

As shown in **Figure 6.4**, overall travel times for Montague Expressway have increased since 2022, with a more dramatic increase in the westbound direction during the AM peak period and in the eastbound direction during the PM peak period. Travel times increased by one percent in the PM westbound direction and decreased by two percent in the AM eastbound direction.

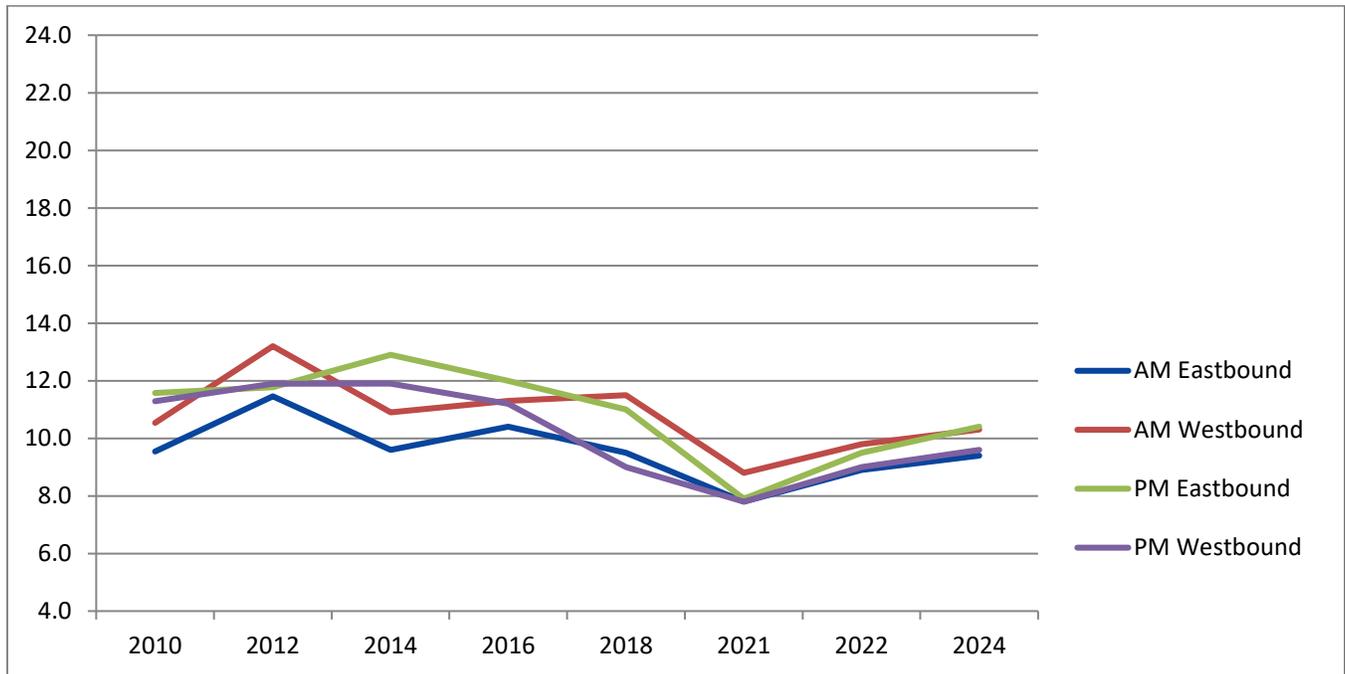
Figure 6.4: Montague Expressway Travel Times (Minutes), 2010 - 2024



6.8: Page Mill Road / Oregon Expressway

As shown in **Figure 6.5**, overall travel times for Page Mill Road/Oregon Expressway have increased since 2022. Travel times have increased by six percent in the AM and nine percent in the PM eastbound direction. In the westbound direction, travel times increased by five percent in the AM and seven percent in the PM.

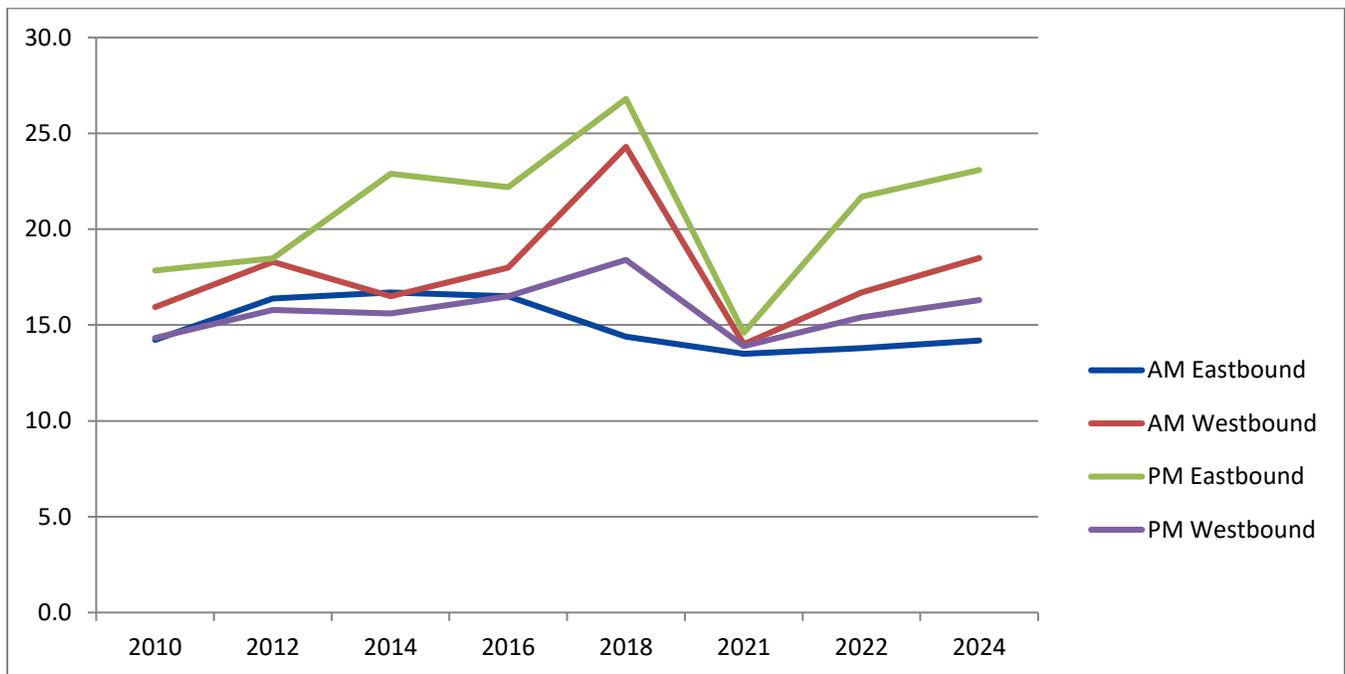
Figure 6.5: Page Mill Road/Oregon Express Travel Times (Minutes), 2010-2024



