



Final Report

2023 San Mateo County Congestion Management Program

City/County Association of Governments of San Mateo County

October 12, 2023



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EXECUTIVE SUMMARY

The 2023 Congestion Management Program (CMP) Update is a document of the City/County Association of Governments of San Mateo County (C/CAG), the designated Congestion Management Agency (CMA) for San Mateo County. The 2023 biennial update is required by State statute. Following are highlights of this document.

Chapter 1: Introduction

This section introduces the CMP legislation and outlines the various elements/sections of this CMP.

Chapter 2: Designated Roadway System

The designated CMP roadway system in San Mateo County has not changed in this update. In total, the 464.7 directional miles of the CMP designated roadway network contains 301.4 miles of arterials/highways, 163.3 miles of freeways, and 16 intersections. New to this CMP is the Companion Monitoring Network (Companion Network), which includes an additional 10 roadway segments and 17 intersections not included in the CMP network. It will be monitored for informational purposes.

Chapter 3: Roadway System Level of Service (LOS)

This section also summarizes the results of monitoring the CMP Network as well as the Companion Network. Full details are located in the 2023 CMP Monitoring Report in **Appendix F**.

A total of 53 roadway segments and 16 intersections were monitored as part of the CMP Network in this report during the AM and PM peak periods. In the 2023 Monitoring Cycle, one arterial segment, one multi-lane highway segment, ten freeway segments and one intersection falls below the LOS standard prior to the interregional exemption. However, all roadway segments met the LOS standard after interregional exemptions.



Pedestrians crossing at SR-92/Main St in Half Moon Bay

Chapter 4: System Performance

C/CAG has adopted four performance measures: LOS; Travel Times for Single Occupancy Vehicles, Carpools, and Transit; Pedestrian and Bicycle Improvements, and Ridership/Person Throughput of Transit. Each of these performance measures is described in this chapter. Full details are located in the 2023 CMP Monitoring Report in **Appendix F**.

Chapter 5: Trip Reduction and Travel Demand Element

Transportation Demand Management (TDM) strategies are utilized to improve efficiency of existing transportation systems without significant expansion of the infrastructure. These strategies focus on ways to reduce solo driving and/or eliminate the need for driving altogether. Some of the commonly used strategies that aim at reducing solo driving include carpool, vanpool, bicycle, transit, and park, and ride lots. Strategies to reduce vehicle miles traveled (VMT) include alternatives such as remote working, flexible work schedules, and parking cash-out programs. Improving a balance between available jobs and employed residents can help to shorten commutes. Use of TDM strategies help cities and counties in their attempt to balance the growing need for transportation and availability of limited transportation dollars, knowing we can't build our way out of congestion. San Mateo County's TDM agency, Commute.org, is primarily responsible for implementing TDM measures countywide. This chapter includes a full description of these programs, as well as others being offered by local jurisdictions.

Chapter 6: Land Use Impact Analysis Program

The CMP includes three tiers of the Land Use Analysis Program: Tier 1 (Long Range Planning Analysis), Tier 2 (Individual Large Development Analysis), and Tier 3 (Cumulative Development Analysis). All of these require local government participation and cooperation. The chapter also includes a detailed summary of the new TDM Policy adopted by C/CAG in 2021, and revises the Tier 2 analysis to include its relevant components.

Chapter 7: Deficiency Plan Guidelines

Local jurisdictions must meet the CMP conformance requirements to receive funding from several State programs. The conformity process has not substantially changed in the 2023 CMP. Given that no segments or intersections are considered deficient, no jurisdiction is considered out of conformance at this time. C/CAG's

adopted Congestion Relief Plan also serves as the countywide deficiency plan and relieves all cities/towns and the County from the need to prepare deficiency plans.

Chapter 8: Capital Improvement Program

A CMP is required to have a seven-year Capital Improvement Program (CIP) to maintain or improve the performance of the multimodal system for the movement of people and goods and to mitigate regional transportation impacts identified through the Land Use Analysis Program. Any project depending on State or Federal funding must be included in the CMP's CIP. This part of the CMP must be submitted first to the Metropolitan Transportation Commission (MTC) in the Bay Area and then to the California Transportation Commission (CTC) and/or the Federal Highway Administration (FHWA) so that funding from State and Federal programs will be allocated for the projects included in the CIP.

The 2023 CIP primarily includes projects programmed in the 2022 State Transportation Improvement Program (STIP), and lists other sources of funding for San Mateo County transportation projects.

Chapter 9: Database and Travel Demand Model

CMP requirements include maintaining and utilizing a travel demand model that is consistent with the regional model and available for use in corridor and development studies. The C/CAG-VTA Model is the transportation model used by C/CAG and is described in its chapter along with its role in the CMP, and its conformity with the MTC model.

Chapter 10: Monitoring and Updating the CMP

This section details the elements that must be updated biennially per CMP legislation, as well as the procedure to find a jurisdiction in non-conformance with the CMP requirements.

Chapter 11: Measure M - \$10 Vehicle Registration Fee Program

This section summarizes the Measure M program and details the current expenditure plan, which is a \$10 fee on motor vehicles registered in San Mateo County.

Chapter 12: Traffic Impact Analysis (TIA) Policy

This section summarizes C/CAG's adopted TIA Policy.

CHAPTER 1: INTRODUCTION

1.1 Background



Cycle track approaching intersection of El Camino Real (SR-82) and Ralston Avenue in Belmont

In 1990, California voters approved Propositions 111 and 108, which included a requirement that every urban county within California designate a CMA that would prepare, implement, and biennially update a CMP. In San Mateo County, C/CAG was designated as the CMA. Subsequent legislation (AB 2419) allowed existing Congestion Management Agencies to discontinue participation in the Program; however, C/CAG voted to continue to participate in and adopt a CMP.

According to the state legislation, the purpose of CMPs is to develop a procedure to alleviate or control anticipated increases in roadway congestion and to ensure that “federal, state, and local agencies join with transit districts, business, private and environmental interests to develop and implement comprehensive strategies needed to develop appropriate responses to transportation needs.”¹ The first CMP for San Mateo County was adopted by C/CAG in 1991. It has been updated and amended on a biennial basis. The last CMP update was in 2021.

When the California Legislature defined the requirements for CMPs, they set in motion the following actions:

- A political process that encourages local jurisdictions (cities/towns and the County) to discuss and seek resolution of anticipated transportation supply problems.

¹ California Government Code Section 65088(e).

- A political process that requires that all types of measures, including the possibility of implementing land use changes, creating TDM actions, and providing transit, ridesharing, and other modal alternatives to driving, be considered in conjunction with building or widening roadways as effective ways to address future urban transportation needs.
- A technical process to provide consistent and timely information to elected officials about the possible consequences of planned or proposed land developments, and of the costs and benefits of optional ways to resolve anticipated congestion problems.

This CMP describes the framework for the ongoing process that will be followed by C/CAG, the County of San Mateo, and the cities/towns in San Mateo County to implement state and federal requirements concerning the CMP. The overall goal of this CMP is to help C/CAG promote countywide solutions to transportation problems based upon cooperation and mutual support.

1.2 Elements of the CMP

Each CMA is charged with developing, adopting and updating a CMP. The following elements must be included in a CMP:

Roadway System

The CMA must specify a system of highways and roadways for which traffic LOS standards shall be established. The CMP's Roadway System shall include at a minimum all state highways and principal arterials. No highway or roadway designated as a part of the CMP Roadway System shall be removed from the system (in future CMPs).

Traffic LOS Standards

LOS standards intended to measure roadway congestion must be established for all state highways and principal arterials included in the CMP's Roadway System. LOS is a qualitative description of roadway operations ranging from LOS A, or free flow conditions, to LOS F, or gridlocked conditions. The CMP may not establish any standard below LOS E unless the LOS was F at the time that the standard was established in 1991. LOS must be monitored on the CMP network biennially.

Performance Element

The Performance Element was added by AB 1963 in 1994. This element includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods in San Mateo County. For C/CAG, this includes the four designated performance measures: LOS, Multi-Modal Travel Times, Pedestrian and Bicycle Improvements, and Ridership/Person Throughput for Transit.

Trip Reduction and Travel Demand Element

The CMP must contain an element promoting the use of alternative transportation modes and ways to reduce future travel demand. Improving a county's jobs/employed residents balance and implementing TDM strategies are specifically mentioned as ways of attaining the objectives of this element of the CMP.

Land Use Impact Analysis Program

The purpose of this element of the CMP is to create and implement a program to analyze the impacts of land use decisions made by local jurisdictions on regional transportation systems. Estimates of the costs associated with mitigating the projected impacts must be included in the CMP, with some exceptions.²

Seven-Year Capital Improvement Program (CIP)

The CMP must contain a seven-year program of projects expected to maintain or improve traffic LOS and transit performance, and to mitigate the impacts of local land use decisions. Projects contained in the CIP must also conform to transportation-related air quality mitigation measures.

Other Items

In addition to these elements, a CMP must also include a uniform database and a computer-based transportation model that will be used to determine the quantitative impacts of proposed or planned land developments on a county's transportation systems. Finally, C/CAG is charged with monitoring the implementation of all elements of the CMP and determining conformance with the CMP's requirements and recommendations.

²According to statute, interregional trips will be excluded from this cost estimate. Credit will also be given to local, public, and private contributions for improvement to the roadway system.

CHAPTER 2: DESIGNATED ROADWAY SYSTEM

2.1 Purpose and Intent of Legislation

The CMP roadway system is a network that allows performance monitoring of established LOS standards. The network must be created at a level such that impacts can be identified, and a connection can be made between proposed projects and their specific impacts on the network. The network can neither be too small, as impacts would be unidentifiable, nor too large, as there would be logistical issues in monitoring network performance. The CMP was established as part of the legislated



University Avenue (SR-109) south of Kavanaugh Drive in East Palo Alto

Transportation Blueprint of 1990 and became a requirement for CMAs across California to fulfill.

C/CAG established the CMP roadway network in 1991. The designated CMP roadway system includes all state highways and principal arterial roadways in San Mateo County, including freeways, multilane highways, two-lane highways, arterials, and intersections. California Government Code Section 65089(b)(1)(A) states that once a highway or roadway has been designated as part of the CMP system, it cannot be removed. Furthermore, Section 60589(b)(4) requires that the regional transportation system is part of the required land use program defined by State statute.

2.2 Relationship to Regional Plans

The CMP is a short-range document containing elements that are required for consistency with long term regional transportation plans. The CMP is required to be consistent with long range regional transportation plans in the following areas:

- Goals and objectives established in MTC's Regional Transportation Plan (RTP);
- System definition with adjoining counties;

- Federal and State air quality plans;
- MTC travel demand modeling database and methodologies; and
- RTP financial assumptions.

Plan Bay Area 2050 is the RTP developed by MTC, the San Francisco Bay Area’s regional transportation planning agency. The San Mateo CMP roadway system is consistent with the RTP, which was adopted in October 2021.

2.3 Designated CMP Network

The CMP Network incorporates the CMP Roadway System adopted in 1991, plus 16 intersections adopted in 1993, and one additional roadway segment adopted in 1999. The roadways adopted by C/CAG to be part of the CMP's Roadway System are roadways in San Mateo County that fulfill at least one of the following requirements:

- They are routes that are part of the California State Highway System. (Some of the State Highways in San Mateo County serve as principal arterials).
- They extend from the San Mateo County/San Francisco County line to the San Mateo County/Santa Clara County line.
- They extend from San Francisco Bay to the Pacific Ocean and/or connect two major north/south routes.
- They connect directly with the roadways included in the CMP networks of adjacent counties (as is the case with Mission Street, Geneva Avenue, and Bayshore Boulevard with San Francisco’s CMP network).
- They are principal arterials, which in San Mateo County were defined as those roadways that are not freeways containing six or more lanes for a length of at least one mile and carrying average daily traffic (ADT) volumes of at least 30,000 vehicles.

Figure 1 illustrates all designated CMP roadway facilities within San Mateo County. The following roadways are designated as the San Mateo County CMP roadway network:

- State Route (SR)-1 – from San Francisco County Line to Santa Cruz County Line
- SR-35 – from San Francisco County Line to Santa Clara County Line
- SR-82 (El Camino Real) – from San Francisco County Line to Santa Clara County Line
- SR-84 – from SR-1 to Alameda County Line
- SR-92 – from SR-1 to Alameda County Line
- US 101 – from San Francisco County Line to Santa Clara County Line

- SR-109 – from Kavanaugh Drive to SR-84
- SR-114 – from US 101 to SR-84
- I-280 – from San Francisco County Line to Santa Clara County Line
- I-380 – from US 101 to I-280
- Mission Street – from San Francisco County Line to SR-82
- Geneva Avenue – from San Francisco County Line to Bayshore Boulevard
- Bayshore Boulevard – from San Francisco County Line to Geneva Avenue

As noted above, 16 intersections were added to the CMP network in 1999. These intersections are listed below and also shown in **Figure 1**:

1. Bayshore Boulevard/Geneva Avenue
2. SR-35/John Daly Boulevard
3. SR-82/Hillside Boulevard/John Daly Boulevard
4. SR-82/San Bruno Avenue
5. SR-82/Millbrae Avenue
6. SR-82/Broadway
7. SR-82/Peninsula Avenue/Park Road
8. SR-82/Ralston Avenue
9. SR-82/Holly Street
10. SR-82/Whipple Avenue
11. University Avenue/SR-84
12. Willow Road/SR-84
13. Marsh Road/SR-84
14. Middlefield Road/SR-84
15. SR-1/SR-92
16. SR-92/Main Street

Tables 1 and 2 provide details of the San Mateo County CMP network. In total, the 464.7 directional miles of the CMP designated roadway network contains 301.4 miles of arterials/highways and 163.3 miles of freeways. Detailed descriptions of the roadways included in this CMP's Roadway System are presented in **Appendix A**. The results of the *2023 CMP Monitoring Report* with the current LOS are contained in **Appendix F**.

Figure 1: San Mateo County CMP Network

Table 1: CMP Network Segments

Route	From	To	Facility Type
SR-1	San Francisco County Line	Linda Mar Blvd	Multi-Lane Highway
SR-1	Linda Mar Blvd	Frenchmans Creek Rd	Two-Lane Highway
SR-1	Frenchmans Creek Rd	Miramontes Rd	Two-Lane Highway
SR-1	Miramontes Rd	Santa Cruz County Line	Two-Lane Highway
SR-35	San Francisco County Line	Sneath Ln	Arterial
SR-35	Sneath Ln	I-280	Arterial
SR-35	I-280	SR-92	Two-Lane Highway
SR-35	SR-92	SR-84	Two-Lane Highway
SR-35	SR-84	Santa Clara County Line	Two-Lane Highway
SR-82	San Francisco County Line	John Daly Blvd	Arterial
SR-82	John Daly Blvd	Hickey Blvd	Arterial
SR-82	Hickey Blvd	I-380	Arterial
SR-82	I-380	Trousdale Dr	Arterial
SR-82	Trousdale Dr	3 rd Ave	Arterial
SR-82	3 rd Ave	SR-92	Arterial
SR-82	SR-92	Hillsdale Ave	Arterial
SR-82	Hillsdale Ave	42 nd Ave	Arterial
SR-82	42 nd Ave	Holly St	Arterial
SR-82	Holly St	Whipple Ave	Arterial
SR-82	Whipple Ave	SR-84	Arterial
SR-82	SR-84	Glenwood Ave	Arterial
SR-82	Glenwood Ave	Santa Cruz Ave	Arterial
SR-82	Santa Cruz Ave	Santa Clara County Line	Arterial
SR-84	SR-1	Portola Rd	Two-Lane Highway
SR-84	Portola Rd	I-280	Two-Lane Highway
SR-84	I-280	Alameda de las Pulgas	Arterial
SR-84	Alameda de las Pulgas	US-101	Arterial
SR-84	US-101	Willow Rd	Arterial
SR-84	Willow Rd	University Ave	Arterial
SR-84	University Ave	Alameda County Line	Arterial
SR-92	SR-1	I-280	Two-Lane Highway
SR-92	I-280	US-101	Freeway
SR-92	US-101	Alameda County Line	Freeway
US-101	San Francisco County Line	I-380	Freeway
US-101	I-380	Millbrae Ave	Freeway
US-101	Millbrae Ave	Broadway	Freeway
US-101	Broadway	Peninsula Ave	Freeway

Route	From	To	Facility Type
US-101	Peninsula Ave	SR-92	Freeway
US-101	SR-92	Whipple Ave	Freeway
US-101	Whipple Ave	Santa Clara County Line	Freeway
SR-109	Kavanaugh Dr	SR-84	Arterial
SR-114	US-101	SR-84	Arterial
I-280	San Francisco County Line	SR-1 (North)	Freeway
I-280	SR-1 (North)	SR-1 (South)	Freeway
I-280	SR-1 (South)	San Bruno Ave	Freeway
I-280	San Bruno Ave	SR-92	Freeway
I-280	SR-92	SR-84	Freeway
I-280	SR-84	Santa Clara County Line	Freeway
I-380	I-280	US-101	Freeway
I-380	US-101	Airport Access Rd	Arterial
Mission St	San Francisco County Line	SR-82	Arterial
Geneva Ave	San Francisco County Line	Bayshore Blvd	Arterial
Bayshore Blvd	San Francisco County Line	Geneva Ave	Arterial

Table 2: CMP Network Intersections

ID	Jurisdiction	Intersection
1	Daly City/Brisbane	Bayshore Blvd/Geneva Ave
2	Daly City	SR-35/John Daly Blvd
3	Daly City	SR-82/Hillside Blvd/John Daly Blvd
4	San Bruno	SR-82/San Bruno Ave
5	Millbrae	SR-82/Millbrae Ave
6	Burlingame	SR-82/Broadway
7	Burlingame/San Mateo	SR-82/Peninsula Ave/Park Rd
8	Belmont	SR-82/Ralston Ave
9	San Carlos	SR-82/Holly St
10	Redwood City	SR-82/Whipple Ave
11	Menlo Park	University Ave/SR-84
12	Menlo Park	Willow Rd/SR-84
13	Menlo Park	Marsh Rd/SR-84
14	Redwood City	Middlefield Rd/SR-84
15	Half Moon Bay	SR-1/SR-92
16	Half Moon Bay	SR-92/Main St

2.3 Companion Monitoring Network

The 2023 CMP Update established a new “Companion Monitoring Network” (Companion Network) consisting of 10 roadway segments and 17 intersections not in the CMP network where C/CAG desired to see additional congestion monitoring. The purpose of the network is to monitor congestion in other parts of the county that are not necessarily on a state highway, or intersections that are not currently monitored. These locations will be monitored for informational purposes only.

The network was developed based on a set of criteria that considered roadway classification/function, past collision history, bicycle Level of Traffic Stress, facilities that were identified in local city/county plans, and locations that connected to existing CMP segments that had a failing LOS in 2019. All 20 cities/towns and towns in San Mateo County have at least one location (either a roadway segment or intersection), as well as several in unincorporated San Mateo County. The Companion Network is detailed in **Tables 3** and **4**, and mapped in **Figure 2**.

Table 3: Companion Network Intersections

#	Jurisdiction	Intersection
17	San Mateo	SR-82/3rd Ave
18	Unincorporated San Mateo County	Skyline Blvd (SR-35)/SR-92
19	San Carlos	Holly St/Industrial Rd
20	Redwood City	Whipple Ave/Veterans Blvd
21	Atherton	Middlefield Rd/Marsh Rd
22	Menlo Park	Sand Hill Rd/Santa Cruz Ave
23	East Palo Alto	Bay Rd/University Ave
24	Woodside/Redwood City	SR-84/Alameda de las Pulgas
25	Portola Valley	Alpine Rd/Portola Rd
26	Unincorporated San Mateo County	SR-35/SR-92
27	Colma	El Camino Real (SR-82)/Mission Rd
28	Half Moon Bay	SR-1/Main St
29	South San Francisco	El Camino Real (SR-82)/Westborough Blvd
30	Unincorporated San Mateo County (El Granada/Coastside)	SR-1/Capistrano Blvd
31	Unincorporated San Mateo County (SFO Airport)	S. Airport Blvd/San Bruno Ave
32	Pacifica	SR-1/Reina del Mar Ave
33	Unincorporated San Mateo County (Moss Beach/Coastside)	SR-1/Cypress Ave

Table 4: Companion Network Roadway Segments

ID	Jurisdiction	Name	Extent
R1	Belmont	Ralston Avenue	US-101 to Alameda de las Pulgas
R2	Unincorporated San Mateo County (North Fair Oaks), Atherton, Redwood City	Middlefield Road	SR-84 to Marsh Rd
R3	Burlingame	California Drive	Broadway to Peninsula Ave
R4	Brisbane	Bayshore Boulevard	Geneva Ave to US-101 NB Off-Ramp
R5	Daly City	John Daly Boulevard	SR-35 to Mission St
R6	Foster City	Foster City Boulevard	E. 3 rd Ave to Beach Park Blvd
R7	Hillsborough	Chateau Drive/Ralston Avenue	I-280 to El Camino Real
R8	Millbrae	Millbrae Avenue	SR-82 to Old Bayshore Hwy
R9	Pacifica	Sharp Park Boulevard	SR-1 to SR-35
R10	San Bruno	Sneath Lane	SR-35 to Huntington Ave

Figure 2: Companion Network

CHAPTER 3: ROADWAY SYSTEM LOS

3.1 Legislative Requirements

California Government Code Sections 65089.1 (A) and (B) requires that LOS standards be established by, in this case, C/CAG for the roadways and intersections designated to be in the CMP Roadway System. Furthermore, roadway LOS are to be measured by methods described in one of the following documents: The Transportation Research Board's *Circular 212*, the latest version of the *Highway Capacity Manual (HCM)*, or a uniform methodology adopted by the CMA that is consistent with the *HCM*.



Intersection of SR-84/Middlefield Road in Redwood City is LOS F in PM peak period (without exemption)

The CMP legislation stipulates that the CMP's LOS standards can be set at any LOS - A through F. However, only roadway segments or intersections operating at LOS F when the CMP was established in 1991 may have a LOS F standard set for them.

3.2 Discussion and Roadway Segments LOS Standards

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. An explanation of the various LOS levels is shown below in **Table 5**.

Table 5: LOS Definitions

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: San Mateo C/CAG Traffic LOS Calculation Methods, HCM, & Virginia DOT

The purpose of setting LOS standards is to evaluate changes in congestion. Congestion is to be measured on the designated system of CMP roadways via LOS calculations. Existing LOS are to be calculated every two years as part of the CMP's traffic operations monitoring program. The results of the monitoring of existing LOS in 2023 for the CMP roadway segments and intersections are presented in **Appendix F**.

When monitoring conformance with this CMP's recommendations, a significant increase in congestion is defined as a change in the measured LOS to any level worse than the specified LOS standard. Therefore, nonattainment of the CMP's Roadway LOS standards would occur whenever the LOS for a roadway segment or intersection included in the CMP Roadway System is monitored as falling below the LOS standard established for that roadway facility. With one exception, this would occur regardless of the LOS standard set by C/CAG for a roadway. The exception would be that for a roadway where the standard was set to be LOS F, further decreases in their LOS would not be measured as falling below this CMP's standards.

The following LOS standards were selected for the roadway segments.

- If the existing (1990/91) LOS was F, then the standard was set to be LOS F.
- If the existing or future LOS when measured in 1991 was or will be E, then the standard was set to be LOS E.

- The standard for roadway segments near the San Francisco, Santa Clara, and Alameda County borders, with one exception,³ was set to be LOS E to be consistent with the recommendations in those counties' 1991 CMPs. This standard applies unless those roadway segments were already operating at LOS F.
- On SR-82 (El Camino Real), the standard was set to be LOS E.
- For the remaining roadway segments, the standard was set to be one letter designation worse than the LOS projected for the year 2000 when the CMP was established in 1991.

The LOS standards established for San Mateo County vary by roadway segment. By adopting LOS standards based on geographic differences, C/CAG signaled that it intends to use the CMP process to prevent future congestion levels in San Mateo County from getting worse than currently anticipated. At the same time, the variations in LOS standards by geographic area conform to current land use plans and development differences between the Coastside and Bayside, and between older downtowns near Caltrain stations and other areas of San Mateo County.

Local cities and towns must consider the impacts that land use decisions have on LOS on the designated CMP network. C/CAG works with local government agencies to determine whether a change in land use affects LOS negatively and how to mitigate any anticipated deficiencies. A systems approach may have to be examined when considering LOS of the entire system. Cities/towns and counties may be responsible for improvements and funding of programs that affect the system as a whole. Note that while VMT became the required metric for analyzing the impact of development on the transportation system on July 1, 2020 (as part of SB 743), specific guidance has not been released for incorporating VMT into the CMP and as such LOS is still used. Additional discussion on the Land Use Analysis Program is presented in Chapter 6.

³For I-280 south of SR 84, the adopted standard is LOS D.