6.9: Central Expressway

As shown in **Figure 6.6**, overall travel times for Central Expressway have increased since 2022, especially in the westbound direction during the AM peak period. However, the travel times have not increased to the peak travel times in 2018. Travel times have increased by three percent in the AM and six percent in the PM eastbound direction. In the westbound direction, travel times increased by 11 percent in the AM and six percent in the PM.

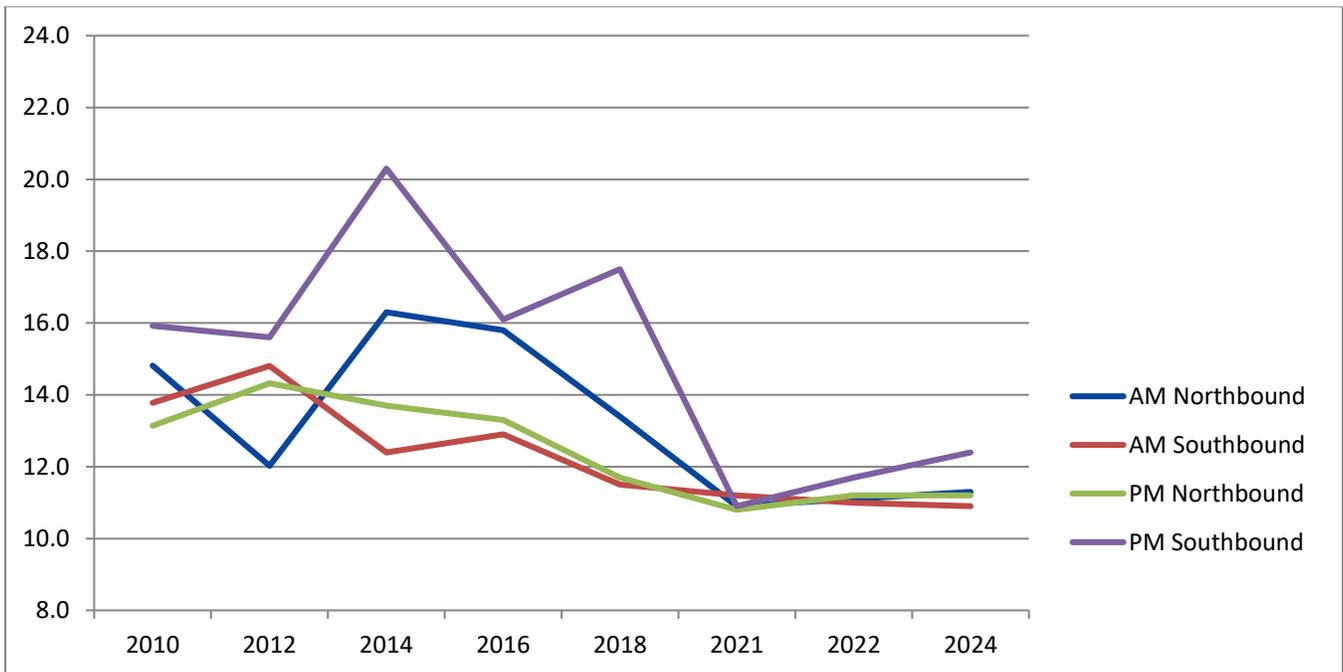
Figure 6.6: Central Expressway Travel Times (Minutes), 2010-2024



6.10: Foothill Expressway

As shown in **Figure 6.7**, overall travel times for Foothill Expressway have remained fairly steady since 2022 with a slight increase in the southbound direction during the PM peak period. Travel times increased by six percent in the PM southbound direction. In the southbound direction, travel times decreased by one percent in the AM. Although travel times have increased, they are still less than the peak travel times experienced in 2014.