3.3 Intersection LOS Standards

16 intersections were added to the CMP Roadway System first adopted in 1991. Intersection LOS standards were selected based on the following considerations:

- If the existing LOS is F, then the standard is set to be LOS F.
- If the existing or future LOS is or will be E, then the standard is also set to be E.
- The standard of the intersections near the San Francisco, Santa Clara, and Alameda Counties will be LOS E to be consistent with the LOS standards adopted in those counties.
- On SR 82 (El Camino Real), the standard is set to be LOS E to be consistent with the roadway segment standards.
- For the remaining intersections, the standard is set to be LOS E to correspond to the standard established for the adjacent roadway segment. (All the segments on which these intersections are located have standards set to LOS E.)

Should the LOS of any particular segment fall below the established standard, it moves on to a second process of volume reductions before determining deficiencies. For purposes of determining deficiencies, as required by law, the impacts of the following will be excluded: (1) interregional travel, (2) construction, rehabilitation, or maintenance of facilities that impact the system, (3) freeway ramp metering, (4) traffic signal coordination by the state for multi-jurisdictional agencies, (5) traffic generated by the provision of low- and very low-income housing, (6) traffic generated by high-density residential development located within one-fourth mile of a rail passenger station, and (7) traffic generated by any mixed-use development located within one-fourth mile of a fixed rail passenger station, if more than half of the land area, or floor area, of the mixed-use development is used for high-density residential housing, as determined by the agency.

LOS standards only apply to CMP segments and intersections during the established weekday AM and PM peak periods. Locations and time periods outside of this, including the Companion Network or weekend monitoring as discussed in Chapter 3, do not have an established LOS standard and are monitored for informational purposes only.

The LOS standards for roadway segments and intersections is mapped below in **Figure 3**.

Figure 3: LOS Standards

3.4 LOS Analysis Methodology

Each biennial update of the CMP is accompanied by LOS monitoring of the CMP network. The San Mateo County CMP network includes five types of facilities, each with its own monitoring methodologies: freeways, multilane highways, two-lane highways, arterials, and intersections. Data collection for LOS monitoring took place in May 2023 on mid-week days (Tuesday-Thursday) during the established AM (7am-9am) and PM (4pm-6pm) peak periods. Data collection included: INRIX commercial speed data, turning movement counts, 72-hour volume counts, and HOV lane floating car surveys. Additional data collection occurred on Saturday and Sunday at certain Coastside locations to conduct informational weekend monitoring. A description of the data collected and LOS analysis methodology for each is summarized below in **Table 6**.

Table 6: LOS Monitoring Methodology

Facility Type	Data and Analysis Methodology
Freeways	Freeways were monitored using average speeds from commercially available INRIX data during the months of April-May 2021. Data was pulled and analyzed for the AM and PM peak periods. LOS is calculated based on average speed on each segment using HCM 1994 procedures and reported for the worst case direction in each peak period.
Multilane Highways	Data used and methodology is similar to freeways. LOS is determined from average INRIX average speed data and calculated using HCM 1994 procedures. LOS is assigned based on the worst case direction in each peak period.
Two-Lane Highways	Two-lane highways are monitored using data from 72-hour traffic counts taken on each segment countywide. The highest one hour volume across the three days in each peak period is used to calculate a V/C ratio. LOS is assigned based on HCM 1994 methodologies for two-lane highways and takes into account percent no passing and terrain (level, rolling, or mountainous).
Arterials	Arterials are monitored using data from 72-hour traffic counts or turning movement counts taken on each segment countywide. As with two-lane highways, the highest one hour volume across the three days in each peak period is used to calculate a V/C ratio. Where volumes from a turning movement count is used, data from the peak hour is used. LOS is assigned based on HCM 1994 methodology for arterials.
Intersections	Turning movement counts were collected at each intersection during the AM and PM peak periods. Each intersection was analyzed in Synchro software and assigned and LOS using HCM 2010 methodologies (Note: where signal parameters did not allow the use of HCM 2010, HCM 2000 was used). LOS is reported for both peak periods alongside the delay (in seconds).
Companion Network	The Companion Network was monitored using the same methodologies as the CMP network. 72-hour traffic counts were taken at Companion Network arterials, while turning movement counts were taken at Companion Network Intersections. For arterials, HCM 1994 was used to assign LOS based on a V/C ratio. Intersections were modeled in Synchro and used HCM 2010 (or, if needed, HCM 2000), to assign LOS.

Facility Type	Data and Analysis Methodology
Weekend Monitoring	At four roadway segments and eight intersections on the Coastside, data collection and analysis was done on the weekend for informational purposes. Roadway segments used 48-hour counts on Saturday and Sunday, while intersections were counted in the AM, Mid-Day (11am-1pm), and PM peak periods. The same methodologies to calculate LOS on the CMP network were used.

3.5 2023 Monitoring Results

Monitoring for the 2023 CMP was conducted for C/CAG by TJKM Transportation Consultants. This CMP Update relies on data from the 2023 Monitoring Cycle, as documented in the *2023 CMP Monitoring Report* in **Appendix F**.

Recovery from the COVID-19 pandemic has seen an increase in traffic volumes closer to pre-pandemic levels across San Mateo County. This is evidenced by the fact that in 2021 only 5 roadway segments were failing before interregional exemptions compared to 12 pre-exemption failing segments in 2023 (all of which improved to an acceptable LOS after interregional exemptions). However, these 12 failing segments in 2023 does not reflect the same level of traffic congestion compared to pre-pandemic conditions since there were 19 segments that were failing in 2019.

Volumes from roadway segment 72-hour traffic counts increased by an average of 23% when compared to available data from 2021. However, when comparing 2023 volumes to 2017 volumes, average traffic counts decreased by an average of 12%. Therefore, based on the 72-hour traffic counts, traffic volumes are still slightly below pre-pandemic conditions.

Intersection turning movement count volumes similarly increased by an average of 20% when compared to 2021 data. However, from 2019 to 2021, intersection turning movement count volumes decreased 21% which indicated traffic volumes are similar to pre-pandemic levels.

Table 7 below summarizes the results of the CMP Network monitoring. Maps of the monitoring results are shown in **Figure 4** (AM Roadway Segment LOS), **Figure 5** (PM Roadway Segment LOS), **Figure 6** (AM Intersection LOS), and **Figure 7** (PM Intersection LOS).

Table 7: 2023 CMP Network Monitoring Results

Roadway Type	# of CMP Segments	Before Interregional Exemption		After Interregional Exemption	
		LOS Standard Met	LOS Standard Not Met	LOS Standard Met	LOS Standard Not Met
Arterials	27	26	1	27	0
Multilane Highways	1	0	1	1	0
Two-Lane Highways	9	9	0	9	0
Freeways	16	6	10	16	0
Intersections	16	15	1	16	0
TOTAL	69	56	13	69	0

The results of the 2023 Monitoring Cycle show that 12 segments and one intersection were failing before interregional reductions were considered. After the reductions, all rose to an acceptable LOS above their respective standard. Therefore, no segment or intersection is considered deficient.

Figure 4: CMP Roadway Segment LOS – AM Peak Period

Figure 5: CMP Roadway Segment LOS – PM Peak Period

Figure 6: CMP Intersection LOS – AM Peak Period

Figure 7: CMP Intersection LOS – PM Peak Period

Companion Network

In addition to the biannual monitoring of the CMP network, the 2023 CMP monitoring efforts included monitoring the new Companion Network. This network includes roadway segments and intersections that C/CAG wanted to monitor congestion on, but are not included in the CMP network. It is provided for informational purposes only. The results of the monitoring of the Companion Network are summarized below in **Table 8** (AM peak period) and **Table 9** (PM peak period).

Table 8: 2023 Companion Monitoring Results (AM Peak Period)

Facility Type	# of Segments/Intersections	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
Roadway Segments	10	9	0	1	0	0	0
Intersections	17	0	4	3	5	2	3

Table 9: 2023 Companion Monitoring Results (PM Peak Period)

Facility Type	# of Segments/Intersections	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
Roadway Segments	10	7	2	1	0	0	0
Intersections	17	0	4	4	7	1	1

Weekend Monitoring

At four roadway segments and eight intersections on the Coastside (CMP and Companion Networks), weekend monitoring was conducted to analyze the effects of tourist traffic. The results of Weekend monitoring are summarized below in **Table 10** (AM peak period), **Table 11** (Mid-Day Peak Period), and **Table 12** (PM peak period).

Table 10: 2023 Weekend Monitoring Results (AM Peak Period)

Facility Type	# of Segments/Intersections	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
Roadway Segments	4	0	1	1	1	1	0
Intersections	8	0	1	4	2	1	0

Table 11: 2023 Weekend Monitoring Results (Mid-Day Peak Period)

Facility Type	# of Segments/Intersections	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
Roadway Segments	4	0	0	1	1	2	0
Intersections	8	0	0	1	2	2	3

Table 12: 2023 Weekend Monitoring Results (PM Peak Period)

Facility Type	# of Segments/Intersections	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
Roadway Segments	4	0	0	0	1	3	0
Intersections	8	0	0	1	3	0	4

Full details of the 2023 CMP monitoring efforts can be found in the *2023 CMP Monitoring Report* in **Appendix F**.

CHAPTER 4: SYSTEM PERFORMANCE

4.1 Purpose and Intent of Legislation

The California Government Code Section 65089(b)(2) requires each CMA to establish performance measures to evaluate current and future multimodal system performance for the movement of people and goods. At a minimum, these performance measures shall incorporate highway and roadway system performance, and measures established for the frequency and routing of public transit, and for the coordination of transit services provided by separate operators. These performance measures shall support mobility, air quality, land use, and economic objectives, and shall be used in the development of the CIP, deficiency plans, and the land use impact analysis program.



Caltrain serves most of San Mateo County, with stops in all cities along the US 101 corridor

Consistent with past CMPs, performance measures are included in this CMP and described in this chapter. The measures should not be confused with “standards,” as no level of performance is required. Rather, measures simply indicate the levels of performance at a given time.

4.2 San Mateo County Performance Measures

The below performance measures help determine whether the goals of the CMP are being met. The goals relate to supporting mobility, air quality, land-use, and economic objectives. These measures are also used in the development of a CIP, deficiency plan, and the land-use analysis program. The *2023 CMP Monitoring Report* in **Appendix F** contains detailed results of the monitoring of each performance measure.

Four performance measures were selected for the 1997 CMP and retained for subsequent CMPs. Beginning with the 2003 CMP, the Pedestrian and Bicycle Improvement performance measure was increased to encourage more improvements in new projects. Monitoring will be done biennially. The results will be used for planning purposes and to identify where additional measures may be needed to better assess the degree to which congestion is improving or worsening.

These measures will be evaluated for peak commute periods (7am-9am and 4pm-6pm), when congestion levels are at their highest. The four measures are:

Roadway Level of Service (LOS)

This performance measure provides an overview of the operating level of the roadway system in San Mateo County. It is already included in the CMP and LOS standards have been set for selected roadway segments and intersections. Roadway LOS is measured using commercially available INRIX average speed data, 72-hour traffic counts, and intersection turning movement counts. Roadway segment LOS is calculated using either average speeds (freeways/multilane highways), or a V/C ratio (two-lane highways and arterials) and assigned based on HCM 1994 methodology. Intersections are modeled in Synchro software and assigned LOS based on HCM 2010 methodologies (or HCM 2000 where signal parameters prevented use of HCM 2010). A summary of the 2023 monitoring results is located in Chapter 3, while the complete *2023 CMP Monitoring Report* is included in **Appendix F**.

Travel Times for Single-Occupant Automobiles, Carpools, and Transit

This performance measure determines the amount of time required to traverse the US 101 corridor on a variety of modes. Travel times are measured from the northern county border to the southern county border. Four modes are included: single occupancy vehicle, high occupancy vehicle (HOV), Caltrain, and SamTrans bus. Average speed data from INRIX already used in the LOS monitoring was used to determine travel times for single occupancy vehicle. Floating car surveys were conducted in the HOV lane on US 101 between the Santa Clara County Line and Whipple Avenue. These travel times were summed with the INRIX average speed calculated travel time to drive the remaining distance to the San Francisco County Line, as a person driving a high occupancy vehicle would travel in the mixed flow lanes north of Whipple Avenue. Transit schedules in effect during the monitoring period of May 2023 were used to determine travel times for Caltrain and SamTrans Route 398. Full details of this analysis is available in the *2023 CMP Monitoring Report* in **Appendix F**.

Pedestrian and Bicycle Improvements

The purpose of this measure is to ensure that pedestrian and bicycle travel is being incorporated in new transportation improvement projects. This measure will be accomplished by considering pedestrian and bicycle facilities in the design for all transportation projects in the CMP's CIP. If a new transportation improvement project does not incorporate pedestrian and bicycle travel, it must provide justification for such.

A summary of current bicycle/pedestrian planning efforts in San Mateo County, bicycle/pedestrian counts at the CMP and Companion Network intersections, and historical bicycle/pedestrian volume comparisons can be found in Chapter 4 of the *2023 CMP Monitoring Report* in **Appendix F**.

Ridership/Person Throughput for Transit ⁴

This measure will evaluate the numbers of individuals that use transit during peak periods. It will be measured by accumulating available ridership data from transit agencies that provide service in San Mateo County. It will be used to determine whether transit ridership is growing, and how the various transit modes (SamTrans, Caltrain, BART) compare among themselves. Details are provided in Chapter 4 of the *2023 CMP Monitoring Report* in **Appendix F**.

4.3 California Senate Bill (SB) 743

SB 743 (Steinberg) was signed into law in 2013 by Governor Jerry Brown and aimed to replace the metric used to measure the transportation impact assessment in the California Environmental Quality Act (CEQA) process from a delay-based metric such as traffic LOS to another metric such as VMT. Initial guidance regarding transportation impact assessment under CEQA guidelines was released in December 2018 with statewide application beginning on July 1, 2020.

CMP legislation requires use of a delay-based metric, (LOS), to measure roadway performance. However, separate and unrelated efforts to the CMP, such as the recently adopted CEQA guidelines based on Senate Bill (SB) 743 require (VMT) as the primary metric for traffic impacts under CEQA. Hence, different metrics are

⁴ There are several private companies located within the county offering private bus/shuttle services for their employees that contribute in the reduction of "Drive Alone" trips.

currently used to report roadway and traffic conditions depending if the analysis is required to meet CEQA requirements. It is anticipated that CMP legislation will be amended at some point in the future to better align with the changes to VMT as the metric.

Since the CMP legislation has not been updated to provide new guidance with regard to performance metrics, no changes in methodology in this regard have been implemented for the 2023 CMP monitoring cycle.

Notwithstanding the CMP legislation, it is recommended that C/CAG to initiate a process to evaluate the CMP Roadway Network as well as the most appropriate performance monitoring measures to be adopted for use by C/CAG in order to prepare for the next cycle of the CMP update, scheduled for 2025.

C/CAG has developed a SB 743 VMT Regional Baseline Study and VMT Estimation Tool, which will assist in understanding baseline VMT data in San Mateo County and assessing the potential VMT of a proposed project. It is possible this will play a role in the transition to VMT as the primary metric.

CHAPTER 5: TRIP REDUCTION AND TRAVEL DEMAND ELEMENT

5.1 Purpose and Intent of Legislation



Commute.org operates 29 shuttle routes throughout San Mateo County, such as this one at Oyster Point in South San Francisco (Source: Commute.org)

TDM strategies are utilized to improve efficiency of the existing transportation systems without significant expansion of the infrastructure. These strategies focus on ways to reduce solo driving and/or eliminate some of the need for driving altogether. Some of the commonly used strategies aimed at reducing single occupant vehicles include carpool, vanpool, bicycles, transit, and park and ride lots. Strategies to reduce VMT include alternatives such as telecommuting, flexible work schedules and parking cash-out programs. Improving a balance between available jobs and housing also encourages non-auto modes of transportation. Use of TDM strategies help cities and counties in their attempt to balance the growing need for transportation and availability of limited transportation dollars.

The CMP is required to include all elements identified in the California Government Code Section 65089(b) Subsection (3) that outlines projects and strategies that promote alternate modes of transportation and thereby help reduce traffic congestion and improve air quality. As local governments review new development proposals and make key decisions on planning and zoning matters, they have an opportunity to ensure that TDM measures are adequately factored into the decision making process. As they develop and adopt their annual operating and capital budgets, they can allocate necessary funds so that the TDM strategies are adequately financed and implemented in a timely manner. Although not required, local governments may also choose to support (through resolution or other means) regional TDM measures, including carpool lanes and ridesharing facilities and programs, which could be implemented by other agencies, such as C/CAG or MTC.

5.2 Measure A and Measure W

In June 1988, voters in San Mateo County approved Measure A that created the San Mateo County Transportation Authority (SMCTA) and authorized a half-cent increase in the local sales tax for a period of 20 years to finance specified transportation improvements. The improvements, including transit and highway projects, were listed in the Transportation Expenditure Plan and were incorporated into the ballot measure. Measure A also required SMCTA to adopt, in conjunction with the cities/towns and the County of San Mateo, a Transportation System Management (TSM) Plan. The San Mateo County Transportation System Management Plan was developed and adopted in 1990.

In November 2004, voters in San Mateo County approved the continuation of Measure A to be in effect from 2009 to 2033. The continuation of Measure A includes the Bicycle and Pedestrian Program (\$45 million over 25 years) which will provide safe paths for bicyclists and pedestrians and the alternative Congestion Relief Program (\$15 million over 25 years) which allocates one percent of the total revenue to fund traffic management projects and creative congestion relief programs.

Measure A

Measure A mandated that every jurisdiction in San Mateo County have a TSM/TDM plan/program in order to be eligible to receive Measure A funds. The Measure A TSM Plan is the mandated TSM/TDM program for San Mateo County and the primary funding source for this effort. It requires that local jurisdictions implement TSM/TDM programs in order to be eligible to receive Measure A funding.

Measure W

In 2018, San Mateo County voters approved Measure W, which authorized a half-cent sales tax increase to improve transit and relieve traffic congestion. 50% of the funds are administered by SamTrans and utilized for county public transportation services. The remaining 50% is administered by SMCTA and is used for countywide highway congestion relief (22.5%), local safety, pothole, and congestion relief improvements (12.5%), bicycle/pedestrian improvements (5%), and regional transit connections (10%).

Projects/programs implemented under Measure W most follow its core principles:

- Relieve traffic congestion countywide

- Invest in a financially sustainable public transportation system that increases ridership, embraces innovation, creates more transportation choices, improves travel experience, and provides quality, affordable transit options for youth, seniors, people with disabilities, and people with lower incomes
- Implement environmentally-friendly transportation solutions and projects that incorporate green stormwater infrastructure and plan for climate change
- Promote economic vitality, economic development, and the creation of quality jobs
- Maximize opportunities to leverage investment and services from public and private partners
- Enhance safety and public health
- Invest in repair and maintenance of existing and future infrastructure
- Facilitate the reduction of VMT, travel times and greenhouse gas emissions
- Incorporate the inclusion and implementation of complete street policies and other strategies that encourage safe accommodation of all people using the roads, regardless of mode of travel
- Incentivize transit, bicycle, pedestrian, carpooling and other shared-ride options over driving alone
- Maximize traffic reduction potential associated with the creation of housing in high-quality transit corridors

5.3 Current TSM/TDM Programs in San Mateo County

C/CAG recognizes that as a result of regional job and population growth patterns and increased travel demand, the peak-period travel speeds will continue to deteriorate on freeways and arterials within the County. Due to limited availability of funds and opportunities for system expansion, it is critical that various TDM strategies are utilized to address the growing transportation needs of County residents and businesses. Along with improving roadway operations and improving local transit service in response to this forecasted growth in traffic, it is also important to implement TDM measures to improve the operating efficiency of the existing county transportation system. The TDM element of the CMP encourages an on-going process that promotes local and regional planning to reduce traffic congestion.

Local governments in San Mateo County implement trip reduction programs in response to the requirements under Measure A to, among other things, maintain eligibility for Measure A funds. The 19 cities and towns as well as the County of San Mateo are members of the Peninsula Traffic Congestion Relief Alliance, also known as Commute.org, which is the TDM agency in the County. Commute.org and its members seek to promote, encourage, and incentivize people to use transportation options other than driving alone. The goal of TDM

programming is to shift demand for transportation across all available modes including walking, biking, transit, telework, and ridesharing.

Working directly with employers, commuters, residents and community partners, Commute.org helps people find and use alternatives to driving alone by encouraging and promoting the use of sustainable transportation modes, thus reducing traffic congestion and improving air quality.

To reduce the number of single occupant vehicles traveling throughout San Mateo County, Commute.org offers a suite of commute alternative programs that encourage people to use public transit, vanpools, carpools, shuttles, bicycles, and telework, as alternatives to driving alone.

Commute.org is funded by the City/County Association of Governments of San Mateo County, the San Mateo County Transportation Authority, and the Bay Area Air Quality Management District. Additionally, Commute.org receives funding from over 50 private employers, residential property developers and commercial property managers.

Specific programs offered through Commute.org include:

Shuttles

Commute.org operates shuttle services that connect commuters to transit stations throughout San Mateo County. These shuttles provide critical “first and last mile” transportation that makes commuting via public transit a viable alternative to and from the county.

Funding is provided through a combination of grants and the financial contributions of employers, property managers, cities, and transit agencies. Commute.org’s commuter shuttles serve BART and Caltrain stations as well as the South San Francisco ferry terminal.

When developers consider building residential or commercial space or businesses look to relocate in San Mateo County, Commute.org’s staff meets with them to review options for first/last mile service to their locations. Options typically include:

- Joining an existing shuttle consortium
- Establishing a new shuttle
- Funding the expansion of an existing route

Employer Programs

Commute.org's Engagement team works with employers to address commute-related issues, including local and regional TDM regulations and commuter pre-tax benefit programs. By developing strong relationships with employers and becoming a trusted partner, Commute.org can leverage those relationships and reach significantly more commuters in San Mateo County.

The Engagement team is the conduit between the employer and the TDM programs that are offered by the agency. Services provided by the team include:

- **Transportation Surveys** - Commute.org assists employers with the creation and distribution of transportation surveys to obtain data necessary to design or update effective transportation programs.
- **Employee Consulting During On-Site Events** - Commute.org participates in health and benefits fairs, open enrollment events, and special programs, assisting employees one-on-one at employer worksites.
- **Bay Area Commuter Benefit Program Compliance** – Commute.org works with employers in San Mateo County to make sure that they register for the program and remain compliant.
- **Best Workplaces for Commuters** – Commute.org works with employers to achieve recognition in this prestigious program. In order to receive this designation an employer is required to meet very stringent criteria which translates into more employees having better options for commuting.
- **Bicycle Safety Workshops** - Commute.org works with employers, property managers, and community groups to conduct bicycle safety workshops. The primary goal is to encourage commuters to consider bicycling as an alternative to driving alone and as a first/last mile alternative when they use public transit.
- **Commuter Programs Platform** – Commute.org provides employers and community partners with the opportunity to have their own STAR platform “network” for their employees and/or tenants. This allows employers to provide their employees with incentives and rewards that are unique to the employer while at the same time allowing the employees to take advantage of the broad suite of programs available to the public through the STAR platform. It is particularly useful when an employer is looking to create a peer-to-peer carpool or vanpool program for employees.

Commuter Programs

The Commuter Programs team develops, promotes and supports a wide range of incentives, rewards, challenges and insurance programs aimed at any who commutes to or from San Mateo County.

Most of the commuter programs operate on the STAR (Support, Track and Reward) platform. STAR is an online platform and that is available to commuters and employers to encourage commuters to use alternatives to driving alone to work. STAR is accessed online at my.commute.org and on the Commute Tracker app.

With STAR, commuters can discover and plan commute options to work, which include carpool, vanpool, transit, shuttle, bicycling and walking. When STAR commuters log their commute trips in their STAR account, they gain access to rewards, incentives, programs and challenges.

Employers can also use the STAR platform with a private network for their employees to encourage carpooling, load specific incentives or challenges for their employees and run commute impact reports for their network.

Other programs provided by the Commuter Programs team include:

- **Guaranteed Ride Home (GRH) Program** - The GRH program reimburses commuters who chose to carpool, vanpool, take transit, bicycle or walk to work or college in San Mateo County with a free trip home, up to \$60 per trip (4 times a year), in the event of a qualified emergency.
- **Ridematching** – Commute.org facilitates the process of finding carpool and vanpool partners using the STAR platform’s trip planning tools.
- **Carpool Incentive** – Commuters who carpool or vanpool can receive up to \$100 per year in e-gift cards. For each 10 days that someone carpools or vanpools (driver or passenger), they can receive a \$25 reward up to four times in each calendar year.
- **Try Transit Program** - Employees and residents who do not currently use public transit to commute can try transit for free under this program. Commute.org distributes tickets provided by public transit agencies such as Caltrain, SamTrans, and San Francisco Bay Ferry, to encourage people to try transit as an alternative to driving alone.
- **Caltrain GoPass Distribution Program** – Commute.org partners with Caltrain to distribute GoPass tickets to income qualifying commuters. The program is part of Caltrain’s fare equity program. Commute.org promotes the program to essential businesses in San Mateo County and works closely with a range of program partners to find commuters who can benefit from free Caltrain tickets and use Caltrain as an alternative to driving alone.