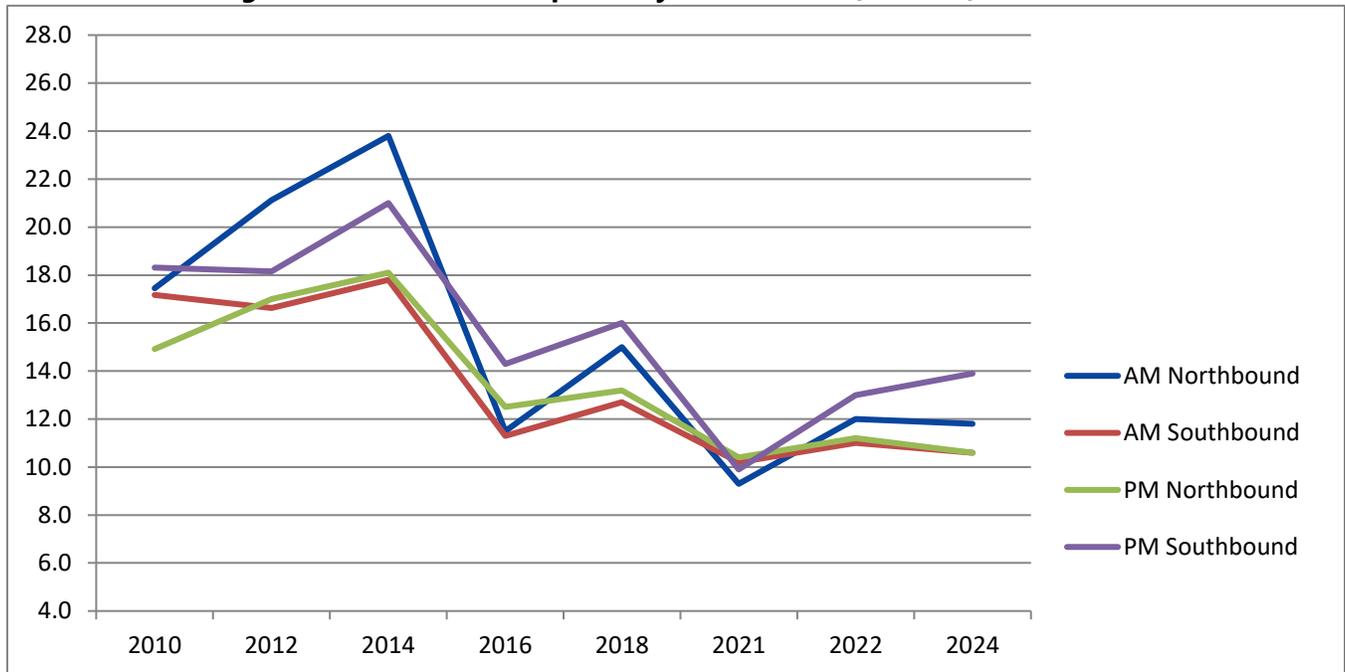
Figure 6.7: Foothill Expressway Travel Times (Minutes), 2010-2024



6.11: San Tomas Expressway

As shown in **Figure 6.8**, travel times for San Tomas Expressway have slightly changed since 2022, with seven percent increase in the southbound direction during the PM peak period. Travel times decreased by two percent in the AM northbound and five percent in the PM northbound direction. Although travel times have increased, they are still less than the peak travel times experienced in 2014.

Figure 6.8: San Tom as Expressway Travel Times (Minutes), 2010-2024



CHAPTER 7: BICYCLE AND PEDESTRIAN

7.1: Introduction

For the 2024 Monitoring and Conformance Report, p.m. peak period counts were collected for bicyclists and pedestrians at the 252 CMP Intersections. The same effort was done for the 2012, 2014, 2018, 2021, 2022 and 2024 Monitoring and Conformance Reports. Also, in 2014 and in 2016 VTA collected 12-hour counts at twenty selected intersections. In 2018, 2021, and 2022, these counts were conducted for 6 hours, and the same 6-hour counts were done as a part of this effort in 2024.

7.2: Six-hour Bicycle and Pedestrian Counts

VTA collected peak hour bicycle and pedestrian counts at 20 intersections, during the a.m. (7:00 a.m.-9:00 a.m.), mid-day (11:00 a.m.-1:00 p.m.), and p.m. (4:00 p.m.-6:00 p.m.) peaks, on Thursday, October 17, 2024.

The intersection locations were selected based on surrounding land uses, bicycle and pedestrian activity, and peak travel times. The purpose of these data collection efforts is to support countywide planning efforts and VTA's Travel Demand Model by providing a history of bicycle and pedestrian activity over the years. Bicycle and pedestrian data were collected at locations with the following land uses, consistency with previous monitoring reports:

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

TABLES 7.1 AND 7.2 SUMMARIZE THE BICYCLE AND PEDESTRIAN COUNTS BASED ON INTERSECTION LOCATIONS, SURROUNDING LAND USES AND PEAK HOURS. A COMPARISON WAS PERFORMED BETWEEN THE 2018, 2021, 2022, AND 2024 DATA. THE PRIOR YEAR'S DATA IS NOT DIRECTLY COMPARABLE BECAUSE PREVIOUS MONITORING REPORTS COLLECTED DATA FOR 12 HOURS. APPENDIX F CONTAINS DETAILED BICYCLE AND PEDESTRIAN COUNTS FOR THE 20 STUDY LOCATIONS.

In general, significantly fewer bicyclists were counted in 2024 than in 2022 during the AM and PM peak periods. The a.m. peak period saw a six percent reduction, the mid-day peak period saw a seven percent increase and

the p.m. peak period saw an eight percent reduction. This is a reverse in the trend from 2018 to 2021 as that period indicated a significant increase in the number of bicyclists. The 2024 bicycle counts are even slightly lower than the counts in 2018.

There were also significantly fewer pedestrians with approximately 34 percent increase in 2024 compared to 2022 during the PM peak period. This continues the downward trend from peak pedestrian counts in 2018.