- **Commute Planning** – Commuters can receive personalized trip planning services from the Commute.org TDM team. The team provides applicants with options to driving alone from their origin to their work location.
- **Employer Symposium** - An annual symposium for San Mateo County employers where TDM best practices and techniques are shared by industry professionals and employers who have successfully deployed programs.
- **Commuter Challenge** - During the months of April and May, Commute.org gives hundreds of prizes away to commuters who discover and use transportation options other than driving alone to work. Trips are logged on the STAR platform and reward recipients are selected at random from qualifying participants.
- **Bike to Work Day** – This event is celebrated across the Bay Area and is typically held in early May and promotes bicycling as an alternative way to commute. Commute.org is a sponsor of the event and works with local bicycle organizations to promote Bike Month and Bike to Work Day to commuters in San Mateo County.

In addition to services and programs offered by Commute.org, other agencies are operating programs to reduce car trips and promote alternative modes of transportation.

Safe Routes to School (SR2S)

The San Mateo County Office of Education (SMCOE) operates the SR2S Program in San Mateo County. The goal of the program is to enable and encourage children to walk or bike to school by implementing projects and activities to improve health and well-being, safety, and reduce traffic congestion due to school-related trips. The program helps to improve safety, promote a healthy lifestyle among youth, and enhance the sense of community in neighborhoods. Typical activities of the SR2S program include classroom education, special events (such as bike rodeos), infrastructure projects near schools, crossing guards, countywide events (such as International Walk to School Day), and more.

The SR2S program has been in operation in San Mateo County for over a decade and partners with 13 school districts, as well as cities/towns, regional and state agencies, and organizations to implement its vision. In the 2022-2023 school year, the program hosted 155 events such as bicycle rodeos, assemblies and classes at 107

schools and conducted seven walkability and bikeability audits. Funding for SR2S is provided by C/CAG through various grant sources.

Bicycle and Pedestrian Planning

Bicycling and walking is a critical component of reducing single-occupancy vehicle usage and is a sustainable mode to commute to work. C/CAG, the cities/towns, and the County are active in implementing the vision for more bicycling and walking infrastructure in San Mateo County. The San Mateo County Comprehensive Bicycle and Pedestrian Plan was updated in 2021 and adopted by the C/CAG Board at their June 2021 meeting. The updated plan proposes 250 miles of bicycle projects and pedestrian projects that address gaps to transit, between jurisdictions, or are within pedestrian priority areas. In addition to the C/CAG plan, at least 13 cities/towns in San Mateo County have their own bicycle/pedestrian plans.

5.4 Local TSM/TDM Programs

Measure A includes a Local Transportation Services element, which provides funding to increase the use of public transit by the residents of each local community, thereby reducing local congestion. Local jurisdictions are encouraged to participate in experimental efforts to provide transportation services for its residents that meet the unique characteristics and needs of that jurisdiction. The following section details some of the TSM/TDM being implemented by local agencies/employers:

City of Menlo Park Shuttles

The City of Menlo Park has always strived to enhance the quality of life for its residents, employees and visitors by encouraging commute alternatives. Menlo Park was the first city along the Peninsula to establish a shuttle program, which transports employees from the Caltrain station to business parks. It was also the first city to launch a Midday shuttle program, which has become a popular local service for many.

The City of Menlo Park manages the following free services/programs:

- Two Caltrain shuttles (M3 Marsh Rd and M4 Willow Rd shuttles): Operates during AM and PM peak hours taking passengers from Caltrain to their businesses, schools, shopping or appointments.
- M1 Crosstown Shuttle: Operates from Del Norte to Sharon Heights approximately every 1-2 hours between 8am and 5pm.
- Shoppers Shuttle: Picks up passengers door-to-door to shopping, medical appointments, the library, etc. Operates in Menlo Park on Wednesdays and Saturdays from 9:30AM to 12:30PM, and travels to Redwood City on Tuesdays from 9:30AM to 1:30PM

City of South San Francisco TDM Ordinance

The City of South San Francisco has adopted a comprehensive and enforceable TDM ordinance to address transportation related impacts of new development by requiring projects to provide amenities and features that will foster a better bicycle/pedestrian environment, support transit, and make it easier and more appealing for residents, employees, and visitors to use alternatives to driving or driving alone.

City of Belmont TDM Program

The City of Belmont has implemented a TDM program. Most new developments in Belmont will need to incorporate TDM measures.

The City has adopted a points-based system to evaluate proposed projects, which must achieve a points target based on their type and size. TDM measures are each worth a certain number of points and new projects must include a combination of measures whose total points meet the target for its proposed uses.

San Francisco International Airport (SFO)

SFO initiated a successful BART discount program for all badged Airport employees in October 2010. The discount card was further expanded to all Airport employees in summer of 2019. The Airport works closely with its tenants, the San Francisco Department of the Environment, and Commute.org toward participation of tenants in the mandated SFO Commuter Benefits Program, offering employers a choice of subsidizing part of their employees' transit or vanpool costs, or offering employees a pretax savings through payroll deduction. The Airport is also looking at promoting and incentivizing more vanpools, shuttles, and other non-single occupancy vehicle modes to get employees to work.

5.5 Jobs and Employed Residents Balance

An important component of managing transportation demand is to strive for a good balance between jobs and employed residents in a city or county. Counties that have more jobs than employees to fill them tend to import more commuters from other surrounding counties, while counties with more employees than jobs export their commuters to other areas. This section explores commute modes among San Mateo County residents, projected jobs/employees, and where work trips to, from, and through San Mateo County are coming from/going to.

Data for mode of transportation to work by San Mateo County employed residents from the US Census Bureau are presented in **Table 13**.

Table 13: San Mateo County Employed Residents – Commute to Work by Mode

Mode of Transportation	2021	% of Total	2019	% of Total	2017	% of Total
Drive Alone	246,243	61%	274,524	67%	274,829	67%
Carpool	37,463	9%	38,805	9%	44,651	11%
Public Transportation	34,575	9%	49,538	12%	46,772	11%
Walked	9,833	2%	9,495	2%	11,565	3%
Motorcycle						
Bicycle	12,820	3%	15,274	4%	12,763	3%
Other Means						
Work at Home	59,555	15%	25,182	6%	19,341	5%
Total Employed Residents	400,489		412,818		409,921	
Total Population	764,442 (2020)		764,442 (2020)		769,545	

Source: US Census American Community Survey 2021

Table 13 shows that employed residents that worked from home more than doubled due to the COVID-19 pandemic and quarantine orders, with 15% of the population working from home. Commute trips made by transit declined by 3 percent and drive alone trip declined by 6% from 2019 to 2021. The number of commute trips by walking and carpooling remained steady at 2% and 9% of total commute trips, respectively.

Another of the actions recommended in AB 471 to reduce roadway congestion is to try to improve an area's (in this case, San Mateo County's) balance between available jobs and housing opportunities. The intent of this legislative requirement is to reduce the number of long-distance commute trips that have to be made when individual jurisdictions or groups of jurisdictions offer more employment opportunities than affordably priced housing to accommodate the work force.

The Association of Bay Area Governments (ABAG) projected, as shown in **Table 14**, the number of jobs to be in San Mateo County will grow faster than the number of county residents seeking employment. An ideal "Employment-to-Employed Residents" ratio is 1.0, which indicates that every resident seeking a job can find one within the community. An "Employment-to-Employed Residents" ratio greater than 1.0 indicates that the community provides more jobs than it has residents seeking jobs. Conversely, a ratio of less than 1.0 indicates a community has fewer jobs than Employed Residents demanding employment. As the table below shows, the

current balance between jobs and employed residents is 1.04, but is projected to steadily decrease over the next two decades to 0.94.

Out of balance conditions in either scenarios would likely result in traffic congestion associated with either more people coming to jobs from outside the County or more residents needing to commute outside the County for employment.

Table 14: Projected Jobs and Employed Residents in San Mateo County

	2020	2025	2030	2035	2040
Employment (Total Jobs)	399,275	415,305	423,005	436,205	472,045
Employed Residents	415,275	420,235	433,655	437,190	446,040
Ratio of Employment to Employed Residents	1.04	1.01	1.02	1.0	0.94

Source: ABAG/MTC Projections 2040 from Plan Bay Area 2040.

Table 13 does not take into account the fact that not all San Mateo County employed residents work in the county and not all jobs in San Mateo County are filled by its residents. **Tables 15, 16, and 17** present the different types of work-related trips in San Mateo County which include people commuting within San Mateo County, people commuting from San Mateo County to other counties, people commuting from outside counties into San Mateo County, and people commuting through San Mateo County. All data is based on the C/CAG-VTA Model.

Table 15: Trips to Work by San Mateo County Residents

	2015	% of Total	2040	% of Total	Increase in Trips	Percent Change
Within San Mateo County	307,957	57.9%	364,483	56.6%	+ 56,526	+ 18.4%
To North	117,859	22.2%	155,235	24.1%	+ 37,376	+ 31.7%
To East	22,937	4.3%	28,946	4.5%	+ 6,009	+ 26.2%
To South	82,989	15.6%	94,900	14.8%	+ 11,911	+ 14.4%
Total Trips	531,742		643,564		+ 111,822	+ 21.03%

Table 16: Trips to Work in San Mateo County Originating from Outside the County

	2015	% of Total	2040	% of Total	Increase in Trips	Percent Change
From North	75,542	34.7%	88,860	34.1%	+ 13,318	+ 17.6%
From East	75,652	34.7%	82,409	31.7%	+ 6,757	+ 8.9%
From South	66,666	30.6%	89,028	34.2%	+ 22,362	+ 33.5%
Total Trips	217,860		260,297		+ 42,437	+ 19.5%

Table 17: Trips to Work through San Mateo County

	2015	% of Total	2040	% of Total	Increase in Trips	Percent Change
Through to North & to East	20,733	34.6%	36,256	46.5%	+ 15,523	+ 74.9%
Through to South	39,176	65.4%	41,670	53.5%	+ 2,494	+ 6.4%
Total Trips	59,909		77,926		+ 18,017	+ 30.1%

Source: C/CAG-VTA Model

One thing that can be observed by these tables is that while there is a significant increase in the number of trips that will be generated in 2040, the change in the distribution of those trips is not projected to significantly change, with the exception being trips through San Mateo County. Residents commuting to other areas outside the county will slightly increase in 2040, but not significantly when compared to the number of trips being added (over 111,000 in total).

TDM is critical to encouraging alternative modes and shorter commutes, where possible. The data in this section shows that San Mateo County is going to increase in the amount of jobs, but not in the amount of employees to fill them. TDM can help to assist new commuters in utilizing different modes, and thereby, reducing the amount of vehicle congestion.

CHAPTER 6: LAND USE IMPACT ANALYSIS PROGRAM

6.1 Legislative Requirements



US 101 in Burlingame

Section 65089(b)(4) of the California Government Code requires that a CMP include a program to analyze the impacts of land use decisions made by local jurisdictions on the regional transportation system (both highways and transit).

The Land Use Analysis Program must include an estimate of the cost to mitigate impacts of development on the highway and transit systems. The legislation allows

the cost of mitigating interregional travel (trips that do not begin in San Mateo County or trips that travel entirely through San Mateo County) to be excluded from the mitigation cost estimate. Public and private (developer) contributions to regional transportation improvements may be credited.

The legislation does not modify the role of local jurisdictions in making land use decisions and in determining the responsibilities of project proponents to mitigate those impacts. The legislation, however, does place the C/CAG in the role of monitoring congestion on the CMP network and requiring the preparation of deficiency plans when LOS has been degraded below adopted standards. Further guidance on the Land Use Analysis Program is found in the Congestion Management Resource Handbook (Caltrans, November 1990, pages 36-38).

The Land Use Analysis Program is particularly important because it affects, or is affected by:

- The CMP Designated Transportation System and Roadway LOS standards (see Chapters 2 and 3);
- Performance Measures (see Chapter 4);
- C/CAG-VTA Model, which can be used to analyze the impacts of land use changes on both highways and transit (see Chapter 9); and
- The CIP (see Chapter 8).

The intent of the Land Use Analysis Program is to improve the linkage between local land use decisions and regional transportation facility decisions; to better assess the impacts of development in one community on another; and to promote information sharing between local governments when the decisions made by one jurisdiction have an impact on another.

6.2 TDM Policy Update

In September 2021, the C/CAG Board voted to adopt an updated TDM Policy and incorporate it into the CMP Land Use Impact Analysis Program. The C/CAG TDM Policy requires new development projects that generate at least 100 Average Daily Trips (ADT) to complete a TDM Checklist committing them to reduce vehicle trips to the site by implementing TDM measures. All C/CAG member jurisdictions must comply unless expressly exempt by C/CAG due to local requirements meeting or exceeding the trip reduction targets set by the Policy.

To support the TDM Policy, C/CAG identified Commute.org as the partner agency responsible for providing guidance to local jurisdictions and project applicants. Commute.org developed a monitoring and compliance reporting program and conducts the monitoring and compliance aspects of the program to ensure that developers and their tenants follow through on their TDM commitments.

6.3 Land Use Impact Analysis Program

C/CAG has adopted a three-tiered process to analyze the impact of land use developments on the regional transportation network. The three different tiers will provide C/CAG and jurisdictions with the technical and policy-making means necessary to determine the impacts of land use proposals on the CMP network. These tiers are as follows:

- Tier 1: Long Range Planning Analysis
- Tier 2: Individual Large Development Analysis
- Tier 3: Cumulative Development Analysis

Each tier has been broken down into steps to follow, which are described each in turn below.

Tier 1: Long Range Planning Analysis

Step 1: Testing the Impact of Future Land Use Changes

Tier 1 Analysis will determine what transportation improvements will be needed on the CMP network in the year 2040 based on a county wide land use plan, which reflects desired levels and types of development. This analysis will be conducted for both the CMP and the Countywide Transportation Plan (CTP).

The C/CAG-VTA Model will be used to identify the impacts of future land use and transportation alternatives on the CMP network. Specifically, it will test what the impacts are of ABAG 2040 population and employment projections. These ABAG projections will be modified on a city-by-city basis to reflect more realistically existing and future land use conditions based on recently collected data from all jurisdictions in the County.

Step 2: Development of CIPs and Financial Plan

The CTP indicates which projects should be included in future CIPs to relieve congestion the most effectively. C/CAG will make recommendations to the cities/towns, County, SamTrans, SMCTA, and the Joint Powers Board when they formulate future CIPs. The C/CAG Board adopted the most recent San Mateo County Transportation Plan 2040 (SMCTP 2040) at the February 2017 meeting.

The SMCTP 2040 Follow-up Implementation Phase includes the effort of convening a Working Group. It is anticipated that the Working Group will discuss and refine strategies by learning, obtaining, providing input, and advising C/CAG staff on the following key follow-up items:

- Alignment of funding with vision statement established by the SMCTP 2040;
- Consider additional strategies to analyze equity; and
- Consider potential additional performance measures and targets to support goals, vision, and objectives set out by the SMCTP 2040.

Tier 2: Individual Large Development Analysis

Step 1: Applicability

All new development project anticipated to generate 100 ADT or more will be required to implement TDM measures in accordance with the C/CAG TDM Policy Update Approach, which has been adopted as part of the San Mateo County Congestion Management Program (CMP). The full updated policy, as well as an implementation guide is included in Appendix I.

Step 2: Notification

At the beginning of the CEQA process, or within 10 days of receipt of an application, local jurisdictions will notify C/CAG of all development applications that are expected to generate 100 or more weekday Average Daily Trips (ADT) on the CMP network. Such notice shall include a brief project description (land use type, size, location), and acknowledgement that the project will be subject to the TDM Policy Requirements outlined in Appendix I. Projects will be divided into two groups (Small Projects and Large Projects) depending on the size of the project and the number of ADT. **Table 18** details the approximate thresholds for various land use types and typical project sizes (in sq. ft., number of employees, or number of units).

Table 18: ADT Thresholds, Correlated with Project Size Characteristic

	Small Projects	Large Projects
Non Residential: Office, R&D, Industrial, & Institutional	100-499 ADT (10,000-49,999 sq. ft.)	500+ ADT (50,000+ sq. ft.)
Non-Residential: Medical & Lodging	100-499 ADT (10,000-49,999 sq. ft.)	500+ ADT (50,000+ sq. ft.)
Non-Residential: Retail & Restaurant	100-499 ADT (30-99 employees)	500+ ADT (100+ employees)
Residential: Multi-Family	100-499 ADT (20-49 units)	500+ ADT (50+ units)

Small projects and large projects will be subject to different goals and monitoring and reporting requirements. The tiered approach allows C/CAG to expand the reach of the TDM policy, improve monitoring and reporting, and minimize financial and administrative burdens to developers, property managers, local agencies, and C/CAG staff.

Step 2: Testing of Large Development Proposals

In addition to local streets and roads, local jurisdictions will assess the impacts of large development proposals on the CMP network during their CEQA review process. All jurisdictions will report the findings of their analyses to C/CAG.

Jurisdictions may use their own site TIAs, their own travel forecasting models, or the C/CAG-VTA Model to assess the impacts of large development proposals on the CMP network. If a jurisdiction uses its own travel forecasting model to assess impacts, it must be consistent with MTC's regional model and C/CAG's modeling and measurement standards. C/CAG will make consistency findings as needed.

Step 3: Mitigation and Conformance

Local jurisdictions must ensure that the developer and/or tenants will mitigate the ADT generated by the project by selecting one or more of the options that follow. It is up to the local jurisdiction working together with the project sponsor to choose the methods that will be compatible with the intended purpose of the project. This list is not all inclusive. Additional measures may be proposed for consideration by C/CAG in advance of approving the project.

- Reduce the scope of the project so that it will generate less than 100 ADT.
- Build adequate roadway and/or transit improvements so that the added trips will have no measurable impact on the CMP roadway network.
- Contribute an amount per trip to a special fund for improvements to the CMP roadway network. This amount will be set annually by C/CAG based on a nexus test.
- Require the developer and all subsequent tenants to implement TDM programs that mitigate the ADT through implementation of a set of TDM measures identified in one of the following TDM Checklists, based on land use and ADT:
 - Large Non-Residential (Office, Industrial, Institutional)
 - Small Non-Residential (Office, Industrial, Institutional)
 - Large Residential
 - Small Residential
 - Large Non-Residential (Medical/Lodging)
 - Small Non-Residential (Medical/Lodging)
 - Large Non-Residential (Retail)
 - Small Non-Residential (Retail)

(Note that for Mixed Use projects, the land use type that generates the majority of ADT will define the TDM checklist that should be utilized, but the combined ADT of all the uses will determine whether the project is defined as "small" or "large".)

- Applicants shall select all “Required” TDM measures and enough “Additional Recommended” measures within the Checklist to meet the minimum targeted trip reduction requirement.

Table 19: Vehicle Trip Reduction Targets for TDM Plans

	Small Projects	Large Projects	Transit Oriented Development (Small & Large)
Non-Residential: Office, Industrial, & Institutional	35%	35%	25%
Non-Residential: Medical & Lodging	35%		
Non-Residential: Retail	35%		
Residential: Multi-Family	25%		

Step 4: Credit for Contribution

If a jurisdiction is required to prepare a deficiency plan for a CMP roadway segment or intersection for which it has previously used local public or private funds to help prevent the degradation of LOS, then C/CAG will give that jurisdiction credit for its prior contribution and appropriately reduce the amount of mitigation required by the deficiency plan. C/CAG will develop and adopt a procedure for calculating the amount of credit to be provided.

Tier 3: Cumulative Development Analysis

Step 1: Notification

Once every two years, local jurisdictions will inform C/CAG of all development proposals or land use changes that will replace or add to current or projected levels of development. This process will update the land use data base used by the C/CAG-VTA Model every two years.

Step 2: Testing of Cumulative Impacts

Each update of the C/CAG-VTA Model (generally done every two to four years) will include a test of the impacts of cumulative development as projected by ABAG throughout the County on the CMP network. Results of this analysis will be reported to C/CAG and local jurisdictions in San Mateo County.

Step 3: Analysis of Results

This cumulative analysis may be used to determine existing LOS on the CMP network or to project future LOS. This analysis may be used for several purposes: (1) identifying where existing LOS has been degraded, (2) anticipating future congested hot spots on the CMP network, (3) shifting project priorities in CIPs, and (4) providing data for jurisdictions to use in the development of site TIAs and environmental assessments.

Step 4: Reporting Changes

The results of the analysis in Step 3 will be provided to local jurisdictions to alert them of locations within their boundaries where the amount of congestion is approaching the LOS standard. Hopefully this information can be used to avert the need for the development of some deficiency plans.

Compliance Monitoring

A copy of the Guidelines for implementing the land use component of the CMP, the revised TDM Policy, and the status of the land use impact analysis compliance monitoring is in **Appendix I**.

CHAPTER 7: DEFICIENCY PLAN GUIDELINES

California Government Code Sections 65089.3, 65089.4, and 65089.5 govern the conformance process. These sections require that C/CAG determine every two years whether San Mateo County, including cities/towns within the county, conform to the requirements of the CMP based on information obtained through monitoring. A CMP roadway segment or intersection can be found to violate the LOS standard when levels of service are monitored biennially.



Scenic section of I-280 Northbound approaching SR-92

The monitoring program occurs during the AM (7am-9am) and PM (4pm-6pm) peak periods. For the 2021 CMP Update, traffic counts were taken in April-May 2021. The LOS analysis based on these counts is consistent with the LOS methods outlined in the highway LOS standards (Chapter 3). Full details of the results of the monitoring program are in **Appendix F**.

The LOS standards for the roadway segments and intersections included in San Mateo County's CMP are presented in Chapter 3. When deterioration of the LOS on a given CMP roadway segment or intersection has not been prevented and a violation is identified through the monitoring process, the legislation provides local jurisdictions with the following two options for them to remain in conformance with the CMP:

- Implementation of a specific plan to correct the LOS deficiency on the affected network segment; or
- Implementation of other measures intended to result in measurable improvements in the LOS on the system-wide CMP network and to contribute to significant improvements in air quality.

With regard to the second option, in some situations, meeting the CMP's LOS standards may be impossible or undesirable. For these situations, deficiency plans allow local jurisdictions to adopt innovative and comprehensive transportation strategies for improving the traffic LOS on a system-wide basis rather than adhering to

strict, site-specific traffic LOS standards that may contradict other community goals. In other words, deficiency plans allow a violation of the traffic LOS to occur on one particular CMP roadway segment or intersection in exchange for improving other transportation facilities or services (e.g., transit, bicycles, walking, or TDM). For example, it may be impossible to modify a CMP roadway to meet its LOS standard because there is insufficient right-of-way available to add the number of lanes that would be necessary for that roadway segment or intersection to operate acceptably at the desired LOS. Should deficiency plans need to be prepared, alternate goals, such as higher density development near transit stations or better transit service, can be pursued.

Deficiency plans provide local agencies with an opportunity to implement many programs and actions that will improve transportation conditions and air quality. Some of these programs and actions include:

- Directly coordinating the provision of transportation infrastructure with planned land uses;
- Building new transit facilities and enhancing transit services;
- Providing bicycle facilities connecting with other transportation systems (transit stations, park-n-ride lots);
- Strengthening TDM programs; and
- Encouraging walking by providing safe, direct, and enjoyable walkways between major travel generators.

In addition, having to produce deficiency plans will affect the local land use approval process. For example, a local jurisdiction may have the discretion to deny approval of a development project if it is shown to negatively affect an already deficient CMP system roadway or intersection. Alternatively, to be approved, the sponsor of the development project could participate in the implementation of those actions emanating from a deficiency plan.

It is the intent of C/CAG to encourage local jurisdictions that may be responsible for the preparation of deficiency plans to connect the actions of deficiency plans with the overall countywide transportation planning process. Doing so will ensure that the action items in the deficiency plan are consistent with the goals of the CMP to increase the importance of transit, ridesharing, TDM measures, bicycling, and walking as ways to improve air quality and reduce congestion.

More information on the legislative requirements surrounding deficiency plans, as well as details on how/why a deficiency plan should be prepared, are located in **Appendix D**.

7.1 Current Deficiencies

C/CAG retained TJKM Transportation Consultants to conduct the 2023 congestion monitoring of the 53 roadway segments and 16 intersections that comprise the CMP Roadway System in San Mateo County. A copy of the *2023 CMP Monitoring Report* is included in **Appendix F**.

The results of the 2023 Monitoring indicate 12 roadway segments and one intersection exceeded its LOS standard before the reduction of interregional trips. After the reduction of interregional trips, all of the failing segments and intersections rose to acceptable LOS above their standards. Therefore, ***no CMP roadway segment or intersection is considered deficient for the 2023 CMP.***

Tables 20 and **21** detail the current 2023 LOS for all CMP roadway segments and intersections both with and without interregional reductions.

Table 20: 2023 CMP Roadway Segment LOS

Route	Roadway Segment	LOS Standard	2023 LOS		LOS with Interregional Reduction - AM	LOS with Interregional Reduction - PM
			AM Peak Period	PM Peak Period		
SR-1	San Francisco County Line to Linda Mar Blvd	E	F	F	E	E
SR-1	Linda Mar Blvd to Frenchmans Creek Rd	E	D	D	-	-
SR-1	Frenchmans Creek Road to Miramontes Rd	E	E	E	-	-
SR-1	Miramontes Rd to Santa Cruz County Line	D	B	C	-	-
SR-35	San Francisco Co Line to Sneath Ln	E	B	A	-	-
SR-35	Sneath Ln to I-280	F	F	F	-	-
SR-35	I-280 to SR-92	B	C	C	-	-
SR-35	SR-92 to SR-84	B	B	B	-	-
SR-35	SR-84 to Santa Clara County Line	E	B	B	-	-
SR-82	San Francisco County Line to John Daly Blvd	E	A	A	-	-
SR-82	John Daly Blvd to Hickey Blvd	E	A	A	-	-
SR-82	Hickey Blvd to I-380	E	A	A	-	-
SR-82	I-380 to Trousdale Dr	E	A	A	-	-
SR-82	Trousdale Dr to 3 rd Ave	E	A	A	-	-
SR-82	3 rd Ave to SR-92	E	A	A	-	-
SR-82	SR-92 to Hillsdale Ave	E	A	B	-	-
SR-82	Hillsdale Ave to 42 nd Ave	E	A	A	-	-
SR-82	42 nd Ave to Holly St	E	A	A	-	-
SR-82	Holly St to Whipple Ave	E	A	A	-	-
SR-82	Whipple Ave to SR-84	E	A	A	-	-
SR-82	SR-84 to Glenwood Ave	E	A	A	-	-
SR-82	Glenwood Ave to Santa Cruz Ave	E	A	B	-	-
SR-82	Santa Cruz Ave to Santa Clara County Line	E	A	A	-	-
SR-84	SR-1 to Portola Rd	C	B	B	-	-
SR-84	Portola Rd to I-280	E	B	B	-	-
SR-84	I-280 to Alameda de las Pulgas	C	C	C	-	-

Route	Roadway Segment	LOS Standard	2023 LOS		LOS with Interregional Reduction - AM	LOS with Interregional Reduction - PM
			AM Peak Period	PM Peak Period		
SR-84	Alameda de las Pulgas to US-101	E	B	B	-	-
SR-84	US-101 to Willow Rd	D	B	A	-	-
SR-84	Willow Rd to University Ave	E	F	A	C	-
SR-84	University Ave to Alameda County Line	F	F	E	-	-
SR-92	SR-1 to I-280	E	E	E	-	-
SR-92	I-280 to US-101	D	F	F	D	D
SR-92	US-101 to Alameda County Line	E	F	F	D	D
US-101	San Francisco County Line to I-380	E	E	F	-	E
US-101	I-380 to Millbrae Ave*	E	E	F	-	E
US-101	Millbrae Ave to Broadway*	E	F	F	E	D
US-101	Broadway to Peninsula Ave*	E	F	F	D	D
US-101	Peninsula Ave to SR-92*	F	F	F	-	-
US-101	SR-92 to Whipple Ave*	E	E	F	-	D
US-101	Whipple Ave to Santa Clara County Line	F	F	F	-	-
SR-109	Kavanaugh Dr to SR-84 (Bayfront Expwy.)	E	A	C	-	-
SR-114	US-101 to SR-84 (Bayfront Expressway)	E	A	B	-	-
I-280	San Francisco County Line to SR-1 (north)	E	D	E	-	-
I-280	SR-1 (north) to SR-1 (south)	E	D	E	-	-
I-280	SR-1 (south) to San Bruno Ave	D	F	F	D	D
I-280	San Bruno Ave to SR-92	D	A	A	-	-
I-280	SR-92 to SR-84	D	A	E	-	D
I-280	SR-84 to Santa Clara County Line	D	A	F	-	D
I-380	I-280 to US-101	F	F	F	-	-
I-380	US-101 to Airport Access Road	C	A	A	-	-
Mission St	San Francisco County Line to SR-82	E	A	A	-	-
Geneva Ave	San Francisco County Line to Bayshore Blvd	E	A	A	-	-
Bayshore Blvd	San Francisco County Line to Geneva Ave	E	A	A	-	-

Table 21: 2023 CMP Intersection LOS

ID	Intersection	LOS Standard	2023 LOS		AM LOS with Interregional Trip Reduction	PM LOS with Interregional Trip Reduction
			AM	PM		
1	Bayshore Blvd/Geneva Ave	E	B	C	-	-
2	SR 35/John Daly Blvd	E	C	C	-	-
3	SR 82/Hillside	E	D	D	-	-
4	SR 82/San Bruno Ave	E	D	E	-	-
5	SR 82/Millbrae Ave	E	F	F	E	E
6	SR 82/Broadway	E	B	B	-	-
7	SR 82/Park Rd/Peninsula Ave	E	C	B	-	-
8	SR 82/Ralston Ave	E	E	E	-	-
9	SR 82/Holly St	E	D	D	-	-
10	SR 82/Whipple Ave	E	D	D	-	-
11	University Ave/SR 84	F	C	F	-	-
12	Willow Rd/SR 84	F	D	E	-	-
13	SR 84/Marsh	F	F	F	-	-
14	SR 84/Middlefield Rd	E	D	D	-	-
15	SR 1/SR92	E	D	D	-	-
16	Main St/SR 92	E	D	E	-	-

7.2 San Mateo County Congestion Relief Plan (CRP)

The C/CAG Board approved the CRP, which is a countywide deficiency plan to address any future deficiencies. The Plan, which was initiated in July 1, 2002 and updated in July 2023, is designed to provide support to all San Mateo County jurisdictions - CMP deficiency plans aim to reduce congestion and improve mobility in specific locations where additional support may be needed. Therefore, as the countywide deficiency plan, the CRP aims to achieve a similar goal across a broader area. Under the umbrella of improving mobility countywide, the CRP addresses four major goals: 1. Provide local transportation service in order to provide alternatives to driving and improve access to transportation options. 2. Reduce vehicle trips through Transportation Demand Management (TDM) and other planning efforts discouraging single occupancy trips. 3. Expand and support innovative mobility solutions to increase travel efficiency. 4. Support land use efforts that reduce GHG emissions by reducing or eliminating trips where appropriate.

Full details of the CRP, including its elements, funding amounts, and assessments on member jurisdictions, is included in **Appendix D**.

CHAPTER 8: CAPITAL IMPROVEMENT PROGRAM

8.1 Purpose and Intent of Legislation



One of the STIP projects: US 101 Express Lanes under construction at 3rd Avenue in San Mateo.

CMPs are required by California Government Code Section 65089(b)(5) to include a seven-year CIP to maintain or improve the performance of the multimodal system for the movement of people and goods and to mitigate regional transportation impacts identified through the Land Use Analysis Program. Capital improvement projects must conform to transportation-related vehicle emissions and air quality mitigation measures. In the Bay Area, such TCMs

are contained in the Bay Area 2017 Clean Air Plan.

Any project depending on State or Federal funding must be included in the CMP CIP. This part of the CMP must be submitted first to the MTC in the Bay Area and then to the CTC and/or the FHWA so that funding from State and Federal programs will be allocated for the projects included in the CIP.

8.2 Federal and State Funding Sources

Funding is made available under the CMP from the State and Federal governments for transportation system maintenance and improvement projects. The CIP that is included in each CMP may be somewhat different from the CIP included in previous CMPs because of changes in the funding programs or the evaluation criteria. (The status of prior years' CMP CIP projects is discussed in the Monitoring Report in **Appendix G**.) The following paragraphs present a summary of the current federal and state funding sources available for the current CMP.

Federal Transportation Funding

The current federal transportation funding bill is the Infrastructure Investment and Jobs Act, authorized in 2021.

It includes two primary funding sources for local projects: the Surface Transportation Block Grant Program (STBG; formerly the Surface Transportation Program) and the Congestion Mitigation and Air Quality Program (CMAQ).

Projects that are currently funded under these programs are listed in **Appendix G**. The STBG and CMAQ programs are expected to continue.

State Transportation Funding

State funding for local transportation projects is available primarily through the STIP. The California Transportation Commission (CTC) adopted the 2022 STIP in March 2022. C/CAG recommends a list of projects to the MTC for incorporation into a regional recommendation (also known as the Regional Transportation Improvement Program (or RTIP) to the California Transportation Commission (CTC).

The STIP includes allocations for each of California's counties. The share for San Mateo County includes both general program and specific project amounts. The most recently adopted CTC allocations for San Mateo County projects are shown in **Table 22**. The most recent STIP has allocations from FY 2022/23 until FY 2026/27. The 2022 STIP includes projects using COVID shares since this funding was not part of the Fund estimate.

Table 22: 2020 STIP Programming in San Mateo County (\$1,000's)

Project	Agency	Program Amount	Prior	FY 23	FY 24	FY 25	FY 26	FY 27
2020 STIP Programming or prior								
AB3090 Reimbursement (Willow Rd IC)	SMCTA	263	263	-	-	-	-	-
Countywide ITS Improvements	South SF	2,044	2,044	-	-	-	-	-
ITS Improvements in Daly City, Brisbane, Colma	DC/Bris/Colma	7,600		7,600	-	-	-	-
US 101/Produce Avenue Interchange Reconstruction	South SF	5,000	5,000	-	-	-	-	-
US 101/Woodside Road Interchange Improvements	Redwood City	8,000	8,000	-	-	-	-	-
SR-92/US 101 Interchange Improvements – Phase 2	Caltrans	5,628	5,628	-	-	-	-	-
US 101 Managed Lanes	Caltrans	3,000	3,000	-	-	-	-	-
US 101 Managed Lanes	C/CAG	7,177	-	-	7,177	-	-	-
Planning, Programming, and Monitoring	MTC	79	79	-	-	-	-	-
Planning, Programming, and Monitoring	MTC	346	82	85	88	91	-	-
Planning, Programming, and Monitoring	C/CAG	263	263	-	-	-	-	-
Planning, Programming, and Monitoring	C/CAG	771	262	262	46	201	-	-
Subtotal 2020		40,171	24,621	7,947	7,311	292	-	-
2022 STIP Programming								
ITS Improvements in Daly City, Brisbane, Colma	DC/Bris/Colma	(7,600)	-	(7,600)	-	-	-	-
ITS Improvements in Daly City, Brisbane, Colma	DC/Bris/Colma	7,900	-	7,900	-	-	-	-
US 101 Managed Lanes	C/CAG	(7,177)	-	-	(7,177)	-	-	-
US 101 Managed Lanes	C/CAG	5,477	-	5,477	-	-	-	-
US 101 Managed Lanes	Caltrans	1,700	-	-	1,700	-	-	-
Planning, Programming, and Monitoring	C/CAG	(509)	-	(262)	(46)	(201)	-	-
Planning, Programming, and Monitoring	C/CAG	894	-	72	236	195	195	196
Planning, Programming, and Monitoring	MTC	(264)	-	(85)	(88)	(91)	-	-
Planning, Programming, and Monitoring	MTC	450	-	85	88	91	92	94
Total 2022 STIP Programming		871		5,587	(5,287)	(6)	287	290
2022 STIP COVID Programming								
ITS Improvements in Daly City, Brisbane, Colma	DC/Bris/Colma	1,412	-	1,412	-	-	-	-
Planning, Programming, and Monitoring	C/CAG	163	-	163	-	-	-	-
SR-92/US 101 Interchange Improvements – Phase 2	Caltrans	1,685	-	1,685	-	-	-	-
Total 2022 COVID STIP Programming		3,260		3,260				

Source: California Transportation Commission, 2022 STIP

Regional Measure 3 Funding

Regional Measure 3 (RM3) is a voter approved measure to increase tolls on all Bay Area bridges (except the Golden Gate Bridge) from \$5 to \$8 in one dollar increments over six years. Funds raised by the measures would be used to pay for congestion relieving projects across the nine county Bay Area. This includes region-wide projects such as BART improvements, ferry enhancements, express lanes, Capitol Corridor, SF Bay Trail, and Clipper Transit fare payment systems. The measure was approved by a majority of Bay Area voters in June 2018. Funding from the measure is currently on hold, pending litigation.

Identified projects in San Mateo County as part of RM3 are listed below in **Table 23**.

Table 23: Regional Measure 3 Projects in San Mateo County (\$ in millions)

Project	Project Cost
Dumbarton Corridor Improvements	\$130
US 101/SR-92 Interchange	\$50

Source: Regional Measure 3 Expenditure Plan, MTC, 2018

8.3 Other Funding Sources for San Mateo County

There are several other sources of funds for transportation projects in San Mateo County. One of the major sources of funds is the Measure A sales tax passed in San Mateo County on June 7, 1988. The ballot measure created the SMCTA and authorized an increase in the retail sales/use tax of one-half of one percent for 20 years to finance the construction of certain transportation improvements. In November 2004, voters in San Mateo County also approved the reauthorization of Measure A to be in effect from 2009 to 2033.

Improvements funded by Measure A include public transit and highway projects, alternative congestion relief, and local programs. In addition, the extension of Measure A also includes bicycle and pedestrian improvements. A summary of the Transportation Expenditure Plan for Measure A extension is included in **Appendix H**.

In 2018, San Mateo County voters approved Measure W, which authorized a half-cent sales tax increase to improve transit and relieve traffic congestion. 50% of the funds are administered by SamTrans and utilized for county public transportation services. The remaining 50% is administered by SMCTA and is used for countywide highway congestion relief (22.5%), local safety, pothole, and congestion relief improvements (12.5%), bicycle/pedestrian improvements (5%), and regional transit connections (10%).

Other sources of potential funding for transportation improvements and maintenance projects are as follows:

- Measure M - \$10 Vehicle Registration Fee (Details in Chapter 11)
- Proposition 111 - Gas tax revenues allocated to local jurisdictions
- Transportation Fund for Clean Air (TFCA) – Funds programs and infrastructure to enhance air quality, revenue is generated from increased vehicle registration fees
- One Bay Area Grant (OBAG) – Federal transportation funding from the FHWA distributed by MTC to the nine Bay Area counties
- Bridge Replacement and Rehabilitation funds
- Transportation Development Act (TDA) funds
- State Transit Assistance (STA) funds
- Transit Capital Improvement funds
- Transit operator funds

In addition to these, many competitive grant programs will pay for transportation projects, such as (but not limited to): the Highway Safety Improvement Program (HSIP), Active Transportation Program (ATP), Transit and Intercity Rail Capital Program (TIRCP), and more.

8.4 Regional Planning Efforts

Goals and Objectives Established in the RTP

In October 2021, MTC adopted Plan Bay Area 2050, which is the RTP/SCS for the nine-county Bay Area. It represents the transportation policy and action statement of how the Bay Area will approach the region’s transportation, housing, economic, and environmental needs over the next 30 years. Plan Bay Area is a vision of what the Bay Area transportation network should look like in 2050. The purpose and goals of the Plan Bay Area is to provide the framework for this vision. It was prepared by MTC in partnership with ABAG, BAAQMD, and the Bay Conservation and Development Commission (BCDC), and in collaboration with Caltrans, the nine county-level CMAAs or substitute agencies, over two dozen Bay Area transit operators, and numerous transportation stakeholders and the public. The purpose of Plan Bay Area is to encourage and promote the safe and efficient management, operation and development of a regional intermodal transportation system that will serve the mobility needs of people and goods.

Plan Bay Area 2050 incorporates a set of strategies to guide its recommendations, as shown below:

Table 24: Plan Bay Area 2050 Strategies

Strategy	#	Sub-Strategy
Housing	H1	Further strengthen renter protections beyond state law.
	H2	Preserve existing affordable housing.
	H3	Allow a greater mix of housing densities and types in Growth Geographies.
	H4	Build adequate affordable housing to ensure homes for all.
	H5	Integrate affordable housing into all major housing projects.
	H6	Transform aging malls and office parks into neighborhoods.
	H7	Provide targeted mortgage, rental, and small business assistance to Equity Priority Communities.
	H8	Accelerate reuse of public and community-owned land for mixed income housing and essential services.

Strategy	#	Sub-Strategy
Economic	E1	Implement a statewide universal basic income.
	E2	Expand job training and incubator programs.
	E3	Invest in high-speed internet in underserved low-income communities.
	E4	Allow greater commercial densities in Growth Geographies.
	E5	Provide incentives to employers to shift jobs to housing-rich areas well served by transit.
	E6	Retain and invest in key industrial lands.
Transportation	T1	Restore, operate, and maintain the existing system.
	T2	Support community-led transportation enhancements in Equity Priority Communities.
	T3	Enable a seamless mobility experience.
	T4	Reform regional transit fare policy.
	T5	Implement per-mile tolling on congested freeways with transit alternatives.
	T6	Improve interchanges and address highway bottlenecks.
	T7	Advance other regional programs and local priorities.
	T8	Build a Complete Streets network.
	T9	Advance regional Vision Zero policy through street design and reduced speeds.
	T10	Enhance local transit frequency, capacity, and reliability.
	T11	Expand and modernize the regional rail network.
	T12	Build an integrated regional express lanes and express bus network.
Environmental	EN1	Adapt to sea level rise.
	EN2	Provide means-based financial support to retrofit existing residential buildings.

Strategy	#	Sub-Strategy
	EN3	Fund energy upgrades to enable carbon neutrality in all existing commercial and public buildings.
	EN4	Maintain urban growth boundaries.
	EN5	Protect and manage high-value conservation lands.
	EN6	Modernize and expand parks, trails and recreation facilities.
	EN7	Expand commute trip reduction programs at major employers.
	EN8	Expand clean vehicle initiatives.
	EN9	Expand transportation demand management initiatives.

Source: Plan Bay Area 2050.

C/CAG, along with other CMAs and regional agencies, including MTC, ABAG, and the BAAQMD, will be addressing new requirements from Senate Bill 375 (SB 375) in addressing reduction in Green House Gas (GHG) emissions generated by cars and light trucks. The following will be taken into consideration in future planning processes.

Senate Bill 375 (SB 375)

SB 375 request metropolitan transportation organizations to develop a Sustainable Communities Strategy (SCS) – a new element of the RTP – to strive to reach the GHG reduction target established for each region by the California Air Resource Board. The target for the Bay Area is a 7% per capita reduction by 2025 and a 15% per capita reduction by 2035. Plan Bay Area 2050 is the current SCS for the nine-county Bay Area.

Plan Bay Area (adopted in 2021) promotes compact, mixed-used commercial and residential development that is walkable, bikeable and close to mass transit, jobs, schools, shopping, parks, recreation and other amenities. The San Mateo County CMP acknowledges the SCS process, along with the regional FOCUS approach, and specifically recognizing the planned and potential Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs) within San Mateo County.

Bay Area 2017 Clean Air Plan (CAP)

The Bay Area 2017 CAP provides a comprehensive plan to improve Bay Area air quality, protect public health, and protect the climate. The CAP defines a control strategy that the Air District and its partners will implement to:

- Reduce emissions of criteria air pollutants and toxic air contaminants from all key sources;
- Reduce emissions of “super-GHGs” such as methane, black carbon, and fluorinated gases;
- Decrease demand for fossil fuels (gasoline, diesel, and natural gas)
 - a. Increase efficiency of our industrial processes, energy, and transportation systems
 - b. Reduce demand for vehicle travel, and high-carbon goods and services
- Decarbonize our energy system
 - a. Make the electricity supply carbon-free
 - b. Electrify the transportation and building sectors

CHAPTER 9: DATABASE AND TRAVEL DEMAND MODEL

9.1 Purpose and Intent of Legislation

California Government Code Section 65089(c) requires that every CMA, in consultation with the regional transportation planning agency (MTC in the Bay Area), cities, and the county, develop a uniform database on traffic impacts for use in a countywide travel demand model. The State statute also requires the countywide model to be the basis for transportation models used for county sub-areas and cities, and that all models be consistent with the modeling methodology and databases used by the



Intersection of SR-1 at SR-92 in Half Moon Bay

regional transportation planning agency. The CMA also approves sub-county area transportation models and models used by local jurisdictions for land-use impact analysis, if local jurisdictions decide to develop them.

9.2 Discussion

This chapter describes the C/CAG-VTA Model and Database Element. It contains the following sections:

- C/CAG-VTA Model and Database Legislative Requirements
- Overview of the C/CAG-VTA Model

Transportation models are analytical tools that can be used to assess the impacts of land use and development decisions on the transportation system. Transportation models are based on a complex interaction of relationships between variables: for example, the relationship between the price of gasoline and the number of vehicle-miles traveled or transit ridership. They are tools that can be used to project future transportation conditions, and the need for and effectiveness of transportation projects and infrastructure improvements. If the basic relationships established in a base year model validation remain well behaved over time, a well-

designed and validated transportation model should predict transportation conditions with some degree of confidence.

The CMP transportation database consists of data that in effect document existing and future transportation network conditions and socioeconomic characteristics in a quantitative manner. The databases are a basic input for the C/CAG-VTA Model and are typically updated based on updates to the regional socioeconomic data sets provided by ABAG and through periodic updates of the transportation networks through development of long-range planning efforts and for specific projects and corridors.

The C/CAG-VTA Model serves several purposes:

- Evaluating the transportation impacts of major capital improvements and land use developments on the countywide CMP System.
- Establishing transportation system characteristics for use by member agencies in performing transportation impact analyses, developing local transportation models, and preparing deficiency plans.
- Developing roadway vehicle volume and transit ridership to support planning studies for C/CAG and member agencies for corridor and project analysis.

9.3 CMP Transportation Model and Database Legislative Requirements

The CMP Statute requires C/CAG to develop a uniform database and model for evaluating transportation impacts. The Statute specifies the following three requirements for the CMP database and model:

- The CMP must develop a uniform database and model for use throughout the County.
- The CMP must approve local jurisdictions' computer models that are used to determine transportation impacts of land use decisions on the CMP System.
- The CMP database and model must be consistent with the MTC regional transportation database and model.

Each of these requirements is discussed below.

Uniform Database and Model

The legislative requirement for a uniform countywide model and database is critical to the success of the overall CMP. The C/CAG-VTA Model is used to assist in the land use impact analysis program, evaluate projects for inclusion in the CIP, evaluate system-level improvements to the CMP System due to deficiency plans and assist with C/CAG and member agencies in project planning and transit service planning.

Local Model Consistency

In addition to the requirement for developing a countywide model, the CMP Statute requires that models developed by member agencies for local transportation analysis be consistent with the C/CAG-VTA Model and database. This is a logical requirement that helps assure that all member agencies are using uniform techniques to evaluate the impacts of development projects.

Returning to the concept of transportation models as tools, local transportation models will serve a similar purpose. Local models, however, operate on a different scale. While a countywide model may be able to predict future traffic volumes on a roadway, a local model would can predict the number of vehicles at a much finer detail, for example traffic turning movements at specific intersections. In general, since local transportation models can include more background information they provide more detailed “city-specific” information than a countywide model.

Regional Transportation Model and Database Consistency

Consistency with the regional transportation model and database is one of the most important requirements of the CMP Statute. This section describes the regional model and database and consistency requirements.

9.4 Regional Models

MTC Regional Transportation Model

MTC is responsible for developing the Bay Area’s regional transportation model. MTC has been developing a series of transportation models since the mid-1960s. MTC has recently converted the regional models from trip-based to tour-based models (MTC Travel Model One) and is expected to refine the full transition to activity-based models in the very near future (Travel Model Two). The C/CAG-VTA Model, however, are based on the previous version of the MTC transportation planning models known as BAYCAST-90. The BAYCAST-90

travel model demand system was originally developed using 1990 Census data and data from the 1990 regional household travel survey incorporating travel diary data from more than 10,000 households.

ABAG Database

The MTC models use input socioeconomic data prepared by ABAG. ABAG projections provide estimates of employment, land use, housing, population, and household income at regional, county and census tract levels. ABAG updates its database forecasts every four years. These updates are based on surveys of local land use and development policies as well as revised national, state, and regional forecasting assumptions. The most recent version of ABAG’s officially adopted database for congestion management application is Projections 2040 (P2040). The P2040 series provide forecasts at five-year intervals from year 2010 to the year 2040. The C/CAG-VTA Model uses the ABAG Projections 2013 socioeconomic data as the basis for the 2040 long-range forecasts for San Mateo County as provided by MTC at the MTC 1454 zone level. The MTC zone level allocations were then sub-allocated to the smaller C/CAG zones based on local development characteristics. As such, the C/CAG socioeconomic data inputs are consistent at both the MTC zone level and the ABAG census tract level.

CMP Model and Database Consistency

The C/CAG-VTA Model and database are developed to be consistent with the MTC BAYCAST-90 model and the ABAG 2013 socioeconomic database. MTC recently updated the consistency requirements and key assumptions as part of the 2013 CMP development. The revised MTC Checklist for Modeling Consistency is used to evaluate the 2019 CMP. Summaries of the checklist outputs are provided to MTC in a separate submittal. More details regarding specific consistency issues are described in the following sections.

9.5 Overview of the C/CAG-VTA Model

The current C/CAG-VTA Model is based on the corridor model developed for the Grand Boulevard Initiative (GBI) Multi-modal Corridor Study by the Santa Clara VTA in 2009. The GBI study evaluated the impacts of enhanced transit service (bus rapid transit) and enhanced developed strategies in the El Camino Real corridor to transform an existing auto-oriented commercial transportation corridor into a more transit-oriented mixed-use transportation corridor. The GBI model was essentially the VTA Countywide model with added zone and network detail to improve upon what was network and zone detail based on the MTC regional models for San

Mateo County. The basis for the network and zone refinements applied to the VTA Countywide models within San Mateo County were the previous C/CAG Countywide models originally developed in the mid-1990s.