Table 7.1: Bicycle Count Comparison at Twenty Selected Intersections

Land Use Type	Intersection	Jurisdiction	AM Peak Period					Mid-Day Peak Period					PM Peak Period				
			2018	2021	2022	2024	% Change 2024 v. 2022	2018	2021	2022	2024	% Change 2024 v. 2022	2018	2021	2022	2024	% Change 2024 v. 2022
Downtown	N 3rd St. / E Santa Clara St.	San Jose	41	44	22	14	-36%	61	44	29	38	31%	79	135	54	44	-19%
	Bryant St. / University Ave.	Palo Alto	109	174	100	90	-10%	55	77	51	42	-18%	111	173	87	74	-15%
	N. 1st St./ E. Campbell Ave.	Campbell	5	14	10	9	-10%	6	26	10	8	-20%	8	50	15	11	-27%
	Monterey Rd./5th St.	Gilroy	6	6	1	4	300%	12	12	1	8	700%	18	13	7	17	143%
	2nd St./Main St.	Los Altos	15	25	22	9	-59%	7	22	20	17	-15%	11	34	19	12	-37%
Suburban Residential	S. Wolfe Rd. /Inverness Wy.	Sunnyvale	24	26	20	16	-20%	16	15	6	7	17%	18	32	28	17	-39%
	N. White Rd./Mabury Rd.	San Jose	8	21	9	20	122%	8	28	12	12	0%	9	39	15	6	-60%
	McAbee Rd./Crossgates Ln.	San Jose	3	6	4	7	75%	1	11	5	2	-60%	4	12	6	3	-50%
	S. Blaney Ave./Rodrigues Ave.	Cupertino	46	29	52	30	-42%	6	19	13	16	23%	29	26	22	31	41%
Rural Residential	E. Main Ave./Hill Rd.	Morgan Hill	0	2	3	0	-100%	1	18	4	2	-50%	1	7	4	6	50%
	Purissima Rd./Conception Rd.	Los Altos Hills	3	22	14	13	-7%	10	36	23	32	39%	8	44	27	21	-22%
	Pierce Rd./Comer Dr.	Saratoga	3	20	9	5	-44%	8	28	10	13	30%	1	37	13	7	-46%
Office Park	N. 1st St./Skyport Dr.	San Jose	0	18	7	5	-29%	0	12	3	3	0%	0	13	1	5	400%
	Bowers Ave/Scott Blvd.	Santa Clara	27	27	26	19	-27%	6	18	4	12	200%	39	28	34	39	15%
	N. Mary Ave./W. Maude Ave.	Sunnyvale	43	32	32	33	3%	152	38	22	17	-23%	99	24	54	45	-17%
	Borregas Ave./W. Java Dr.	Sunnyvale	33	17	21	14	-33%	38	46	21	16	-24%	32	30	22	13	-41%
Commercial / Industrial	Wabash Ave./W. San Carlos St.	San Jose	14	25	6	12	100%	15	21	19	10	-47%	22	38	17	16	-6%
	Halford Ave./El Camino Real	Sunnyvale	15	24	11	12	9%	14	16	4	10	150%	18	17	8	13	63%
	S. 7th St./Phelan Ave.	San Jose	5	7	14	8	-43%	8	22	9	5	-44%	6	23	11	10	-9%
	Los Gatos Blvd./Blossom Hill Rd.	San Jose	36	55	17	58	241%	20	42	9	24	167%	15	57	14	32	129%
	Total Bikes		436	594	400	378	-6%	444	551	275	294	7%	528	832	458	422	-8%

Table 7.2: Pedestrian Count Comparison at Twenty Selected Intersections

Land Use Type	Intersection	Jurisdiction	AM Peak Period					Mid-Day Peak Period					PM Peak Period				
			2018	2021	2022	2024	% Change 2024 v. 2022	2018	2021	2022	2024	% Change 2024 v. 2022	2018	2021	2022	2024	% Change 2024 v. 2022
Downtown	N 3rd St. / E Santa Clara St.	San Jose	625	215	141	114	-19%	1182	461	463	485	5%	959	446	326	721	121%
	Bryant St. / University Ave.	Palo Alto	580	202	171	168	-2%	2063	980	745	765	3%	1,847	838	753	808	7%
	N. 1st St./ E. Campbell Ave.	Campbell	228	166	74	111	50%	658	414	222	292	32%	498	514	240	338	41%
	Monterey Rd./5th St.	Gilroy	113	81	26	57	119%	271	154	57	110	93%	154	163	59	130	120%
	2nd St./Main St.	Los Altos	385	277	198	130	-34%	944	699	359	456	27%	599	543	251	308	23%
Suburban Residential	S. Wolfe Rd. /Inverness Wy.	Sunnyvale	21	25	14	9	-36%	27	19	12	29	142%	24	27	13	8	-38%
	N. White Rd./Mabury Rd.	San Jose	23	30	8	24	200%	14	6	8	5	-38%	13	7	13	20	54%
	McAbee Rd./Crossgates Ln.	San Jose	34	36	8	24	200%	7	17	11	12	9%	47	21	10	12	20%
	S. Blaney Ave./Rodrigues Ave.	Cupertino	61	132	58	55	-5%	44	47	33	27	-18%	38	69	57	50	-12%
Rural Residential	E. Main Ave./Hill Rd.	Morgan Hill	1	0	4	6	50%	0	0	0	1	-	0	0	12	5	-58%
	Purissima Rd./Conception Rd.	Los Altos Hills	13	10	11	9	-18%	6	7	6	12	100%	5	2	5	13	160%
	Pierce Rd./Comer Dr.	Saratoga	0	14	3	0	-100%	3	6	0	2	-	3	4	0	1	-
Office Park	N. 1st St./Skyport Dr.	San Jose	0	26	41	69	68%	0	62	68	89	31%	0	60	34	64	88%
	Bowers Ave/Scott Blvd.	Santa Clara	49	15	20	35	75%	295	43	124	102	-18%	82	16	49	50	2%
	N. Mary Ave./W. Maude Ave.	Sunnyvale	127	21	21	32	52%	592	125	57	156	174%	142	26	24	46	92%
	Borregas Ave./W. Java Dr.	Sunnyvale	89	35	32	35	9%	305	60	72	36	-50%	117	52	26	28	8%
Commercial / Industrial	Wabash Ave./W. San Carlos St.	San Jose	155	155	136	168	24%	272	68	34	46	35%	130	118	51	46	-10%
	Halford Ave./El Camino Real	Sunnyvale	82	72	58	66	14%	116	88	52	61	17%	157	127	76	61	-20%
	S. 7th St./Phelan Ave.	San Jose	27	13	6	8	33%	45	22	19	21	11%	69	35	10	9	-10%
	Los Gatos Blvd./Blossom Hill Rd.	San Jose	68	87	55	81	47%	87	86	44	40	-9%	70	63	43	32	-26%
	Total Pedestrians		2,681	1,612	1,085	1,201	11%	6,931	3,364	2,386	2,747	15%	4,954	3,131	2,052	2,750	34%