The addition of zone and network detail in San Mateo County required the recalibration of the trip distribution and mode choice models and a validation of the highway and transit assignments to observed road volumes and transit boarding. Using the VTA Countywide model estimated trips tables for the year 2005 (which were calibrated to year 2000 census journey-to-work for home-based work trips), new trip distribution and mode choice models were estimated for the GBI model.

For the recently updated C/CAG models, the GBI model was applied using ABAG P 2013 socioeconomic data to produce an updated base year 2013 calibration and validation with selected model enhancements. These enhancements included calibration of the auto ownership models to American Community Survey (ACS) 2010 county-level data, addition of bicycle network infrastructure (bike lanes and paths) in the networks, travel time skims, mode choice and bicycle assignments and development of a toll modeling procedure to estimate express lane vehicle volumes. The model was validated to year 2013 screenline volumes for the AM and PM peak periods and to year 2013 observed transit boardings.

Consistency with MTC Model

As noted previously, the C/CAG-VTA Model was designed to be consistent with the previous MTC Travel Demand Model forecasting system BAYCAST-90 model. This section provides a general overview of the C/CAG-VTA Model and describes several basic modeling characteristics that are shared between the models.

Transportation Analysis Zones (TAZ's) - The current C/CAG-VTA Model has a more refined zone system in San Mateo County and Santa Clara County than the MTC regional models. Additional zones were added to more accurately reflect and support the added roadway network and to provide more detail in transit rich corridors and dense central business districts. In all, an additional 156 zones were added in San Mateo County and an additional 1,122 zones were added in Santa Clara County. The new model maintains the use of MTC's zone system in the remaining seven Bay Area counties but enlarges the full model region and zones to include Santa Cruz, San Benito, Monterey, and San Joaquin Counties.

Highway Network and Transit Network - The roadway network used by the C/CAG-VTA Model includes additional detail in both San Mateo and Santa Clara Counties. The current C/CAG-VTA Model also includes detailed stop, station and route detail in the transit network for San Mateo and Santa Clara Counties, and maintains the MTC roadway and transit networks in the remaining Bay Area counties. The Association of

Monterey Bay Area Governments (AMBAG) provided the basis for roadway networks in Monterey, San Benito, and Santa Cruz counties and the San Joaquin County COG provided roadways for San Joaquin County, however, the detailed networks were simplified to match the coarser zone structure in each of those four added counties. Express lane facilities, representing the MTC 'Backbone' express lanes system for 2040, were also coded in the network with a toll facility indicator based on the highway corridor segment and the direction of travel. Differential toll facility codes were required to apply specific toll rates to optimize utilization of the express lanes to preserve level-of-service for free carpool users. The C/CAG-VTA Model also includes a representation of the bicycle network infrastructure in the base year and 2040 forecast year for San Mateo, Santa Clara, San Francisco and southern Alameda Counties, explicitly representing existing and future bike lanes and bike paths in travel time development, mode choice and bicycle assignments.

Capacities and Speed - The current C/CAG-VTA Model incorporates the area type and assignment group classification system published by MTC in BAYCAST-90. Input free-flow speeds for expressways are slightly lower in the C/CAG-VTA Model to more accurately match the travel time for the expressway segments during model validation and improve the assignment match of estimated to observed expressway volumes.

Trip Purposes - The current C/CAG-VTA Model uses the same trip purposes used in the BAYCAST-90 model and uses additional trip purposes not modeled by MTC. C/CAG-VTA Model trip purposes include the following:

- Home-based work trips
- Home-based shop and other trips
- Home-based social/recreation trips
- Non-home-based trips
- Home-based school: grade school, high school, and college trips
- Light, medium and heavy duty internal to internal zone truck trips

The C/CAG-VTA Model uses MTC BAYCAST-90 trip generation equations for trip production and trip attraction functions for all trip purposes listed above. To address special markets not included in the MTC trip purposes, the C/CAG-VTA Model includes several additional trip purposes beyond those modeled by MTC, including:

- Air-passenger trips to San Francisco International Airport (SFO) and San Jose/Mineta International Airport (SJC); and
- Light, medium and heavy-duty external truck trips.

Market Segments - The C/CAG-VTA Model adopts the BAYCAST-90 disaggregate travel demand model four income group market segments for the home-based work trip purpose in trip generation, distribution and mode choice. In addition, the C/CAG-VTA Model also maintains the three workers per household (0, 1 and 2+ workers) and three auto ownership markets (0, 1 and 2+ autos owned) used in the MTC worker/auto ownership models. Trips by peak and off-peak time period are also stratified in the trip distribution, mode choice and highway and transit assignment models.

External Trips - The C/CAG-VTA Model uses a different approach for incorporating inter-regional commuting estimates than MTC. For external zones coincident with the MTC model, MTC interregional vehicle volumes were applied for base year 2000 and adjusted to the future by assuming a 1% growth rate per year. For external gateways from San Joaquin County and Santa Cruz, Monterey and San Benito Counties, the incorporation of those counties as internal modeled areas obviated the development of external vehicle volumes for those areas of the C/CAG-VTA Model.

Pricing - The C/CAG-VTA Model uses MTC pricing assumptions for transit fares, bridge tolls, parking charges, and auto operating costs as assumed in the current MTC RTP Plan Bay Area. All prices are expressed in year 1990 dollar values in the models. The C/CAG-VTA Model also uses regional express lane toll charges for the AM and PM peak periods that are based on optimizing the level-of-service in the carpool lanes. Depending on the level of utilization, these toll charges would vary by direction, time of day and by specific corridor.

Auto Ownership - The current C/CAG-VTA Model applies BAYCAST-90 for auto ownership models to estimate the number of households with 0, 1, and 2+ autos by four income groups in each traffic analysis zone. Walk to transit accessibility measures were incorporated in the auto ownership models consistent with MTC BAYCAST-90 to more logically associate low auto ownership households with transit services. The auto ownership models were recently calibrated to the 2010 American Community Survey to match workers per household and auto ownership by county.

Mode Choice - The mode choice models for BAYCAST-90 include the use of nested structures for most trip purposes, however, explicit estimation of nested structures to consider transit sub modes were not included in the model specification. The C/CAG-VTA Model adds a nesting structure for transit sub modes of local bus, express bus, Bus Rapid Transit (BRT), light rail, heavy rail and commuter rail underneath the MTC BAYCAST-90 nested structures. Consistent with the BAYCAST-90, mode choice coefficients are preserved by constraining the model to the BAYCAST-90 parameters, except those in transit sub mode structure.

Peak Hour and Peak Periods for Highway Assignments - The C/CAG-VTA Model uses a three-hour peak period (6am-9am) as the basis for determining drive alone, shared-ride, and transit travel times for input to the trip distribution and mode choice models. This was assumed since peak hour travel volumes tend to produce extremely congested conditions for forecast years producing unrealistic volume to capacity ratios and travel times, thus significantly overestimating forecast transit probabilities. The highway assignments produce AM and PM peak hour volumes, AM and PM peak period volumes (5am-9am and 3pm-7pm, respectively – each coincident with the time periods of operation for carpools), midday volumes (9am-3pm) and evening volumes (7pm-5am). The four time period volumes are then added together to develop daily vehicle volumes.

Vehicle and Transit Assignments - The current C/CAG-VTA Model incorporates a methodology analogous to the MTC “layered,” equilibrium assignment process, which distinguishes standard mixed-flow lanes from high-occupancy-vehicle (HOV) lanes. The equilibrium assignment process used in the current CMP model is functionally equivalent to the MTC methodology. The C/CAG-VTA Model includes additional vehicle classes in the highway assignments for park-and-ride vehicles and drive-alone and carpool toll vehicles.

Drive-alone and carpool toll vehicles for AM and PM peak periods are estimated using a toll model post-processor that estimates toll volumes based on a comparison of the non-toll and toll travel times and costs. This procedure assumes that toll choice occurs after the decision to choose auto versus transit has already been considered, and therefore does not influence transit mode choice. A toll choice constant for drive-alone and carpool modes was developed based on a calibration of toll volumes estimated by application of the toll model to the I-680 Express Lane facility and comparison of estimated to observed express lane volumes. It should be noted that by 2035, to maintain the operational feasibility of implementing regional express toll lanes, it was assumed that only 3+ occupant carpools would be allowed to travel in the carpool lanes for free. This was assumed for all carpool facilities in the model region.

In the current C/CAG-VTA Model, transit passengers are assigned with a methodology analogous to that used by MTC, with separate assignments for each transit sub mode and access mode. Assignments are also performed separately for peak and off-peak conditions. A total of 18 separate transit assignments are run to cover the full combination of transit sub mode and access modes as well as to estimate transit ridership for air-passengers and external home-based work transit trips from the San Joaquin (ACE, BART, and San Joaquin SMART bus) and AMBAG (Caltrain and Monterey Express) model regions.

Model Validation with 2013 Traffic and Transit Volumes - The current C/CAG-VTA Model is validated to year 2013 traffic volumes for county-level screenlines and specific major transportation facilities. Two time periods are validated for county screenlines: AM peak period (5am-9am) and PM peak period (3pm-7pm). Peak hour validation was performed for US 101 and SR-82 (El Camino Real) using traffic counts provided by Caltrans. Daily transit boardings were validated for the year 2013 at the system level for major regional transit operators (Caltrain, BART, MUNI, VTA, and AC Transit) and at the route level for SamTrans express and local routes.

Compliance and Conformance

To be in conformance with the CMP, member agencies must ensure that their models are consistent with the C/CAG-VTA Model. C/CAG encourages the use of the C/CAG-VTA Model by the local member agencies to ensure consistency, however, member agencies are free to develop their own local models but will be required to produce documentation to demonstrate consistency with the C/CAG-VTA Model. C/CAG must also ensure that the C/CAG-VTA Model is consistent with the MTC regional models. To demonstrate compliance and conformance, MTC has developed a checklist of outputs that are to be produced from the C/CAG-VTA Model and compared to a comparable MTC regional forecast year model run. C/CAG has prepared the checklist outputs from the most recent 2040 model runs and will provide the results in a separate submittal to MTC.

CHAPTER 10: MONITORING AND UPDATING THE CMP

There are several elements of the CMP that must be monitored. Changes in travel patterns, increases in employment or population, and increases or modifications to the supply of transportation facilities or services could result in changes being made or needing to be made to the following CMP elements:

- Traffic LOS standards (Described in Chapters 2 and 3)
- Trip Reduction and Travel Demand Element (Chapter 5)
- Land Use Impact Analysis Program (Chapter 6)
- Deficiency Plans (Chapter 7)



Intersection of El Camino Real (SR-82) and Holly Street in San Carlos

The processes to be applied to monitor each of these elements are described in its applicable chapter. A jurisdiction may be found in nonconformance with the CMP if these processes are not adhered to. The CMP will be updated every two years.

California Government Code Sections 65089.3, 65089.4, and 65089.5 govern the conformance process. These sections require that C/CAG determine every two years whether San Mateo County, including cities and towns within the county, conform to the requirements of the CMP based on information obtained through monitoring.

If C/CAG believes that a local government is not conforming to CMP requirements, it must then hold a noticed public hearing to determine areas of nonconformance. If after the public hearing C/CAG still believes that the local government is not conforming to CMP requirements, it must provide written notice to the local government citing the specific instances of nonconformance. The local government then has 90 days to remedy the instances of nonconformance. If after 90 days the local government has not remedied the

nonconformance instances, C/CAG will make a finding of nonconformance and notify the State Controller to withhold certain gas tax subvention funds.

Once a finding of nonconformance is made by C/CAG, the local jurisdiction would not receive its funds from the additional gas tax (enacted by California Proposition 111) or (the Federal) FAST Act funding until the jurisdiction is again found to be in conformance. If the city or county does not come into conformance with the CMP's standards or requirements within a 12-month period, its gas tax allocations are forfeited irrevocably.

CHAPTER 11: MEASURE M - \$10 VEHICLE REGISTRATION FEE PROGRAM

Senate Bill 83 (SB 83) authorizes C/CAG, as the countywide transportation planning agency, to impose an annual fee of up to ten dollars (\$10) on motor vehicles registered in San Mateo County, through a majority vote ballot measure, for transportation-related congestion mitigation and pollution mitigation programs and projects.



*Funding for local streets and roads is a key component of Measure M
(Shown: Millbrae Avenue in Millbrae)*

C/CAG placed Measure M on the November 2, 2010, ballot to impose an annual fee of ten dollars (\$10) on motor vehicles registered in San Mateo County

for transportation-related congestion mitigation and water pollution mitigation programs. Measure M, which was approved by the voters of San Mateo County, enables C/CAG to generate an estimated \$6.7 million annually (\$167 million over the next 25 years) to help fund various transportation programs for the 20 cities/towns and the County. Collection of the \$10 fees began May 2011.

The C/CAG Board approved an update of the Measure M 5-Year Implementation Plan for fiscal years 2021/22 to 2025/26. Under the Expenditure Plan, 50% of the net proceeds will be allocated to cities/towns and the County for local streets and roads and 50% will be used for countywide transportation programs such as transit operations, regional traffic congestion management, water pollution prevention, and safe routes to school programs. The percentages in the updated Implementation Plan are slightly different from the prior years plans as follows:

- Reduce Transit Operations/Senior Mobility from 22% to 18%
- Increase Technology/Smart Corridor from 10% to 11%
- Increase Stormwater (NPDES/MRP) from 12% to 15%

The Plan defines the percentages breakdown and estimated revenue for the respective categories and programs as follows:

Table 25: Measure M Expenditure Plan

Category / Programs	Approved for FY 2022-2027		
	Allocation	Annual Revenue (Million)	5-Year Revenue (Million)
Transit Operations and/or Senior Transportation*	18%	\$1.22	\$6.13
Intelligent Transportation System (ITS) and Smart Corridors*	11%	\$0.75	\$3.75
Safe Routes to Schools (SR2S)*	6%	\$0.41	\$2.04
National Pollutant Discharge Elimination System (NPDES) and Municipal Regional Permit (MRP)*	15%	\$1.02	\$5.11
Total		\$3.40	\$17.03

* Countywide Transportation Programs (50% of net revenue)

The allocations for the Countywide Transportation Programs are derived based on anticipated needs and estimated implementation cost to fund each respective programs and projects, annually and over the 5-year implementation period. It is the intent that each countywide transportation program and project will be evaluated at the end of each year to determine whether the initial funding level (allocations) was adequate or whether it requires adjustments based on the actual expenditures incurred during the previous year. The complete Measure M Implementation Plan and 5-Year Performance Report is included in Appendix M.

CHAPTER 12: TRAFFIC IMPACT ANALYSIS (TIA) POLICY



SR-1 near Moss Beach in unincorporated San Mateo County

The intent of the TIA policy is to provide uniform procedures to analyze traffic impacts on the CMP network from projects and cumulative traffic impacts on the CMP network from General Plans and Specific Area Plans, and to set thresholds for mitigations. The Policy provides clear direction to local jurisdictions on how to analyze CMP impacts resulting from roadway changes or land use decisions, determine feasible and appropriate mitigations. The purpose of this policy is to

preserve acceptable performance on the CMP roadway network, and to establish community standards for consistent system-wide transportation review.

Adopted by the C/CAG Board in August 2006, the TIA Policy helps agencies determine traffic impacts on the CMP roadway network. The policy applies to the following types of projects:

- Roadway changes
- General Plan Updates/Amendments and Specific Area Plans
- Land Use development projects

The TIA Policy is intended to work together with the Land Use Impact Analysis Program (described in Chapter 6). The TIA Policy can be found in **Appendix L**.

APPENDIX A: DETAILED INVENTORY OF CMP ROADWAYS AND INTERSECTIONS

Appendix A

Detailed Inventory of CMP Roadways and Intersections

The following pages describe the functional classifications and numbers of lanes of the California State Highways within San Mateo County and the other roadways and intersections included in the 1997 CMP Roadway System. The information described here was collected by conducting field surveys and recording data. The numbers of lanes and roadway types are described for the following State Highways:

SR 1	Between the county lines of Santa Cruz and San Francisco Counties;
SR 35	Between the San Francisco and Santa Clara County lines;
SR 82	Between the county lines of Santa Clara and San Francisco Counties;
SR 84	From SR 1 to the Alameda County line;
SR 92	From SR 1 to the Alameda County line;
U.S. 101	Between the county lines of Santa Clara and San Francisco Counties;
SR 109	From Kavanaugh Drive to SR 84;
SR 114	From U.S. 101 to Bayfront Expressway (SR 84);
I-280	Between the county lines of Santa Clara and San Francisco Counties; and
I-380	Between I-280 and North Access Road (east of U.S. 101).

The numbers of lanes and classifications of the other roadways and the lane configurations and signal phasings of the intersections included in the CMP network were also determined. This information was obtained from the cities in which the facilities are located and from field surveys.

SR 1

From the Santa Cruz County line north to Linda Mar Boulevard, SR 1 is a two-lane conventional highway. Between Linda Mar Boulevard and Westport Drive (just south of Sharp Park Road), SR 1 is a four-lane highway. North of Westport Drive, SR 1 is a four-lane freeway until it reaches its junction with SR 35, where it becomes a six-lane freeway. At its junction with I-280, SR 1 joins I-280 to travel north until John Daly Boulevard. SR 1 then continues northward, as a six-lane freeway, across the San Francisco County line.

SR 35

North of I-280 (near Crestmoor Drive in San Bruno), SR 35 is a two- to four-lane arterial and four-lane expressway which extends northward across the San Francisco County line. The variations in the numbers of lanes and roadway types are described briefly below.

- SR 35 is a four-lane expressway from the I-280 interchange north becoming a two-lane arterial south of San Bruno Avenue.
- SR 35 is a two-lane arterial to the signalized intersection of Sneath Lane, then a four-lane arterial north of Sneath Lane to Sharp Park Road, and a two-lane arterial north of Sharp Park Road to Hickey Boulevard.
- North of Hickey Boulevard, SR 35 becomes a four-lane arterial, and then a four-lane freeway as it passes through the SR 1 interchange.
- Approximately one mile north of the SR 1 interchange, SR 35 becomes a four-lane expressway, and continues as such into San Francisco County.

South of Bunker Hill Drive, SR 35 becomes a two-lane rural road. After a short section where SR 92 and SR 35 share the same roadway, SR 35 becomes Skyline Boulevard south to Santa Clara County.

SR 82 (*El Camino Real/Mission Street*)

SR 82 is a four- to six-lane arterial which extends north from the Santa Clara County line across the San Francisco County line. The following street segments are **not six lanes** wide:

Roble Avenue to Glenwood Avenue	Four lanes
SR 84 overpass to Whipple Avenue	Four lanes
Whipple Avenue to F Street (in San Mateo)	Two lanes northbound, and three lanes southbound
F Street to 42nd Street	Four lanes
42nd Street to Hillsdale Boulevard	Two lanes northbound, and three lanes southbound
East Third Avenue to south of Trousdale Drive	Four lanes
Hickey Boulevard to Mission Road	Four lanes

Westlake Avenue to John Daly Boulevard

Four lanes

SR 84

SR 84 (Woodside Road) is a four-lane arterial between I-280 and SR 82 (except for a short segment between San Carlos Avenue and Santa Clara Avenue which is six-lanes wide). SR 84 is a four-lane expressway between SR 82 and Bay Road. East of Bay Road to U.S. 101, SR 84 is a six-lane expressway. At its junction with U.S. 101, SR 84 joins U.S. 101 to travel south until the Marsh Road exit, where SR 84 follows the Bayfront Expressway to the Dumbarton Bridge. The Bayfront Expressway is six-lane wide from Marsh Road to east of University Avenue.

SR 84 is a two-lane conventional highway from west of I-280 to SR 1. (Note: Signs on U.S. 101 still indicate Willow Road (SR 114) to be SR 84.)

SR 92

SR 92 is a four-lane freeway between I-280 and U.S. 101. SR 92 is a six-lane freeway between U.S. 101 and the Alameda County Line, across the San Mateo Bridge. West of I-280 to SR 1, SR 92 is a two-lane conventional highway.

U.S. 101

U.S. 101 is an eight- to ten-lane freeway in San Mateo County. The lane changes for this north/south facility are as follows:

- U.S. 101 is an eight-lane freeway from the Santa Clara County line to the Whipple Avenue interchange comprising six mixed-flow lanes and two High Occupancy Vehicle (HOV) lanes.
- U.S. 101 is an eight-lane freeway from the Whipple Avenue interchange to the San Francisco County line, with the following two exceptions:
 1. Between Marsh Road and Hillsdale Blvd, an auxiliary lane has been added in each direction.
 2. Northbound U.S. 101 is six lanes wide between the SR 92 and Kehoe Avenue off-ramps, and five lanes wide between the Kehoe Avenue and Third Avenue off-ramps. Southbound U.S. 101 remains four lanes wide.
 3. U.S. 101 is a ten-lane freeway from north of the Millbrae Avenue interchange ramps to south of the I-380 interchange ramps.

SR 109

University Avenue has been designated as SR 109 between SR 84 and Kavanaugh Drive. SR 109 is a four-lane arterial.

SR 114

Willow Road, which has been designated as SR 114 between U.S. 101 and Bayfront Expressway, is a four-lane arterial.

I-280

I-280 is a 6- to 12-lane freeway in San Mateo County. The variations in the number of lanes on this north/south facility are described below.

- * I-280 is an eight-lane freeway from the Santa Clara County line north to the I-280/SR 1 interchange in Daly City, with the following exceptions:
 1. Between Edgewood Road and the interchange with SR 92, I-280 contains five northbound and five southbound lanes. Each five-lane segment is approximately two miles long and signed: "Slow Vehicles Keep Right".
 2. Through the I-380 interchange, northbound I-280 has only three lanes, while southbound I-280 widens to include a fifth, auxiliary lane.
- * I-280 is a 12-lane freeway, north of the SR 1 interchange (south) to the SR 1 interchange (north).
- * I-280 is a six-lane freeway, north of its northern junction with SR 1 to the San Francisco County line, where the freeway widens to eight lanes.

I-380

I-380 is an east/west freeway which connects I-280 and U.S. 101, and extends east of U.S. 101 to provide access to the San Francisco International Airport. Between I-280 and U.S. 101, I-380 is four lanes wide in the westbound direction and three lanes wide in the eastbound direction. East of U.S. 101, I-380 is a freeway ramp, narrowing down to two lanes in each direction and terminating at North Access Road (by United Airlines Maintenance Facility.)

Other CMP Roadways

The CMP roadway system also includes three roadways which are not state highways. These arterials, all located in Daly City, are described briefly below:

- Mission Street is a four-lane arterial that extends from SR 82 (San Jose Avenue) to the northeast, across the San Francisco County line.
- Bayshore Boulevard is an arterial that extends southward from its junction with U.S. 101 in San Francisco County through Brisbane, where it becomes Airport Boulevard. The CMP network only includes the segment of Bayshore Boulevard between the San Francisco County line and Geneva Avenue. This segment is three lanes wide in the northbound direction and two lanes wide in the southbound direction.
- Geneva Avenue is a four-lane arterial that extends to the northwest from Bayshore Boulevard across the San Francisco County line to Mission Street.

CMP Intersections

The CMP roadway system also includes 16 intersections. These were not included in the 1991 CMP and were added for the 1993 CMP. The 16 intersections are:

Geneva Avenue and Bayshore Boulevard
SR 35 (Skyline Boulevard) and John Daly Boulevard
SR 82 (Mission Street) and John Daly Boulevard/Hillside Boulevard
SR 82 (El Camino Real) and San Bruno Avenue
SR 82 (El Camino Real) and Millbrae Avenue
SR 82 (El Camino Real) and Broadway
SR 82 (El Camino Real) and Peninsula Avenue
SR 82 (El Camino Real) and Ralston Avenue
SR 82 (El Camino Real) and Holly Street
SR 82 (El Camino Real) and Whipple Avenue
SR 84 (Bayfront Expressway) and SR 109 (University Avenue)
SR 84 (Bayfront Expressway) and SR 114 (Willow Road)
SR 84 (Bayfront Expressway) and Marsh Road
SR 84 (Woodside Road) and Middlefield Road
SR 92 and SR 1
SR 92 and Main Street.

APPENDIX B: TRAFFIC LOS CALCULATION METHODS

Appendix B

Traffic Level of Service Calculation Methods

Level of service (LOS) is a term used to qualitatively describe the operating conditions of a roadway based on factors such as speed, travel time, maneuverability, delay, and safety. The level of service of a facility is designated with a letter, A to F, with A representing the best operating conditions and F the worst.

There are many methods available to calculate the levels of service for the various types of roadways and intersections that comprise San Mateo County's designated Congestion Management Program (CMP) system. The components of the CMP Roadway System include freeways, such as U.S. 101 and I-280; multilane highways; two-lane highways, such as State Route 1 (SR 1), south of Linda Mar; major arterials, such as SR 82 (El Camino Real); and major intersections. Operational analyses of specific weaving sections and ramp junctions have not been included in the CMP but may be added for subsequent CMPs.

AB 471 and AB 1963, the CMP legislation, require that methods of calculating levels of service defined either by the latest version of the *Highway Capacity Manual* (HCM) or by the Transportation Research Board's *Circular 212* be used for the analysis of CMP roadways. San Mateo County has been using the level of service methods specified in the HCM published in 1994 for freeways, multilane highways, two-lane highways, arterials, freeway weaving sections, ramp junctions, signalized intersections, and unsignalized intersections. The TRB's *Circular 212* describes methods for signalized and unsignalized intersections.

The level of service (LOS) calculation methods found in the 1994 HCM for freeways, multilane highways, two-lane highways, and arterials and the calculation for signalized intersections based on TRB's *Circular 212* method are described in this appendix.

Level of Service Calculation Methods

The methods selected to calculate levels of service for the roadway (freeway, multilane highway, two-lane highway, and arterial) segments and intersections included in the CMP network are described below:

Freeways

A freeway is defined as a divided highway facility with two or more lanes in each direction and full control of access and egress. It has no intersections; access and egress are provided by ramps at interchanges.

According to the *Highway Capacity Manual* (1994 HCM), the LOS of freeway segments is based on the density of vehicles, expressed in passenger cars per mile per lane. The LOS can also be evaluated with volume-to-capacity (V/C) ratios, average travel speeds, and maximum service flow rates. The specific LOS criteria for freeways are presented in Table B-1. Illustrations of the various levels of service are presented on Figure B-1.

The selected LOS method for freeway segments is based on calculating V/C ratios for each direction of travel, wherein the traffic volume for each segment is divided by the capacity of the segment. The volumes are obtained from counts for existing conditions or from a travel forecasting model for future conditions. The capacity is estimated as the number of lanes multiplied by 2,200 vehicles per hour per lane for four-lane freeway segments and 2,300 vehicles per hour per lane for segments with six or more lanes. The V/C ratios are calculated and related to LOS based on the relationships presented in Table B-1.

Another method of calculating a freeway segment's level of service is to determine the average travel speed from floating car runs. Descriptions of the average travel speeds for each LOS designation are also presented in Table B-1.

Multilane Highways

Multilane highways generally have posted speed limits of between 40 and 55 miles per hour (mph). They usually have four or six lanes, often with physical medians or two-way left-turn lane medians, although they may also be undivided (have no median). Unlike freeways, multilane highways are interrupted by intersections or driveways.

The level of service criteria for multilane highways are similar to the criteria for freeways. The specific criteria from the HCM are presented in Table B-2. The LOS calculation method is identical to the calculation method for freeways. The only difference is the range of V/Cs and speeds for each LOS designation. The maximum ideal lane capacity for a multilane highway segment is 2,200 vehicles per hour.

Two-Lane Highways

A two-lane highway is defined as a two-lane roadway with one lane for use by traffic in each direction. Passing of slower vehicles requires use of the opposing lane. As volumes or geometric constraints increase, the ability to pass decreases and platoons of vehicles are formed. The delay experienced by motorists also increases. The LOS for two-lane highways is based on mobility. The specific LOS criteria from the 1994 HCM are presented in Table B-3.

For two-lane highways, the selected method, based on V/Cs, takes into account the volume in both directions. The total volume is divided by the total capacity of 2,800 vehicles per hour. The corresponding V/C is correlated to a LOS based on the V/C ranges in Table B-3. Average travel speeds for each LOS designation are also presented in this table.

Table B-1
1994 HCM Level of Service Criteria for Basic Freeway Sections

LOS	70 mph Free-Flow Speed				65 mph Free-Flow Speed				60 mph Free-Flow Speed			
	Density ^a (pc/mi/ln)	Speed ^b (mph)	Maximum ^c V/C	MSF ^d (pcphpl)	Density ^a (pc/mi/ln)	Speed ^b (mph)	Maximum ^c V/C	MSF ^d (pcphpl)	Density ^a (pc/mi/ln)	Speed ^b (mph)	Maximum ^c V/C	MSF ^d (pcphpl)
A	⊙ 10.0	⋈ 70.0	0.318/0.304	700	⊙ 10.0	⋈ 65.0	0.295/0.283	650	⊙ 10.0	60.0	0.272/0.261	600
B	⊙ 16.0	⋈ 70.0	0.509/0.487	1,120	⊙ 16.0	⋈ 65.0	0.473/0.457	1,040	⊙ 16.0	60.0	0.436/0.412	960
C	⊙ 24.0	⋈ 68.5	0.747/0.715	1,644	⊙ 24.0	⋈ 64.5	0.704/0.673	1,548	⊙ 24.0	60.0	0.655/0.626	1,440
D	⊙ 32.0	⋈ 63.0	0.916/0.876	2,015	⊙ 32.0	⋈ 61.0	0.887/0.849	1,952	⊙ 32.0	57.0	0.829/0.793	1,824
E	⊙ 36.7/39.7	⋈ 60.0/58.0	1.000	2,200/2,300	⊙ 39.3/43.4	⋈ 56.0/53.0	1.000	2,200/2,300	⊙ 41.5/46.0	53.0/50.0	1.000	2,200/2,300
F	Variable	Variable	Variable	Variable	Variable	Variable	Variable	Variable	Variable	Variable	Variable	Variable

^a Density in passenger cars per mile per lane.

^b Average travel speed in miles per hour.

^c Maximum volume-to-capacity ratio.

^d Maximum service flow rate under ideal conditions in passenger cars per hour per lane.

⊙ less than or equal to

⋈ greater than or equal to

Note: In table entries with split values, the first value is for four-lane freeways, and the second is for six- and eight-lane freeways.

Source: Transportation Research Board, *Highway Capacity Manual, Special Report 209* (Washington, D.C., 1994), pp. 3-9.

Table B-2
Level of Service Criteria for Multilane Highways

LOS	60 mph Free-Flow Speed				55 mph Free-Flow Speed				50 mph Free-Flow Speed			
	Density ^a (pc/mi/ln)	Speed ^b (mph)	Maximum ^c V/C	MSF ^d (pcphpl)	Density ^a (pc/mi/ln)	Speed ^b (mph)	Maximum ^c V/C	MSF ^d (pcphpl)	Density ^a (pc/mi/ln)	Speed ^b (mph)	Maximum ^c V/C	MSF ^d (pcphpl)
A	⊙ 12	⊙ 60	0.33	720	⊙ 12	⊙ 55	0.31	660	⊙ 12	⊙ 50	0.30	600
B	⊙ 20	⊙ 60	0.55	1,200	⊙ 20	⊙ 55	0.52	1,100	⊙ 20	⊙ 50	0.50	1,000
C	⊙ 28	⊙ 59	0.75	1,650	⊙ 28	⊙ 54	0.72	1,510	⊙ 28	⊙ 50	0.70	1,400
D	⊙ 34	⊙ 51	0.89	1,940	⊙ 34	⊙ 53	0.86	1,800	⊙ 34	⊙ 49	0.84	1,670
E	⊙ 40	⊙ 55	1.00	2,200	⊙ 41	⊙ 51	1.00	2,100	⊙ 43	⊙ 47	1.00	2,000
F	> 40 ^e	< 55 ^e	- ^e	- ^e	> 41 ^e	< 51 ^e	- ^e	- ^e	> 43 ^e	< 47 ^d	- ^e	- ^e

^a Density in passenger cars per mile per lane.

^b Average travel speed in miles per hour.

^c Maximum volume-to-capacity ratio.

^d Maximum service flow rate under ideal conditions in passenger cars per hour per lane.

^e Highly variable, unstable.

⊙ less than or equal to

⊙ greater than or equal to

Source: Transportation Research Board, *Highway Capacity Manual*, Special Report 209 (Washington, D.C., 1994), pp. 7-8.

**Table B-3
Level of Service Criteria for General Two-Lane Highway Segments**

LOS	% Time Delay	Avg. ^b Speed	V/C Ratio ^a																			
			Level Terrain						Rolling Terrain						Mountainous Terrain							
			% No-Passing Zone						% No-Passing Zone						% No-Passing Zone							
			0	20	40	60	80	100	Avg. ^b Speed	0	20	40	60	80	100	Avg. ^b Speed	0	20	40	60	80	100
A	⊙ 30	⊞ 58	0.15	0.12	0.09	0.07	0.05	0.04	⊞ 57	0.15	0.10	0.07	0.05	0.04	0.03	⊞ 56	0.14	0.09	0.07	0.04	0.02	0.01
B	⊙ 45	⊞ 55	0.27	0.24	0.21	0.19	0.17	0.16	⊞ 54	0.26	0.23	0.19	0.17	0.15	0.13	⊞ 54	0.25	0.20	0.16	0.13	0.12	0.10
C	⊙ 60	⊞ 52	0.43	0.39	0.36	0.34	0.33	0.32	⊞ 51	0.42	0.39	0.35	0.32	0.30	0.28	⊞ 49	0.39	0.33	0.28	0.23	0.20	0.16
D	⊙ 75	⊞ 50	0.64	0.62	0.60	0.59	0.58	0.57	⊞ 49	0.62	0.57	0.52	0.48	0.46	0.43	⊞ 45	0.58	0.50	0.45	0.40	0.37	0.33
E	> 75	⊞ 45	1.00	1.00	1.00	1.00	1.00	1.00	⊞ 40	0.97	0.94	0.92	0.91	0.90	0.90	⊞ 35	0.91	0.87	0.84	0.82	0.80	0.78
F	100	< 45	--	--	--	--	--	--	< 40	--	--	--	--	--	--	< 35	--	--	--	--	--	--

^a Ratio of flow rate to an ideal capacity of 2,800 passenger cars per hour in both directions.

^b Average travel speed of all vehicles (in mph) for highways with design speed ⊞ 60 mph; for highways with lower design speeds, reduce speed by 4 mph for each 10-mph reduction in design speed below 60 mph; assumes that speed is not restricted to lower values by regulation.

⊙ less than or equal to

⊞ greater than or equal to

Source: Transportation Research Board, *Highway Capacity Manual, Special Report 209* (Washington, D.C., 1994), pp. 8-5.

Arterials

Levels of service for arterials are dependent on the arterial class denoted as Type I, II, or III. Type I arterials are principal arterials with suburban design, 1 to 5 signals per mile, no parking, and free-flow speeds of 35 to 45 miles per hour (mph). Type III arterials have urban designs, with 6 to 12 signals per mile, parking permitted, and are undivided with free-flow speeds of 25 to 35 miles per hour. Type II arterials fall between Type I and III and have free-flow speeds of 30 to 35 miles per hour.

The LOS for an arterial is based on maneuverability, delays, and speeds. As the volume increases, the probability of stopping at an intersection due to a red signal indication increases and the LOS decreases. The specific LOS criteria from the HCM are presented in Table B-4.

For the CMP, a calculation method based on V/C was selected. Volumes on each roadway segment in each direction are divided by the capacity, estimated to be 1,100 vehicles per hour per lane. The capacity was estimated based on a saturation flow rate of 1,900 vehicles per lane and the assumption that El Camino Real would receive 60 percent of the green time.¹ With the assumption that streets perpendicular to El Camino Real would receive 40 percent of each intersection's green time, the reduction in El Camino Real's capacity due to intersecting streets has been accounted for in the method used to analyze levels of service of arterial streets. Except for the 16 designated intersections, the operations of individual intersections, which are the locations where a street capacity is most constrained, are not analyzed for the CMP. Therefore, the levels of service presented for various roadway segments along El Camino Real are likely to be better than the level of service of individual intersections.

The V/C for arterials is correlated to LOS based on the information in Table B-5. The average speeds for each LOS designation are presented in Table B-4.

¹The estimated capacity for El Camino Real was calculated by multiplying 1,900 vehicles per hour per lane by 0.6, to arrive at 1,140 vehicles per hour per lane which was then rounded off to 1,100 vehicles per hour per lane.

Table B-4
Level of Service Criteria for Arterials

Arterial Class	I	II	III
Range of Free-Flow Speeds (mph)	45 to 35	35 to 30	35 to 25
Typical Free-Flow Speed (mph)	40 mph	33 mph	27 mph

Level of Service	Average Travel Speed (mph)		
A	≥ 35	≥ 30	≥ 25
B	≥ 28	≥ 24	≥ 19
C	≥ 22	≥ 18	≥ 13
D	≥ 17	≥ 14	≥ 9
E	≥ 13	≥ 10	≥ 7
F	< 13	< 10	< 7

mph miles per hour

⊗ less than or equal to

≥ greater than or equal to

Source: Transportation Research Board, *Highway Capacity Manual, Special Report 209* (Washington, D.C., 1994), pp. 11-4.

**Table B-5
CMP Level of Service Criteria for Arterials^a Based on
Volume-to-Capacity Ratios**

Level of Service	Description	V/C ^b
A	Free-flow conditions with unimpeded maneuverability. Stopped delay at signalized intersection is minimal.	0.00 to 0.60
B	Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome.	0.61 to 0.70
C	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving.	0.71 to 0.80
D	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.	0.81 to 0.90
E	Operations with significant intersection approach delays and low average speeds.	0.91 to 1.00
F	Operations with extremely low speeds caused by intersection congestion, high delay, and adverse signal progression.	Greater Than 1.00

^a For arterials that are multilane divided or undivided with some parking, a signalized intersection density of four to eight per mile, and moderate roadside development.

^b Volume-to-capacity ratio.

≥ greater than or equal to.

< less than.

Source: Transportation Research Board, *Highway Capacity Manual, Special Report 209* (Washington, D.C., 1994).

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Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F ¹	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into three intersection types: all-way stop, two-way stop, and roundabout control. All-way stop and roundabout control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F ¹	>50

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

APPENDIX C: BAAQMD'S DEFICIENCY LIST

Final

DEFICIENCY LIST:

**PROGRAMS, ACTIONS AND IMPROVEMENTS
FOR INCLUSION IN CONGESTION MANAGEMENT PROGRAM
"DEFICIENCY PLANS"**

Bay Area Air Quality Management District
Planning Division
939 Ellis Street
San Francisco, CA 94109

For more information, contact David Marshall at (415) 749-4678.

Adopted by the District Board of Directors

November 4, 1992

1 WHEREAS, the proposed Deficiency List was discussed with
2 affected and interested parties and was revised in response to
3 comments received from such parties;

4 WHEREAS, District staff recommends that this Board adopt
5 the Deficiency List attached hereto; and

6 WHEREAS, this Board concurs with the recommendation of the
7 staff.

8 NOW, THEREFORE, BE IT RESOLVED that this Board hereby adopt
9 the proposed Deficiency List attached hereto comprising a list of
10 programs, actions and improvements for use in the preparation of
11 Deficiency Plans and a statement of policy the District will
12 follow in updating the list and in considering items not included
13 in the list but proposed for consideration in a Deficiency Plan.

14 The foregoing resolution was duly and regularly introduced,
15 passed and adopted at a regular meeting of the Board of Directo.
16 of the Bay Area Air Quality Management District on the Motion of

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1 Director McPeak, seconded by Director McKenna,
2 on the 4th day of November 1992 by the following vote of the
3 Board:

4 AYES: Aramburu, Battisti, Britt, Campbell, Harberson, Harper,
5 Head, Hilligoss, McKenna, McPeak, Ogawa, Powers.
6
7

8
9 NOES: Hancock.
10

11
12
13 ABSENT: Achtenberg, Bruno, Cooper, Davis, Diridon, Eshoo, Fogarty.
14

15 *M. Patricia Hilligoss*
16 M. PATRICIA HILLIGOSS
17 Vice-Chairperson of the Board of Directors

18 ATTEST:
19 *Paul Battisti*
20 PAUL BATTISTI
21 Secretary of the Board of Directors



27 Certified as a True Copy
28 *Carol D. Shalley*
29 Carol D. Shalley
30 Clerk of the Boards
31
32

INTRODUCTION

This document contains the Bay Area Air Quality Management District's list of improvements, programs and actions for inclusion in Congestion Management Program Deficiency Plans. Deficiency Plans are a part of the Congestion Management Program (CMP) process. Under the CMP process, each urbanized county in California establishes a county wide road system consisting of all Interstates, state highways and major arterials, along with a Level of Service (LOS) standard.¹ When traffic conditions on a roadway segment or intersection falls below the LOS standard, the local jurisdiction is required to develop a Deficiency Plan. In some instances, cities and counties may be monitoring LOS based upon transportation models, attempting to predict conditions in the future. The intent is to develop plans for deficient segments prior to the actual occurrence of a deficiency.

The requirements for Deficiency Plans are set forth in Government Code Section 65089.3(b). The plans are to include four elements: A) an analysis of the cause of the deficiency; B) a list of improvements and their estimated costs which would enable the deficient road segment or intersection to maintain a LOS at the standard or better; C) a list of improvements, programs, or actions that will measurably improve the Level of Service of the road system and contribute to significant improvements in air quality; D) An action plan to implement either option B) or C) above, including a specific implementation schedule and a description of funding. The full text of Section 65089.3(b) is reprinted in Attachment 1.

The CMP statutes direct the Bay Area Air Quality Management District, as the air district for most of the nine-county Bay Area², to establish and periodically update a list of improvements, programs and actions which can be used by local governments in developing element C of the Deficiency Plans. The list should include items that " ... (i) measurably improve the level of service of the system ..., and (ii) contribute to significant improvements in air quality, such as improved public transit service and facilities, other rideshare programs and promotions, improved non-motorized transportation facilities, high occupancy vehicle facilities, and transportation control items." The statutes also state that "[i]f an improvement, program, or action is not on the approved list, it shall not be implemented unless approved by the local air quality management district."

¹ Level of Service, commonly abbreviated as LOS, is a method of measurement of congestion that compares actual or projected traffic volume with the maximum capacity of the facility under study. LOS ranges from A to F, with F describing the most congested conditions. Except in a few instances, the standard established in the CMPs of the nine Bay Area counties is LOS E. Some counties have designated LOS D for facilities located within undeveloped and rural areas.

² The Bay Area Air Quality Management District includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, the western part of Solano, and the southern part of Sonoma Counties.

Confusion has arisen over whether a city or county in its Deficiency Plan can recommend widening a "deficient" highway segment or expanding a "deficient" intersection to resolve a level of service deficiency. The CMP legislation provides for that option as noted in element B above. However, even when a jurisdiction knows in advance that it wants to opt for a "direct fix" to the problem, it still must prepare a Deficiency Plan because the segment has become deficient (determined through LOS monitoring). In that Deficiency Plan, the jurisdiction still must develop element C of the Plan that evaluates improvements, programs and actions contained on the BAAQMD's list.

The CMP process is largely directed at alleviating and avoiding peak-period roadway congestion. Because of this, the Deficiency List contains items intended to help reduce peak-period motor vehicle travel, although many items on the list will also work to reduce travel during other periods of the day. The Deficiency List does not contain certain "market-based" revenue and pricing measures (e.g., gas tax increase, higher bridge tolls, congestion pricing, smog fee, "pay as you drive" insurance, etc.). Each of these need (1) state enabling legislation prior to any city or county action to implement, and (2) a well-orchestrated regional implementation strategy to ensure success. For these reasons, the market-based measures are not appropriate for the Deficiency List at this time.³

In a region as large and diversified as the Bay Area, it would be difficult to identify improvements, programs and actions that individually work to "...measurably improve the level of service of the system...and contribute to significant improvements in air quality...". The items that have been included on our list work in some degree to improve roadway conditions and lessen air pollution. The degree to which each item does both varies: Some are very strong improvers of traffic congestion, but make small contributions in improvements to air quality; others help to improve air quality, but offer very little in the way of traffic relief; and then still others offer little in both categories, yet are very necessary as supporting measures.⁴ Because of this, emphasis should be given to the benefits derived from combining the various measures, viewing their effectiveness in terms of joint application.

³ The Deficiency List does include Parking Management (measure E6) through pricing strategies.

⁴ Certain measures included on the District's list focus on providing alternatives to the single occupant vehicle that will benefit the Region's air quality in the long term. Implementation of these measures as part of a deficiency plan may contribute to or cause localized congestion for motor vehicles (examples include Signal Preemption by Transit Vehicles [B11] and Bus Stop Bulbs [B12]). Without changes to State law, a jurisdiction could have to prepare a Deficiency Plan to remedy a level of service deficiency caused by implementation of a measure (or measures) on this list.

The following measures have been included in this initial Deficiency List, but will undergo further evaluation due to revised air pollutant emissions factors recently released by the California Air Resources Board (CARB):

- Accelerated implementation of the 2005 HOV Master Plan (D3)
- Auxiliary Lanes of up to One Mile in Length Where HOV Lanes are Provided (F3)
- Signalization Improvements (F4)
- Computerized Traffic and Transit Control/Management on Arterials (F5)

These new emissions factors show that vehicles emit more Carbon Monoxide and Hydrocarbons at speeds greater than 35 miles per hour. Following: (1) resolution of the current debate among CARB, the U.S. Environmental Protection Agency (EPA), Caltrans, the Federal Highway Administration (FHWA) and MTC on emissions factors for vehicle speeds of 20-50 miles per hour, or (2) more technical information becoming available, BAAQMD staff will reassess the appropriateness of these measures for the Deficiency List. Furthermore, Ramp Metering (F2) has the potential to create Carbon Monoxide "hot spots" since vehicles must idle while waiting to enter the freeway. Queues that develop at metered freeway entrances can cause motorists to opt to take short trips on local arterials, resulting in more emissions for the entire trip than would have occurred had the motorist waited in the queue to take the trip via freeway. When more technical information on the air quality impacts of ramp metering becomes available, BAAQMD staff will reassess the appropriateness of these measures for the Deficiency List.

The BAAQMD will reevaluate the measures on this list following preparation of revised regional transportation/air quality planning documents designed to replace current planning documents of the same name:

- Regional Transportation Plan (1993)
- Ozone State Implementation Plan (to be prepared for Federal air quality standards) (1993)
- Bay Area 1994 Clean Air Plan (to be prepared for State air quality standards)

Although the statutes do not call for guidance on the implementation of the items on the Deficiency List, BAAQMD staff has provided some. The guidance is general in nature, and is directed towards providing a basis by which local jurisdictions, Congestion Management Agencies and other interested groups can determine the adequacy of a Deficiency Plan. The guidance is not intended to serve as a "cookbook" that specifies the degree to which each item shall be implemented in a particular jurisdiction. Experience gained through the implementation of the items on the list should help District staff in

updating and improving the list. Future versions may contain actions specific to certain Counties or municipalities.

Section I is the District's draft list of programs, actions and improvements to be used by cities and counties in preparing Deficiency Plans. **California law mandates that cities and counties select measures from the list in Section I when preparing Deficiency Plans.**

Section II contains the *policy* the BAAQMD will follow in updating the list and for considering items not included on the list but proposed for inclusion in a Deficiency Plan.

Appendix A presents the BAAQMD's guidance on how the draft Deficiency List should be implemented by local governments. **Information in Appendix A is advisory. California law does not specify the scope or quantity of measures on the list necessary to mitigate or "offset" a level of service deficiency.**

This document was prepared by David Marshall and Michael Murphy, Senior Planners, Planning Division / Environmental Review Section.

SECTION I
LIST OF PROGRAMS, ACTIONS, AND IMPROVEMENTS
FOR INCLUSION IN DEFICIENCY PLANS

Cities/Counties/CMAAs' use is mandatory (required by California law)

The items that comprise the list of programs, actions and improvements that cities and counties can incorporate into Deficiency Plans are described below. Each description indicates whether the item is most suitable for local implementation, county wide or corridor level implementation.

Although the items have been grouped into six categories, many are complementary and their individual effectiveness will be increased if undertaken together. For instance, the success and advantages of High Occupancy Vehicle lanes will be enhanced if preferential treatment of buses, carpools and vanpools is designed into parking areas, local arterials and freeway on- and off-ramps.

Each category is preceded with a listing of the Transportation Control Measures (TCM) from the '91 Clean Air Plan that will be directly implemented or in some fashion be supported by the items on the list. The development and implementation of Deficiency Plans is not viewed as the main avenue for the implementation of the TCMs in the '91 Clean Air Plan. Clearly though, implementation of system-wide improvements through Deficiency Plans can only benefit the success of the strategies set forth in the TCMs.

A. BICYCLE AND PEDESTRIAN MEASURES

A1. Improved Roadway Bicycle Facilities and Bike Paths. Roadways could be improved to provide increased safety and convenience for bicyclists. Improvements include:

- widening shoulders or curb side pavement
- lane re-striping and/or removal of on-street parking to create a wider outside (right) lane for bicycles thus reducing bicycle and automobile conflicts
- installing, marking and/or modifying sensitivity of detection loops at intersections to trigger light changes and allow bicycles to clear the intersection
- completing and expanding Class I bike paths and Class II bicycle lanes that are in the circulation elements of general plans

Caltrans standards shall be followed in designing and constructing bicycle improvements. This measure is suitable for both local and system-wide implementation.

A2. Transit and Bicycle Integration. This measure is intended to increase the number of bus and train routes capable of transporting bicycle riders, as well as improving interconnection between the two modes. Communities in San Mateo, Santa Clara and San Francisco Counties could work with the CALTRAIN Joint Powers Board to allow bicycles on CALTRAIN and to assure peak period bicycle accommodation on the new California cars (when acquired). Communities within the BART service area could work with BART to better accommodate bicycles during commute periods through downtown Oakland and San Francisco, as well as shortening or eliminating the periods during which bicycles are barred from the BART system. An alternative could be to provide special peak-period BART runs in the commute direction that accommodate bicycles. Communities, working with relevant transit districts, could work to increase the number of bus routes and rail services allowing access to bicyclists, as well as providing increased numbers of bicycle lockers (for regular users) and racks that allow use of the U-Bar style locks (for occasional users) at transit transfer centers and other interconnection points. This measure should be implemented on a system-wide basis since most transit service is on a multi-city basis. Local governments that operate their own transit service should implement this measure locally.