Figures 7.1 and 7.2 illustrate the trend of bicycle and pedestrian counts, respectively, between the three peak hours (AM, Midday, and PM) for 2024. For the year 2024, bicycle traffic was slightly higher during the midday peak period and pedestrian traffic was the highest during all the peak periods.

Figure 7.1: AM, Mid-Day, and PM Peak Hour Bicycle Counts at Twenty Selected Intersections

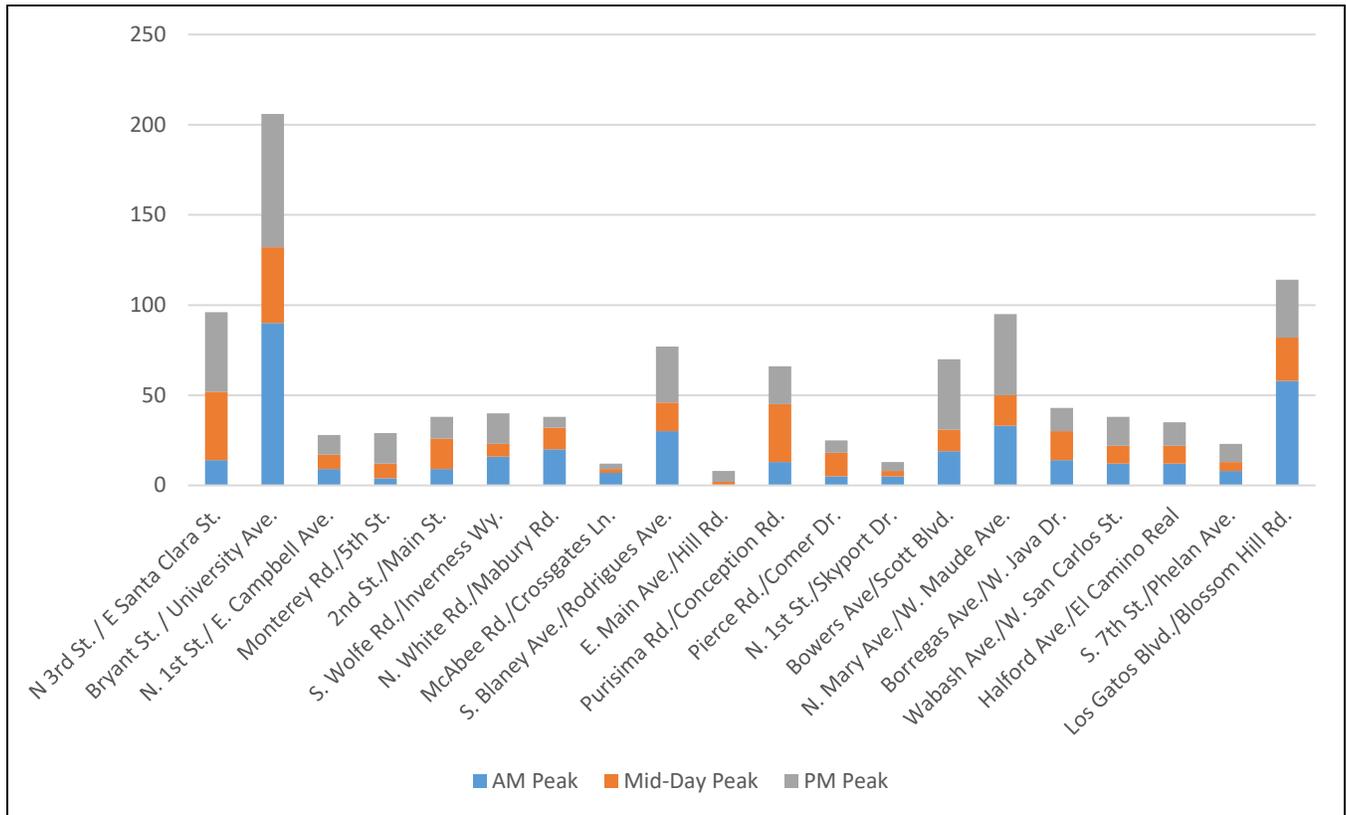
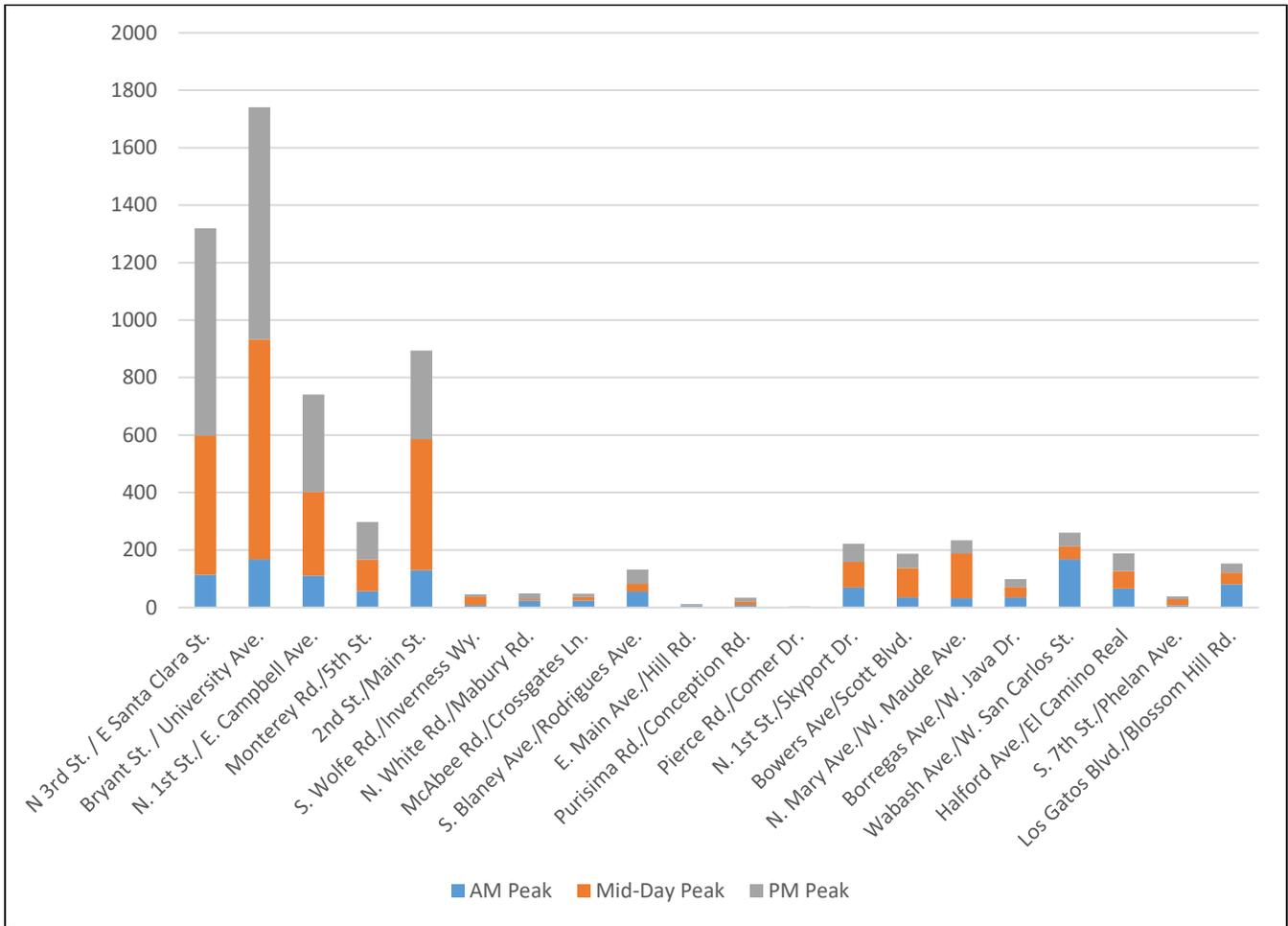