A3. Bicycle Lockers and Racks at Park and Ride Lots. Park and ride lots accessible to bicycles should contain bicycle lockers (for regular users) and racks that allow use of the U-Bar style locks (for occasional users). Jurisdictions will have to include in their Deficiency Plans the initial number of storage spaces and criteria for installing additional spaces. Communities can also consider establishing "Bike and Ride" lots: areas along major transit routes designated for bicycle storage only, separate from automobile parking lots. This measure can be implemented on a local basis.

A4. Bicycle Facilities And Showers At Developments. As part of any new office/industrial/commercial/school/special generator and multi-family (four or more units) residential development generating more than 50 person trips per day, cities and counties could require the inclusion of bicycle storage facilities and, for office/industrial/commercial/school/special generator developments employing more than 100 employees, showering and changing rooms. Bicycle storage facilities include bicycle lockers and racks (must allow use of the U-Bar style locks) which are located close to the main entrances or inside of buildings. Existing sites should add bicycle storage facilities and, for developments/buildings/sites employing more than 100 employees, showering and changing rooms where feasible. This measure can be implemented on a local basis.

A5. Improved Pedestrian Facilities. It is the general practice for new development to include sidewalks and other pedestrian facilities. However, efforts can be made to improve and expand upon current requirements and practices to make walking a more integral part of the transportation system. City and county zoning ordinances and design standards should be revised as appropriate to ensure safe, convenient and direct pathways for pedestrians between their residences, shopping and recreational areas, and work sites. Other efforts include requiring, where appropriate, the provision of walkways in commercial and residential areas linking building entrances to street sidewalks and crossings, and linking building entrances to adjacent building entrances and activity centers. Communities can also require continuous and clearly marked pathways across parking lots between sidewalks and building entrances. A preferable approach is to locate entrances and building fronts along street sidewalks, with parking spaces at the sides and rears of buildings. This measure is suitable for local implementation. (See also Land Use Measures [E8].)

A6. Pedestrian Signals. To encourage more walk trips, pedestrian signals should be added on major arterials to enhance safety. This measure should be implemented locally.

A7. Lighting for Pedestrian Safety. Communities can require and install adequate lighting for sidewalks, bus stops, bicycle parking areas and vehicle parking lots to create conditions that are safe for pedestrians. There may be special hardware requirements that must be met for implementation of this measure in proximity to facilities sensitive to light pollution (e.g., Lick Observatory). This measure is suitable for local implementation.

B. TRANSIT (Includes bus, rail and ferry services)

B1. Improvement of Bus, Rail and Ferry Transit Services. This measure is directed at improving public and private transit service. Cities, counties and employers will need to (1) work with the relevant transit districts and private operators to identify appropriate routes for reducing headways, extending service, improving transfers, and coordinating project design and services to new development; and (2) contribute financially toward both capital and operating costs of service improvements. Emphasis should be placed on providing service that will reduce peak period automobile trips (e.g., express and commuter bus/rail/ferry service). Service expansion should be coordinated with the relevant Short Range Transit Plan(s) and also support local and regional trip reduction efforts. This measure should be implemented on a system-wide basis.

B2. Expansion of Rail Transit Service. This measure is directed at extending or expanding rail transit beyond the projects included in MTC's New Rail Starts Program

outlined in MTC Resolution 1876. Emphasis should be placed on expanding rail service to corridors not included in Resolution 1876 that will experience rapid growth in peak period automobile trips. Cities and counties will need to work with local, regional, state and federal transportation agencies to define projects and establish institutional arrangements to construct and operate the services, and fund operating costs. This measure can be implemented locally and on a system-wide basis, and should be considered in conjunction with Improvement of Bus, Rail and Ferry Transit Services (B1).

B3. Expansion of Ferry Services. Freeways, bridges and transit connections around and across San Francisco Bay are heavily congested. High speed ferry service offers an efficient and comfortable transportation alternative. New or enhanced service should focus on peak period travel when congestion is greatest. An example would be to provide high speed commuter ferry service between Vallejo and the San Francisco Ferry Terminal as a reliever of peak period congestion on I-80 in Contra Costa and Alameda counties. This measure should be implemented on a corridor or system-wide basis.

B4. Preferential Treatment for Buses and In-Street Light Rail Vehicles (LRVs). This measure includes strategies that give preference to buses and in-street light rail vehicles, including transit stops at building entrances, bus shelters, LRV platform boarding areas, direct HOV to HOV connecting lanes and ramps, exclusive bus/LRV lanes, bypass lanes at metered freeway ramps, including reserved lanes around any queues that may form on connecting streets or at congested off-ramps. These strategies should be a part of a coordinated regional and/or county HOV system, with individual communities assisting with changes that affect local streets or development review/approval. This measure can be implemented both locally and on a system-wide basis.

B5. Transit Information and Promotion. This measure is intended to work with the Transit and Bicycle Integration (A2), Stricter Travel Demand Management/Trip Reduction Ordinances (E1) and Public Education Programs (E2). Cities and counties can:

- advertise the availability of transit in their communities
- post transit schedules at bus stops
- enhance access to transit via non-motorized modes-(e.g., bicycling and walking)
- provide for special accommodation of clean fuel/electric vehicles at rail and ferry stations (e.g., preferential parking and free electric outlets)

Cities and counties must coordinate their recommendations with relevant organizations such as local transit district(s), MTC, RIDES for Bay Area Commuters, Inc., Berkeley TRiP,

San Benito Rideshare, Santa Clara County's Commuter Network, Santa Cruz Share-a-Ride, Solano Commuter Information¹ and the BAAQMD for enhancements to existing programs or implementation of new programs. Promotional activities should be directed at all trips, including those for shopping, recreation, commuting and school. This measure can be implemented both locally and on a system-wide basis.

B6. Transit Pricing Strategies to Encourage Ridership and, where applicable, Reduce Transit Vehicle Crowding. Pricing incentives and alternative fare structures can encourage ridership and, where necessary, reduce transit vehicle crowding. These incentives and strategies include subsidy from alternative revenue sources to reduce fares, zonal fares, peak hour fares, elimination of discounts for elder citizens who travel at peak times and free or reduced cost transit on "Spare the Air" day.² Transit pricing changes should ideally be done in conjunction with service improvements. Communities can work with neighboring cities and transit agencies to identify and subsidize appropriate incentive programs. This measure, especially appropriate for cities or counties that operate their own transit system, should be implemented on a system-wide basis.

B7. Transit Fare Subsidy Programs. These programs generally are implemented at employment sites in the form of direct employer subsidy of employee transit fares, usually with some monthly or yearly ceiling. Where cities/counties require employers to subsidize transit fares to meet trip reduction requirements, such programs must also equally subsidize persons who use non-motorized modes (e.g., bicycle or walk). Other subsidy programs could be directed towards school, recreational and shopping trips. This program can be implemented locally for a city or county's own employees, or a city or county can include a transit fare subsidy requirement for employers in its local trip reduction ordinance, or a city or county can condition new development to include such programs as a part of the city or county's development approval process.

B8. Transit Centers. To assist current and potential riders in obtaining route information, schedules, and passes, cities and counties would establish (or provide funds for transit agencies to establish) transit centers. The centers can be patterned after Berkeley TRIP. Another option is a mobile, clean fueled/electric "commute store" that would visit activity

¹ San Benito County, Santa Cruz County and eastern Solano County are outside the BAAQMD's jurisdiction. Reference is made to services offered in these jurisdictions since they are considered within the commute shed of the greater Bay Area.

² Depending on how the strategies are constructed, they have potential to significantly impact operating revenue. Any proposal should fully evaluate the impact on operating revenue and identify replacement revenue to cover any potential loss to the transit operator(s). "Spare the Air" day occurs when the BAAQMD forecasts that atmospheric conditions on the following day are likely to result in an exceedance of the health based State ozone standard. Major employers and the media are notified to advise employees and the general public that activities contributing to ozone formation should be limited.

centers and employment sites to disseminate transit, ridesharing, and non-motorized travel information (e.g., maps of bike routes, bicycle commuter handbooks, and city walking guides). A second option is to install electronic kiosk centers, which are able to dispense tickets, route information, and in some cases, assist with ride matching operations. Another option is to franchise out the centers to mailbox services, photocopying centers, or other such establishments. Centers could also be established at community centers. Centers should be established at all major transit transfer points. This measure can be implemented both locally and on a system-wide basis.

B9. Improved and Expanded Timed Transfer Programs. Shortening the time passengers wait when transferring between buses, from bus to train or vice-versa, and between transit systems is an important improvement to transit service. Working with the relevant transit districts, cities and counties would need to identify the best locations for timed transfers and which routes would be best suited for schedule adjustments. Current plans to institute timed transfers should be considered for accelerated implementation. This measure should be implemented on a system-wide basis.

B10. Improved and Expanded Fare Coordination. Through the encouragement of MTC, BART and several Bay Area transit operators have developed a fare card that is used to debit fares on BART and also serve as a semi-monthly "flash pass" on major Bay Area bus systems. Each month more people purchase this card, demonstrating the public's desire for a simplified Bay Area transit fare structure. MTC is working diligently with transit operators to test and implement a "universal" fare card. Cities and counties can work in partnership with MTC, CMAs and relevant transit districts to develop and implement fare coordination agreements, and contribute financially to the necessary hardware, software, equipment maintenance and, where applicable, operator subsidies.

B11. Signal Preemption by Transit Vehicles. Transit vehicles could be equipped with preemption devices that hold or trigger a green light in order to avoid delays at intersections. Since implementation of this measure could be highly disruptive to traffic flow in an optimally timed, signalized corridor, and thus increase emissions, affected local governments should work closely with transit agencies to implement signal preemption only where most appropriate. This measure should be implemented on a system-wide or corridor basis.

B12. Bus Stop Bulbs. A strategy to improve passenger pickup and off-loading is to extend sidewalks across the parking lane to the first through traffic lane. Such an extension is called a bus stop bulb. With bus stop bulbs, buses are not delayed merging back into traffic after stops, and cars are prevented from blocking the stops, both of which improve bus travel time.³ Some transit agencies prefer bus turn outs (which remove the

bus from the traffic stream for passenger loading to minimize delay to motorists and allow the bus to reenter the traffic stream only when an adequate gap in traffic becomes available), while others prefer neither bus turn outs nor bus bulbs. Cities or counties that want to implement Bus Stop Bulbs (B11) should work closely with their respective transit agency(ies). The District does not consider bus turn outs as an appropriate alternative to bus stop bulbs since turn outs favor single occupant vehicles and lengthen bus travel times. This measure can be implemented both locally and on a system-wide basis.

B13. School Bus Transit Service. This measure is directed at establishing school bus services in school districts where bus service has been reduced or eliminated. Reinstating or expanding school bus service would provide an alternative to many students who drive to school or are driven to school by others. Reinstating or expanding school bus service would also provide capacity on existing public bus services for commuters displaced by student riders. Cities and counties will need to work with school districts to establish arrangements for funding the service. This measure would be implemented locally or system-wide.

C. CARPOOLING, BUSPOOLING, VANPOOLING, TAXIPOOLING, JITNEYS, CASUAL CARPOOLING AND OTHER SHARED RIDES (Ridesharing)

C1. Preferential Treatment for Shared Ride Vehicles. This measure includes strategies that give preference to carpools, buspools, vanpools, taxipools, jitneys and other shared rides, including reserved parking spaces next to building entrances, transit stops at building entrances, direct HOV to HOV connecting lanes and ramps, bypass lanes at metered freeway ramps, including reserved lanes around any queues that may form on connecting streets or at congested off-ramps. These strategies should be a part of a coordinated regional and/or county HOV system, with individual communities assisting with changes that affect local streets or development review/approval. This measure can be implemented both locally or on a system-wide basis.

C2. Increased use of Commuter/Employer Services. To increase the number of carpools and vanpools, commuters and employers should be encouraged to use the free computerized ridematching services provided by RIDES for Bay Area Commuters, Inc., Berkeley TRiP, San Benito Rideshare, Santa Clara County's Commuter Network, Santa Cruz Share-a-Ride and Solano Commuter Information.³ RIDES maintains a database that serves commuters in the nine Bay Area counties and several outlying counties. RIDES'

³ San Benito County, Santa Cruz County and eastern Solano County are outside the BAAQMD's jurisdiction. Reference is made to services offered in these jurisdictions since they are considered within the commute shed of the greater Bay Area.

database is electronically linked to ridesharing programs in San Benito County, Santa Clara County, Santa Cruz County, Solano County and the City of Berkeley as well as to ridesharing programs of several Bay Area employers. As an integral part of cities' and counties' trip reduction efforts, employers of all sizes should encourage their employees to take advantage of these services. In addition, employer services offered by RIDES, Santa Clara County's Commuter Network, Solano Commuter Information and Berkeley TRiP could serve as an integral part of training, education and outreach efforts for employee transportation coordinators. This measure can be implemented locally or on a system-wide basis.

D. HIGH OCCUPANCY VEHICLE (HOV) FACILITIES

D1. Preferential Treatment for HOVs. See measures B4 and C1.

D2. Bus and Carpool/Buspool/Vanpool/Taxipool Priority Lanes on Local Arterials. This measure is aimed at providing time savings for buses and car/bus/van/taxipools on local arterials. Many peak period commute trips occur on congested local streets. Provision of the Priority lanes during the commute periods will act as an incentive for ridesharing. In some instances, this measure can be combined with Restrictions on Curb-Side Deliveries and On-Street Parking (F11) to provide lanes without taking away mixed flow capacity. (However, streets with existing or planned bicycle lanes should not have the parking lane converted, as this could cause conflicts between bicyclists and motor vehicles.) Cities and counties incorporating this measure in their Deficiency Plan should indicate how any proposed priority lanes will supplement or otherwise support any county-wide or regional HOV plans. This measure should be implemented on a system-wide basis.

D3. Accelerated Implementation of the 2005 HOV Master Plan. The Metropolitan Transportation Commission (MTC), Caltrans, and the California Highway Patrol (CHP) have identified a regional system of High Occupancy Vehicle Lanes. Some of the projects have already been programmed for funding and completion by 1995. The remainder are assumed for completion by 2005. Communities can place a greater priority on these projects so that they can be constructed before the year 2005. For areas, such as Solano County, which are not included in the 2005 HOV Master Plan, emphasis can be placed on developing HOV lanes identified in another study, such as the I-80 Strategic Plan. Cities and counties should work with MTC, Caltrans and the CHP to evaluate HOV lanes on freeway segments not included in the 2005 HOV Master Plan.

The technical analysis accompanying the 2005 HOV Master Plan indicated that successful HOV lanes require support facilities, such as park and ride lots, express bus service and exclusive HOV bypass lanes and connecting ramps. It is recommended that Deficiency

Plans incorporating this measure focus on providing support facilities for HOV lanes. Some, such as by-pass lanes and connecting ramps, would be constructed at the time the HOV lane is constructed. Others, such as park and ride lots and improved transit service should be implemented prior to the opening of the HOV facility. This measure can largely be implemented on a system-wide basis, although supporting actions can be done on a local basis. (See note on page 3 regarding this measure.)

D4. HOV to HOV Facilities. Local government work with Caltrans and CMAs to identify and program for construction ramps that provide a direct connection between HOV facilities. This could significantly reduce travel time for HOVs that otherwise would be required to negotiate a very slow merge across three or four lanes of single occupant vehicle (SOV) traffic twice in order to exit one freeway and enter another. This measure can be implemented on a system-wide basis.

D5. Direct HOV Lane Entrance/Exit Ramps to Arterials and Special Generators. Where high volumes of HOVs would benefit from direct access to freeway or expressway HOV lanes, direct HOV ramps should be provided for (1) arterials that provide access to major activity centers and (2) connecting roadways to special generators (e.g., airports, stadiums, universities, military facilities, etc.). This measure could be implemented region-wide or locally.

E. OTHER TCMS, RELATED MEASURES.

E1. Stricter Travel Demand Management/Trip Reduction Ordinance. As part of a Deficiency Plan, a city or county will modify their mandated Trip Reduction Ordinance to include requirements *beyond* those either currently identified or recommended in their county's CMP. After the adoption of the BAAQMD's Employer-Based Trip Reduction Rule, jurisdictions would revise their programs to go *beyond* the requirements embodied in the District's rule and other local trip reduction requirements, where applicable. This program can be implemented locally.

E2. Expanded Public Education Programs. A Public Education program should be an essential part of any Deficiency Plan. Jurisdictions can include educational materials regarding air quality and congestion relief and the use of the automobile with programs dealing with waste recycling, water conservation, etc. The conservation of air quality and the efficient use of the transportation system are messages compatible with other waste reduction and resource conservation programs. Public education programs might include the following topics:

- health effects of air pollution and traffic congestion
- the air pollution effects of older cars and cars that are out of tune
- list of available low emission vehicles (electric, natural gas, methanol, etc.) and their sellers
- the air pollution effects of cold starts and short trips
- the benefits of linking trips for shopping, errands, recreation, work, particularly during the afternoon on weekdays and during the weekend
- the role of alternative means of transportation in improved regional air quality, local congestion relief, and reduced energy use
- the benefits of compact development, particularly near transit stations
- the benefits of leaving the car at home at least one or two days a week
- the benefits of taking feeder buses, bicycling or walking to regional rail or bus transfer centers and other destinations
- advertising the location, cost and availability of discount transit tickets
- educational materials designed for use in school curricula

The BAAQMD has already begun a public education program for the region. Materials developed as part of the program will be available to cities and counties. RIDES for Bay Area Commuters, Inc., Berkeley TRiP, San Benito Rideshare, Santa Clara County's Commuter Network, Santa Cruz Dial-a-Ride, and Solano Commuter Information each provide a variety of public information and services available to cities, counties, CMAs, transit agencies, employers and other transportation agencies/organizations.⁴ Educational materials should also be developed for planning and zoning commissions and governing boards that make land use and transportation decisions impacting air quality. This program can be implemented locally.

E3. Child Care Facilities at or close to Employment Sites, Transit Centers and Park and Ride Lots. Many commuters need to drop off and pickup their children at child care. The intent of this measure is for jurisdictions to facilitate the location of child care facilities at, or more likely, close to employment sites, major transit centers (e.g., BART, CalTrain and Santa Clara Light Rail stations, and park and ride lots. The intent is to shorten or eliminate the automobile portion of the commute trip. Jurisdictions and employers may need to provide financial incentives to operators of such facilities. This program can be implemented locally. (See also Land Use Measures [E8].)

⁴ San Benito County, Santa Cruz County and eastern Solano County are outside the BAAQMD's jurisdiction. Reference is made to services offered in these jurisdictions since they are considered within the commute shed of the greater Bay Area.

E4. Retail Services at or close to Employment Sites, Transit Centers and Park and Ride Lots. Trips could be eliminated and perceived transit waiting time would be reduced if retail services (e.g., automated bank teller machines (ATMs), dry-cleaners, coffee shops, book stores, etc.) were offered in conjunction with employment sites, transit centers and park and ride lots. Jurisdictions could provide incentives for and work with transit operators to encourage development at or in immediate proximity to areas where people wait to take a bus or train. Activity at or near a transit center or park and ride lot would also enhance safety and thus increase patronage. (See also Land Use Measures [E8].)

E5. Telecommuting Centers and Work-at-Home Programs. Under this measure, jurisdictions and employers would facilitate through discussions with major employers:

- the creation of centers in their communities for telecommuting
- implementation of programs that allow employees to work at home

Businesses would rent space in the center for their employees to work, being connected by telephone wires to the main office and/or allow their employees where appropriate to work at home one or two (or more) days per week. This program can be implemented locally.

E6. Parking Management. This is a broad measure, overlapping with measures dealing with employer-based trip reduction and traffic flow improvements. Jurisdictions can implement parking charges, restrict parking during peak hours along busy corridors, require preferential parking for carpools and vanpools at major activity centers, require shared parking arrangements at developments, land bank parking space, establish automobile free zones, parking standards in zoning ordinances to discourage vehicle trips (e.g., establish maximum parking ratios rather than minimum ratios, revise minimum ratios to require fewer spaces, etc.). This program can be implemented locally.

E7. Parking "Cash-Out" Program/Travel Allowance. AB 2109 (Katz, Ch. 92-0554) requires employers of 50 persons or more who provide a parking subsidy⁵ to employees to offer a parking cash-out program. Under a parking cash-out program, the employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the

⁵ "Parking subsidy" is defined as the difference between the out-of-pocket amount paid by an employer on a regular basis in order to secure the availability of an employee parking space and the price, if any, charged to an employee for use of that space.

employer would otherwise pay to provide the employee with a parking space.⁶ Employees who wish to continue to drive will receive a parking space in lieu of the cash allowance. Employees who forego the use of parking can use the travel allowance for any purpose, including subsidizing the use of alternative transportation modes. Employers may also offer transit passes or ridesharing subsidies as all or part of the travel allowance to help reduce the tax impact on employees.⁷

As part of a deficiency plan, a city or county could pass an ordinance, amend its trip reduction ordinance, or work with employers to implement parking cash-out programs that go beyond this new State requirement.⁸ Examples include:

- include employers with fewer than 50 employees
- include employers that own their own parking spaces, using the market rate for parking in the area as the cost of parking and the amount of the cash travel allowance
- require or encourage building owners to separate the cost of parking from the cost of leasing office space, thereby facilitating/requiring parking cash-out programs in multi-tenant office complexes
- implement a parking cash-out program at city/county employment sites as a model for other employers

This program, which should be implemented locally, must be designed to minimize any adverse impact on parking in neighborhoods adjacent to the participating employment sites.

E8. Land Use Measures. Land use exerts a strong influence on travel patterns and transportation mode choice. Site design strategies (e.g., clustering and minimizing walk distance to transit) also influence mode choice. Strategies which local governments can undertake include revising general plan policies and land use designations, zoning ordinances and design standards to provide for:

⁶ AB 2109 also requires cities and counties in which a commercial development will implement a parking cash-out program which is included in a CMP pursuant to subdivision (b) of Government Code Section 65089 or a deficiency plan pursuant to Government Code Section 65089.3 to grant that development an appropriate reduction in the parking requirements otherwise in effect for new commercial development.

⁷ Under State and Federal law a cash travel allowance is considered gross income and is therefore taxable. Transit subsidies and some other ridesharing subsidies are not taxable up to varying amounts, depending upon State or Federal tax law.

⁸ To meet the requirements of this Deficiency List, cities and counties must require that the employer program not be designed to disproportionately favor use of any alternative mode (e.g., giving a travel allowance to the employee in the form of a "Commuta Check" that can be used for public transit only, and offering no equivalent monetary benefit for those who rideshare, bicycle or walk).

- phase development to occur near current transit service (i.e., infill)
- mixed land uses where residences, work places and services are located close enough together to minimize the need for private motorized transportation between them⁹
- pedestrian oriented design, such as sidewalks, adequate crosswalks on major streets, building entries near sidewalks rather than behind parking lots, and convenient transit stops
- affordable housing near major employment sites
- incentives for infill development
- higher densities at transit stops and along major transit lines
- sites for alternative fuel vehicle fueling facilities

This measure can be implemented both locally and on a system-wide basis. (See also Improved Pedestrian Facilities [A5], Child Care Facilities at or close to Employment Sites, Transit Centers and Park and Ride Lots [D3] and Retail Services at or close to Employment Sites, Transit Centers and Park and Ride Lots [D4].)

F. TRAFFIC FLOW IMPROVEMENTS.

F1. Preferential Treatment of HOVs. See measure B4 and C1.

F2. Ramp Metering. Caltrans District 4 is currently working on a comprehensive ramp metering program for the region's freeways. Ramp metering must include bypass lanes for buses and carpools. Jurisdictions placing this measure in their Deficiency Plans must show how they will work with Caltrans and MTC to help fund and assist in expediting the implementation of ramp metering on freeway ramps within their community. Solano County would coordinate with any ramp metering plans developed by Caltrans, District 10. This measure would be implemented on a system-wide basis. (See note on page 3 regarding this measure.)

F3. Auxiliary Lanes of Up to One Mile in Length Where HOV Lanes are Provided. This measure would allow the addition of freeway auxiliary lanes between interchanges of not more than one mile in length (i.e., in locations with closely spaced interchanges) to promote ease of HOV lane access and egress and provide for safe merging of conflicting

⁹ Cities and counties, prior to zoning for or approving housing or other sensitive receptors (e.g., schools, hospitals or convalescent facilities) near industry should consider the nature of activity that may occur and whether that activity does/could pose a risk of nuisance (e.g., odors) or potential public health problems. Similar care should be taken when considering locating industry or related land uses near residences and other sensitive receptors. BAAQMD Planning Division staff is available in such cases to advise cities and counties of appropriate action and mitigation strategies (e.g., buffer zones) where feasible.

traffic. This measure is for *freeways only* (not expressways), since expressway auxiliary lanes would diminish the safety of bicyclists. This measure would be implemented on a system-wide basis. (See note on page 3 regarding this measure.)