Figure 7.2: AM, Mid-Day, and PM Peak Hour Pedestrian Counts at Twenty Selected Intersections



7.3: Bicycle and Pedestrian Counts at CMP Intersections

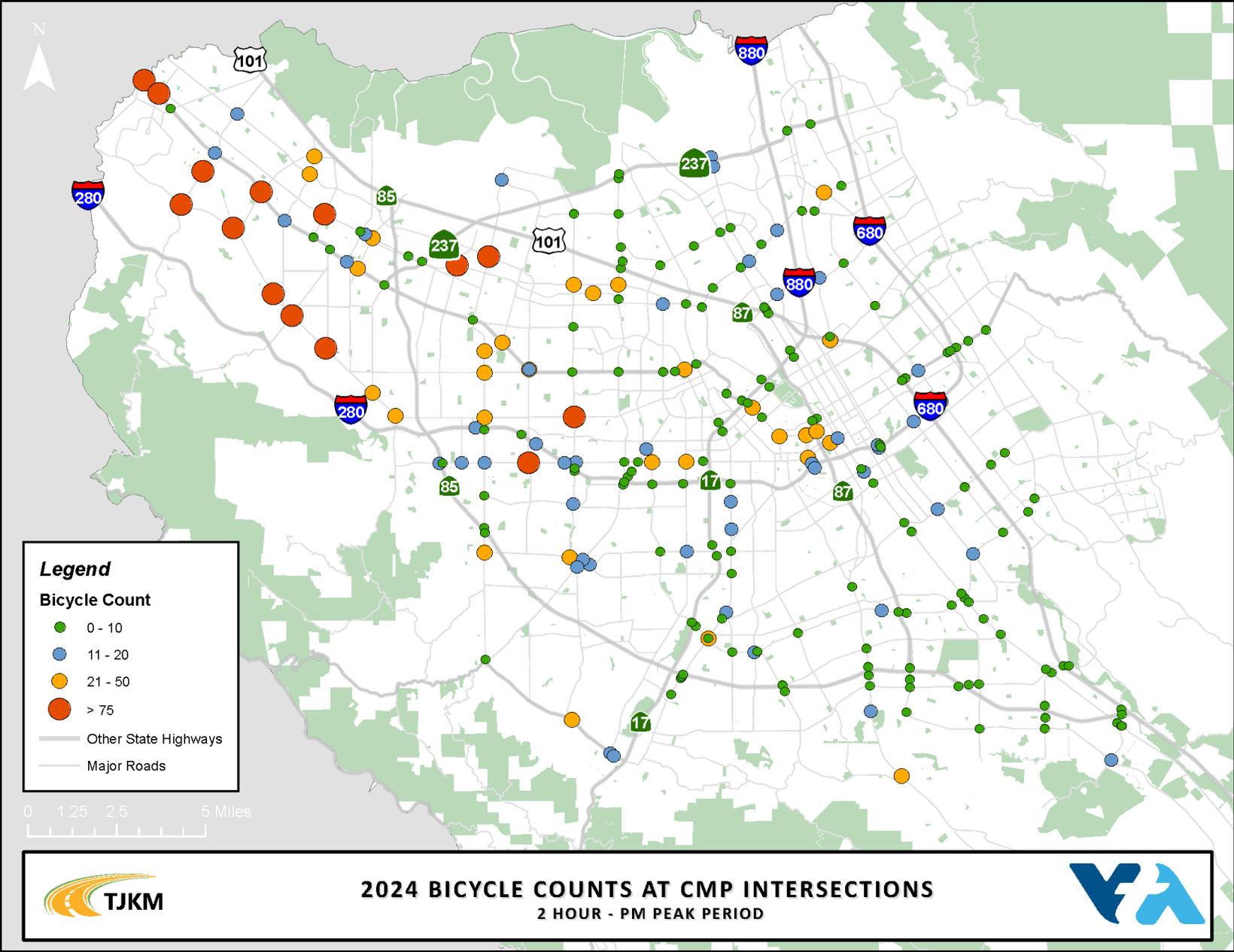
BICYCLE AND PEDESTRIAN COUNTS WERE COLLECTED AT THE 252 CMP STUDY INTERSECTIONS DURING THE TWO-HOUR P.M. PEAK PERIOD OF 4:30 TO 6:30 P.M. BETWEEN THE MONTHS OF AUGUST AND NOVEMBER IN 2024. APPENDIX G CONTAINS THE DETAILED BICYCLE AND PEDESTRIAN COUNTS AT THE CMP INTERSECTIONS.

Bicycle Counts Analysis at CMP Intersections

Figure 7.3 illustrates the bicycle count data collected in 2024 during the p.m. peak period. Findings of the intersection bicycle counts are detailed below:

- Overall, more bicyclists were counted in 2022 than in 2024 during the p.m. peak. In 2024, a total of 3,667 bicyclists were counted at CMP intersections during the 2-hour PM peak period. The total bicycle counts at CMP intersections in 2022 was 3,860, which is 5% lower than 2022. However, when compared to pre-COVID, the 2022 bicycle count is lower than the total bicycle count in 2018, which was 4,266 bicycles, and 2016, which was 6,797 bicycles.
- The intersections at Foothill Expressway and Arastradero Road (ID 5207) and Page Mill Road/Oregon Expressway at Hanover Street (ID 5120) had the highest bicycle traffic flow in 2024, both of which are located in the city of Palo Alto. The intersection at Page Mill Road/Oregon Expressway and Hanover Street (ID 5120) is surrounded by office land uses. The intersection at Foothill Expressway and Arastradero Road (ID 5207) is surrounded by office and residential land uses, with a cemetery at the southeast quadrant.
- The intersection of Foothill Expressway and Arastradero Road (ID 5207) experienced the largest increase in bicycle counts with 100 bicyclists in 2021 to 186 in 2024, which represents a 46% increase.

Figure 7.3: 2024 Intersection Bicycle Counts



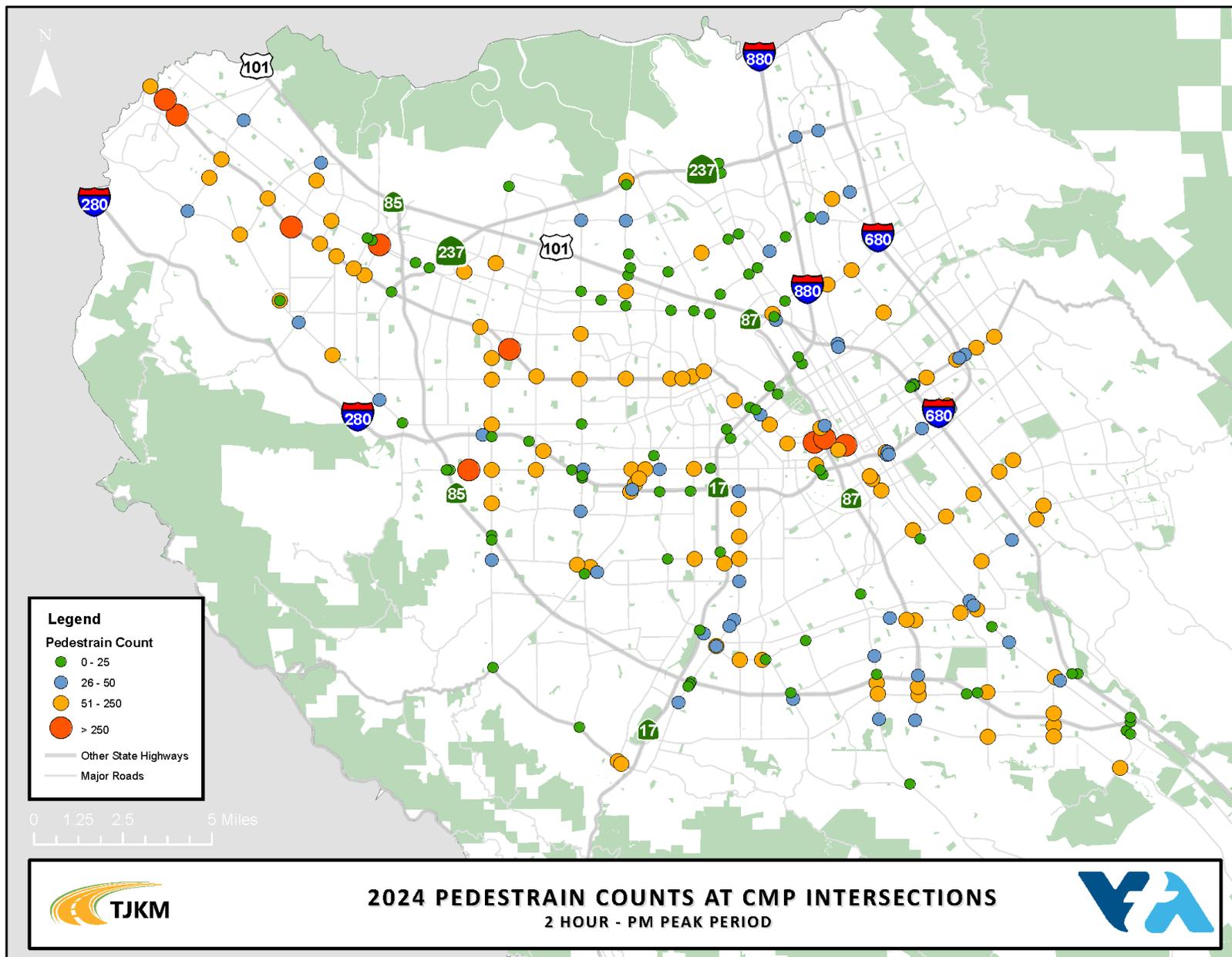
Pedestrian Counts Analysis at CMP Intersections

FIGURE 7.4 ILLUSTRATES THE PEDESTRIAN COUNT DATA COLLECTED IN 2024 DURING THE TWO HOUR P.M. PEAK PERIOD. APPENDIX G CONTAINS THE BICYCLE AND PEDESTRIAN COUNTS AT THE CMP INTERSECTIONS.

Key findings are presented as follows:

- The pedestrian count is increased in 2024 compared to 2022 during the p.m. peak period of 4:30 PM to 6:30 PM. In 2024, a total of 18,035 pedestrians were counted at CMP intersections during the 2-hour PM peak period, which is an increase from 16,551 pedestrians in 2022. This is an eight percent increase. The 2022 pedestrian count is also lower than the 22,446 pedestrians counted in 2018.
- The intersection with the most number of pedestrians during the p.m. peak period was El Camino Real (Rte. 82) and Palm Drive (ID #1112) in the city of Palo Alto with 1,031 pedestrians. This is an increase from the 795 pedestrians observed in 2022.
- The intersection with the second most number of pedestrians was Santa Clara Street and Montgomery Street (ID #3112) in the city of San Jose with 600 pedestrians. This is an increase from the 104 pedestrians observed in 2022.
- The intersection with the third most number of pedestrians was Central Expressway and Castro Street/Moffett Boulevard (ID #5308) in the city of Mountain View with 598 pedestrians. This is an increase from the 462 pedestrians observed in 2022.

Figure 7.4: 2024 Intersection Pedestrian Counts



CHAPTER 8: MULTIMODAL IMPROVEMENT PLANS

The CMP legislation (65089.4) states that Member Agencies shall 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 a violation of the LOS standard is expected to occur. In the 2013 Congestion Management Program, VTA adopted the term Multimodal Improvement Plan (MIP) to replace the term Deficiency Plan as defined in state statutes. Updates to the multi-modal improvement plans are required to be reported every two years. Since the 2021 CMP Monitoring & Conformance Report included an update to the four multi-modal improvement plans for the cities of San Jose, Santa Clara, Mountain View and Sunnyvale, this component is not updated for this 2024 report.



CHAPTER 9: CONFORMANCE FINDINGS

The conformance findings for the 2024 Monitoring Program is presented below.

Land Use Submission

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

CMP Intersections

Nine (9) intersections were observed to operate below the CMP LOS Standard of LOS E or better. Four of these intersections are exempt from the CMP LOS standard since they were operating below the LOS E standard in 1991 when the standards were set in place. Therefore, five intersections that were observed to operate below LOS E are not-exempt.

Although these five intersections would trigger the requirement of a Multi-Modal Improvement Plan (also known as a deficiency plan), a grace period is recommended prior to solidifying any decisions, given the extenuating circumstance of the change in analysis methodology in 2021 from TRAFFIX to VISTRO.

Freeways

In 2024, 238 freeway segments (91 directional miles) operated at LOS F during the AM peak period and 261 freeway segments (111 directional miles) operated at LOS F during the PM peak period. Of these, 57 segments (21 miles) in the AM and 64 segments (27 miles) in the PM peak periods operated at LOS F in the 1991 baseline year and therefore, are LOS-exempt. This results in 181 deficient segments (70 directional miles) in the AM peak period and 197 deficient segments (84 directional miles) in the PM peak period.

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.

Rural Highways

All rural highways segments operated at LOS E or better in 2024 and thus are in conformance with CMP requirements.