F4. Signalization Improvements. Jurisdictions would be expected to improve signal timing and sequencing to smooth traffic flow and increase average speeds during the peak periods. Jurisdictions could identify roadways to undergo signalization improvements, as well as a timetable for doing so. Jurisdictions that have planned improvements can use those programs. Signalization improvements should be coordinated with any programs to improve signalization and preemption advantages for transit vehicles. This measure would be implemented on a system-wide basis. (See note on page 3 regarding this measure.)

F5. Computerized Traffic and Transit Control/Management on Arterials. This measure includes installing traffic sensors, closed circuit television, low wattage "highway-advisory radio" broadcasts, and centrally controlled changeable message signs on local arterials to convey current traffic and transit information. This driver and transit rider information system will supply travelers with real-time traffic and transit information to assist them in planning routes and times of travel. This will be especially helpful in reducing congestion from surges of traffic such as special events, sporting events and parades. (See note on page 3 regarding this measure.)

F6. Turn Lanes at Intersections. This measure would be applicable on arterials where placement of a maximum of one left turn lane and/or a maximum of one right turn lane per approach would significantly reduce average stopped delay at an intersection. Double left- or double-right turn lanes would not be appropriate at intersections or freeway/arterial on/off ramps since these create an unfriendly environment for trips by non-motorized modes (pedestrian, bicycle and other travel).¹⁰ This measure would be implemented locally.

¹⁰ An exception to the double turn lane restriction for arterial/arterial intersections would be appropriate only in cases where all of the following criteria are met: (1) the curb to curb distance remains the same for all approaches after changes to intersection geometry; (2) the width of the median (if any), which serves as pedestrian refuge, is not reduced to accommodate changes to intersection geometry; (3) the signal cycle length is reduced so pedestrians have more frequent opportunities to cross the intersection; (4) the minimum green time in each phase (for pedestrian crossing) is maintained or increased; and (5) the width of the right most through lane is maintained or increased from its width prior to changes to intersection geometry (for bicyclists' safety).

F7. Turn Restrictions at Intersections. This measure consists of restricting turns at some intersections throughout the day or during peak periods only. This measure can be implemented locally.

F8. Reversible Lanes. This measure is applicable on arterials in areas of employment concentration, where congestion occurs in the inbound direction in the morning and the outbound direction during the afternoon. It consists of temporarily increasing the capacity of the congested direction, with the reversed lane dedicated as an exclusive lane for buses, carpools and vanpools. This program can be implemented locally.

F9. One Way Streets. In areas of high traffic volumes, jurisdictions can convert roadways to one-way streets. This measure has been employed in many of the larger central business districts within the Bay Area. Jurisdictions using this measure should identify streets to be converted to one-way and an implementation schedule. However, streets should not have the parking lane taken away where this would cause conflicts between bicyclists and motor vehicles by decreasing the lane area for bicyclists.¹¹ This program can be implemented locally.

F10. Targeted Traffic Enforcement Programs. Where double parking, parking in bus stops, "gridlock" or illegal use of HOV lanes pose a problem, jurisdictions can provide additional parking and traffic enforcement to help manage congestion. This program can be implemented locally.

F11. Restrictions on Curb Side Deliveries and On-Street Parking. This measure is intended as a peak hour measure. The intent is to handle peak flows without adding permanent capacity to the roadway. It is expected that this measure would be used in conjunction with measures to provide arterial HOV lanes or transit priority lanes facilities. In some instances, restrictions may only apply to one-side or for a portion of a roadway/arterial, depending on the peak-flow. This measure may also be useful in handling congestion around commercial areas during their peak period. Jurisdictions may require that all deliveries be made at the rear of buildings, if space and building lot design allows. This program can be implemented locally.

¹¹ A combination bus and bike lane would be acceptable since the frequency of buses is limited.

SECTION II
BAAQMD ADMINISTRATION OF DEFICIENCY LIST

DISTRICT REVIEW OF MEASURES NOT ON THE APPROVED LIST

Section 65089.3(b)(1)(c) of the State Government Code requires that any programs, actions or improvements included in a Deficiency Plan which are not taken from the adopted District list may not be implemented unless approved by the District.¹ To facilitate the timely review of such measures the following procedures should be followed.

- (1) The District's Air Pollution Control Officer (APCO) and the appropriate Congestion Management Agency should be notified concurrently at the earliest practicable date of any local government's intent to seek District approval of an unlisted measure.
- (2) A complete description of the proposed measure(s) should be submitted to the District and the appropriate CMA concurrently. We recommend that the submittal include all documentation demonstrating the effectiveness of the proposed measure in reducing VMT on the CMP system. The District will inform the local government in writing within thirty days if additional information is needed. Review of the measure(s) will not commence until all needed information has been received by the District.
- (3) Once all relevant information has been received regarding the measure(s), the District Board of Directors, upon receiving a recommendation from the APCO, will either approve or disapprove the measure(s) within ninety (90) days. The APCO will notify the local government and the applicable Congestion Management Agency concurrently in writing of the reasons for the determination.

BIENNIAL UPDATE OF LIST

The list will be updated every two years, immediately following the period during which Congestion Management Agencies make their determinations that local governments conform (or do not conform) to requirements of the CMP legislation. Changes to the measures on the list or to the procedures governing their implementation will be adopted by the District's Board of Directors at a regularly scheduled meeting. Drafts of any changes will be available for public review at least two months prior to the Board taking action. District staff will continue its regular, ongoing consultative process with CMAs, MTC, Caltrans and ARB through the Clean Air/Congestion Management Working Group.

¹ Following adoption of this Deficiency List by the BAAQMD Board of Directors, California Congestion Management Program (CMP) law does not prohibit cities, counties, CMAs and Caltrans from continuing to manage congestion by including in their Capital Improvements Programs traffic flow improvements that are thought to have a long term detrimental effect on air quality (e.g., freeway, expressway, and arterial widening for single occupant vehicles and intersection improvements of any geometry). The law does however preclude cities and counties from placing in a Deficiency Plan any program, action or improvement not on this Deficiency List, unless approved by the BAAQMD according to administrative procedures outlined in this section.

Attachment 1

Excerpts from Government Code of the State of California (as amended in 1992 by the California Legislature [AB 2109/AB 3093]).

65089.3

- (a) The agency shall monitor the implementation of all elements of the congestion management program. Annually, the agency shall determine if the county and cities are conforming to the congestion management program, including, but not limited to, all of the following:
- (1) Consistency with levels of service and performance standards, except as provided in subdivisions (b) and (c).
 - (2) Adoption and implementation of a trip reduction and travel demand ordinance.
 - (3) Adoption and implementation of a program to analyze the impacts of land use decisions, including the estimate of the costs associated with mitigating these impacts.
- (b) (1) A city or county may designate individual deficient segments or intersections which do not meet the established level of service standards if, prior to the designation, at a noticed public hearing, the city or county has adopted a Deficiency Plan which shall include all of the following:
- (A) An analysis of the causes of the deficiency.
 - (B) A list of improvements necessary for the deficient segment or intersection to maintain the minimum level of service otherwise required and the estimated costs of the improvements.
 - (C) A list of improvements, programs, or actions, and estimates of costs, that will (i) measurably improve the level of service of the system, as defined in subdivision (b) of Section 65089, and (ii) contribute to significant improvements in air quality, such as improved public transit service and facilities, improved non-motorized transportation facilities, high occupancy vehicle facilities, parking cash-out programs, and transportation control measures. The air quality management district or the air pollution control district shall establish and periodically revise a list of approved improvements, programs, and actions which meet the scope of this paragraph. If an improvement, program, or action is on the approved list and has not yet been fully implemented, it shall be deemed to contribute to significant improvements in air quality. If an improvement, program, or action is not on the approved list, it shall not be implemented unless approved by the local air quality management district or air pollution control district.
 - (D) An action plan, consistent with the provisions of Chapter 5 (commencing with Section 66000) of Division 1 of Title 7, that shall be implemented, consisting of improvements identified in paragraph (B), or improvements, programs, or actions identified in paragraph (C), that are found by the agency to be in the interest of the public's health, safety and welfare. The action plan shall include a specific implementation schedule.
- (2) A city or county shall forward its adopted Deficiency Plan to the agency. The agency shall hold a noticed public hearing within 60 days of receiving the Deficiency Plan. Following the hearing, the agency shall either accept or reject the Deficiency Plan in its entirety, but the agency may not modify the Deficiency Plan. If the agency rejects the plan, it shall notify the city or county of the reasons for that rejection.

APPENDIX A

Cities/Counties/CMAs' use is advised (not required by California law)¹

Procedures for the implementation of the list of programs, actions and improvements developed by the Bay Area Air Quality Management District in response to the Congestion Management legislation is outlined below. The items listed in Section I provide a wide range of options from which communities can choose during the development of a Deficiency Plan. One of the key issues that will confront the preparers of Deficiency Plans is how many of the items from the list must be included in a particular plan.

The responsibility for determining the adequacy of a Deficiency Plan rests with the Congestion Management Agencies. The CMAs can either accept or reject a Deficiency Plan, but may not modify it. The CMAs will be responsible for developing appropriate criteria for determining the adequacy of Deficiency Plans submitted by the communities. To assist the CMAs with this task, we have included a methodology for assessing whether or not enough of the items from the list have been included in a Deficiency Plan.

The approach that we have chosen revolves around the offsetting of a deficient facility's contribution to congestion and air quality. A Deficiency Plan is adequate if it includes sufficient items from the District's list to offset over the system the increased amount of vehicle miles travelled (VMT) on the deficient facility due to its operation at LOS F rather than LOS E.² The basic steps in the process are described below.

STEP 1 - Identify v/c Ratio That Must be Mitigated:

Use the county wide transportation model to identify the volume to capacity (v/c) ratio of the deficient segment. The amount by which this v/c ratio exceeds (or is projected to exceed) the upper limit of the Congestion Management level of service standard (e.g., 0.99 for LOS E) is the v/c ratio increment that must be mitigated through implementation of items on the BAAQMD's list.

¹ The next few years will offer a number of opportunities for cities and counties to examine different ways of choosing deficiency strategies as they come up with plans mitigating congestion on parts of the network that have failed the Level of Service (LOS) test. We urge cities, counties and CMAs to encourage experimentation in alternative methods to match LOS deficiencies with congestion management and air quality strategies and remedies.

² The BAAQMD acknowledges that not every measure on the Deficiency List will reduce VMT (see Introduction). Some measures do more to improve congestion than air quality (e.g., traffic flow improvements, HOV lanes involving highway widening, etc. These measures have been included on the Deficiency List because they support other air beneficial measures (e.g., an HOV lane supports ridesharing) or encourage jurisdictions to implement low cost, cost effective strategies to enhance personal/vehicular mobility (e.g., lane re-striping and signs for one-way streets/reversible lanes to increase vehicle throughput and lane re-striping and signs to create wide outside lanes for bicycles).

Let's say the forecast v/c ratio is 1.12 (LOS F) and the v/c ratio necessary to achieve the county wide LOS Standard is 0.99 (upper limit of LOS E). This would mean that mitigation items would need to be identified that offset a v/c ratio 'deficiency' of 0.13.

STEP 2 - Translate the v/c Ratio Deficiency to Vehicle Miles Traveled (VMT)

Consider the segment of U.S. 101 from Novato to Petaluma in Marin and Sonoma Counties.³ This segment of U.S. 101 is approximately seven miles in length and hypothetically both Marin and Sonoma Counties' transportation models agree its projected northbound traffic volume in the 2000 PM Peak Hour is 4,039.

$$0.13 \times 7 \times 4,039 = 3,675 \text{ VMT}$$

Thus, 3,675 VMT would need to be mitigated through items from the BAAQMD list.

STEP 3 - Identify Items that Offset the VMT Deficiency

The BAAQMD has prepared a list of Deficiency Plan mitigation items that improve traffic conditions and benefit air quality throughout the Bay Area. The city, county or CMA preparing a Deficiency Plan may choose any of these items, individually or in combination. Since we recognize certain items may be more effective at reducing VMT in a given geographic area, we have outlined two options to assess the adequacy of Deficiency Plan items:

Option 1: Use Region wide Effectiveness Data. The data contained in Table 1 reflect region wide effectiveness of various TCMs in the '91 Clean Air Plan.⁴ (This table is forthcoming; not included in this draft.) The proportion of the Deficiency Plan Item (or '91 Clean Air Plan TCM) defined in Table 1 that the local government identifies funding for in the Deficiency Plan and implements (or effects implementation) prior to the end of the 7-Year CIP horizon year is the proportion of VMT reduction for which credit can be taken. Detail on applying Option 1 is presented below under "Examples."

Option 2: Exercise County wide Transportation Model. The VMT reduction effects of certain Deficiency Plan items (e.g., transit improvements) may be analyzed more accurately using a county wide transportation model. Certain Deficiency Plan items (e.g., new bicycle lockers) could not be analyzed using a county wide transportation model.

³ This segment of U.S. 101 currently operates at LOS F, and as allowed by statute, both Marin and Sonoma counties have established a LOS standard of F for the segment. Thus this is not a segment for which a Deficiency Plan will be required. Both the example selected and the numbers used are intended for illustration only.

⁴ "Transportation Control Measures for the San Francisco Bay Area: Analyses of Effectiveness and Costs," prepared for the BAAQMD by Deakin, Harvey, Skabardonis, Inc., July 1991 (revised October 1991). Copies of this report are available from the BAAQMD upon request.

Examples of Option 1

1. Provide funding for the BAAQMD-delegated Region wide Trip Reduction Rule to apply to 61,000 additional employees in Marin and Sonoma Counties (beyond requirements of the rule).

The rule was assumed in the '91 Clean Air Plan to apply to 3 Million employees.
 $61,000/3,000,000 = 0.02033$ (just over 2%)

1999 VMT (Daily) = 110,856,000

Effectiveness of TCM at reducing VMT = 3.2% (from Table 1)

$110,856,000 \times 0.032 = 3,547,392$ daily VMT reduced by implementation of rule throughout Bay Area, or 354,739 peak-hour VMT (estimated at 10% of daily)

$354,739 \text{ VMT} \times 2.033\% = 7,212$ VMT reduced during the peak hour as a result of implementing the Deficiency Plan Item

2. Provide support for RIDES staff to inform 5,000 employees at Hamilton Field about commute alternatives

The TCM was assumed to apply to 250,000 employees.
 $5,000/250,000 = 0.02$ (2%)

1999 VMT (Daily) = 110,856,000

Effectiveness of TCM at reducing VMT = 0.18% (from Table 1)

$110,856,000 \times 0.0018 = 199,541$ daily VMT reduced by implementation of program throughout Bay Area, or 19,954 peak-hour VMT (estimated at 10% of daily)

$19,954 \text{ VMT} \times 2\% = 399$ VMT reduced during the peak hour as a result of implementing the Deficiency Plan Item. This would mean that 40 of the 5,000 informed about commute alternatives traveling during the peak hour actually shift modes, assuming an average trip length of 10 miles.

3. Fund Phase II bus service expansion at \$12.88 Million/yr. The CMAs would spearhead member local governments in the 101 Corridor entering into a service agreement with the Golden Gate Bridge, Highway and Transportation District to provide additional service in the U.S. 101 Corridor from Santa Rosa to San Francisco.

The TCM was assumed to implement new bus service costing \$140 Million/yr.

$$12.88/140 = .092 \text{ (9.2\%)}$$

1999 VMT (Daily) = 110,856,000

Effectiveness of TCM at reducing VMT = 0.4% (from Table 1)

$110,856,000 \times 0.004 = 443,424$ daily VMT reduced by implementation of service expansion throughout Bay Area, or 44,342 peak-hour VMT (estimated at 10% of daily)

$44,342 \text{ VMT} \times 9.2\% = 4,079 \text{ VMT}$ reduced during the peak hour as a result of implementing the Deficiency Plan Item.

Summary of Examples

The items in Examples 1 or 3 would be adequate to offset the required 3,675 peak hour VMT reduction. The item selected for Example 2 would not be sufficient to offset the required VMT reduction. Thus, additional Deficiency Plan items would need to be identified in conjunction with the item in Example 2.

Content of Deficiency Plans

Each Deficiency Plan should show the amount of VMT⁵ to be offset, the data it was derived from, and how each item selected from the BAAQMD's list contributes to the offsetting of the VMT increment. All calculations done should be clearly presented.

saved as C:\USER\DM\DEFICIEN\DRFTLIST.DOC

⁵ Recognizing that all information in Appendix A of this list is advisory and not required by California law, CMAs may elect to use surrogate measures of deficiency in lieu of VMT (e.g., vehicle trips, average vehicle speed, etc.), especially where level of service monitoring conducted by the CMA and/or its cities does not produce data necessary for calculating v/c ratios and VMT (e.g., "floating car" speed surveys).

Table 1

1997 Deficiency Measure Effectiveness (to be used for improvements implemented by 2000)

Deficiency Measure	Related CAP TCM	Description	Quantity	Percentage Region Wide Daily VMT Reduced	Amount Region Wide Daily VMT Reduced
A1	9	Bicycle Plan Impl Ph I	\$3 M/yr. TDA Article 3	0.01	11,880
	9	Bicycle Plan Impl Ph II	\$5 M/yr. developer mt/TRO	0.02	23,781
A2	5, 9	Transit/Bicycle Integration		No information available	
A3	9	Bike Lockers/Racks @ PNR Lots		No information available	
A4	9, 16	Bike Facilities/Showers		No information available	
A5	16	Impr Pedestrian Facilities		No information available	
A6	16	Pedestrian Signals		No information available	
A7	16	Lighting for Ped Safety		No information available	
B1	3	Bus Service Exp Ph I	\$1 M/yr.	0.17	202,135
	3	Rail Service Exp Ph II	\$100 M/yr.	0.60	713,418
	3	Bus Service Exp Ph II	\$140 M/yr.	0.40	475,812
	4	Rail Ext Ph II/MTC Reso 1876	\$140 M/yr.	0.70	832,322
	5	Rail Access Impr Ph II	\$30 M/yr.	0.30	356,709
B2	6	Intercity Rail Ph II	\$10 M/yr.	0.04	47,581
B3	7	Reg Ferry Plan Impl	\$10 M/yr.	0.03	35,871
B4	8, 12, 16	Pre Treatment Bus/LRT		No information available	
B5	5, 13	Transit Info/Promotion		No information available	
B6	13	Bus-Rail Xlar Subsidy	\$5 M/yr.	0.05	59,452
	13	Reduced Transit Fares	\$10 M/yr.	0.10	118,903
B7	13	Employer Transit Subsidy		No information available	

<u>Deficiency Measure</u>	<u>Related CAP TCM</u>	<u>Description</u>	<u>Quantity</u>	<u>Percentage Region Wide Daily VMT Reduced</u>	<u>Amount Region Wide Daily VMT Reduc</u>
88	13	Transit Ticket Distrib	50% employer subsidy for 10% workers	0.08	71,342
	13	Transit Stores	\$3 M/yr.	0.02	23,781
89	13	Improved Timed Xfers		No information available	
B10	13	Fare Coordination	Impr inter-dist wait times 10%	0.05	59,452
B11	12	Transit Signal Preempt	\$2 M/yr.	0.02	23,781
B12	12, 18	Bus Stop Bulbs		No information available	
B13	10	School Bus Services	\$5 M/yr.	0.03	35,671
	10	50% Student Fare Subsidy	\$5 M/yr.	0.02	23,781
C1	15	Ridesharing Toll Elimin	\$20 M/yr.	0.30	356,709
C2	1	Employer Audits	\$750,000/yr.	0.18	214,026
D1	8	Pre Treatment for HOVs		No information available	
D2	12	HOV Lanes on Arterials		No information available	
D3	8	HOV Sys Exp Ph II	\$50 M/yr.	0.45	535,064
D4	8	HOV to HOV Facilities		No information available	
D5	8	Direct HOV Entr Ramps		No information available	
E1	2	TRO Stricter than BAAQMD Rule:			
	2	Employees at sites < 100 empis	1,200,000	0.50	594,515
	2	\$3.00 Worksite Parking Charge	2,680,000	1.90	2,258,158
E2	1	ETC Training Materials	\$15,000/yr.	0.02	23,781
E3	16, 18	Childcare Facilities		No information available	
E4	16, 18	Retail Services		No information available	
E5	20	Telecommuting		No information available	

<u>Deficiency Measure</u>	<u>Related CAP TCM</u>	<u>Description</u>	<u>Quantity</u>	<u>Percentage Region Wide Daily VMT Reduced</u>	<u>Amount Region Wide Daily VMT Reduced</u>
E6	22	Non-work Parking Charges	Min. \$0.60 hr./Empl. 100% transit subsidy	4.20	4,963,929
E7	15, 22	Work Parking Charges/Cash Out		No information available	
E8	16	Indirect Source Ctrl	\$12 M/yr. Design mod. new/exist	0.80	951,225
	18	Incr Density nr Transit	200 DUs @ Rail sta./rezoning	0.05	59,452
F1	8, 12, 16	Pre-treatment Bus/LRT		No information available	
F2	11, 12	Ramp metering		No information available	
F3	8 (as support)	Freeway Auxiliary Lanes		No information available	
F4	12	Signal Timing Ph I		Thought to increase VMT	
	12	Signal Timing Ph II		Thought to increase VMT	
F5	11	CCTV/Incident Mgt		Thought to increase VMT	
	11	Traffic Advisory Sys		Thought to increase VMT	
F6	12 (as support)	Turn Lanes @ Intersections		No information available	
F7	12 (as support)	Turn Restr @ Intersections		No information available	
F8	12 (as support)	Reversible Lanes		No information available	
F9	12 (as support)	One Way Streets		No information available	
F10	12 (as support)	Targeted Traffic Enforcement		No information available	
F11	12 (as support)	Delivery/Parking Restrictions		No information available	

Table 1 Assumptions and Notes

- (1) **Percentage VMT reductions taken from Transportation Control Measures for the San Francisco Bay Area: Analyses of Effectiveness and Costs, Deakin, Harvey, Skabardonis Inc., July 1991 (revised October 1991). Data adjusted by BAAQMD staff for Deficiency List measures B13 and E1 based on additional information known about project/rule implementation as of October 1992.**
- (2) **Daily VMT in 1997 for Nine County Bay Area = 118,903,077
Source: Transportation Improvement Program for the Nine County San Francisco Bay Area, Volume III. Metropolitan Transportation Commission, September 23, 1992, Table A.1, p. III-B-74.**
- (3) **Use peak hour factor of roadway segment to calculate peak hour VMT reduction associated with each measure. If unknown, assume 10% for arterials and 8% for freeways/expressways.**
- (4) **Quantities involving a dollar expenditure per year are assumed to have a five year lifespan. For example, if City A wants to spend \$500,000 over 5 years toward the lease of space and staff to operate a transit store as a deficiency plan measure, City A would take credit for implementation of \$500,000/\$15,000,000 (or 3.3%) of that measure. Daily VMT would be reduced $23,781 \times 0.033$, or 785 VMT; peak hour VMT would be reduced $2,378 \times 0.033$, or 79 VMT. Deficiency plans that include measures involving ongoing operating costs would need to make a guarantee of continued funding as part of plan.**

APPENDIX D: GUIDELINES FOR DEFICIENCY PLAN

Appendix D

Deficiency Plan Legislative Requirements and Discussion/Q&A

Legislative Requirements

The language describing the role and function of deficiency plans is found in California Government Code Section 65089.4, which states that:

(a) The agency¹ shall monitor the implementation of the elements of the congestion management program. At least biennially, the agency shall determine if the county and cities are conforming to the congestion management program, including, but not limited to, all of the following:

(1) Consistency with the levels of service and performance standards, except as provided in subdivisions (b) and (c).

(2) Adoption and implementation of a trip reduction and travel demand ordinance.

(3) Adoption and implementation of a program to analyze the impacts of land use decisions, including the estimate of the costs associated with mitigating these impacts.

(b) (1) A city or county may designate individual deficient segments or intersections which do not meet the established level of service standards if, prior to the designation, at a noticed public hearing, the city or county has adopted a deficiency plan which shall include all of the following:

(A) An analysis of the causes of the deficiency.

(B) A list of improvements necessary for the deficient segment or intersection to maintain the minimum level of service otherwise required and the estimated costs of the improvements.

(C) A list of improvements, programs, or actions, and estimates of costs that will (i) measurably improve the level of service of the system, as defined in subdivision (b) of Section 65089, and (ii) contribute to significant improvements in air quality, such as improved public transit service and facilities, improved non-motorized transportation facilities, high occupancy vehicle facilities, and transportation control measures. The air quality management district or the air pollution control district shall establish and periodically revise a list of approved improvements, programs, and actions which meet the scope of this paragraph. If an improvement program or action is on the approved list and has not yet been fully implemented, it shall be deemed to contribute to significant improvements in air quality. If an improvement program or action is not on the approved list, it will not be implemented unless approved by the local air quality management district or air pollution control district.

(D) An action plan, consistent with the provision of Chapter 5 (commencing with Section 66000) of Division 1 of Title 7,² that shall be implemented, consisting of improvements identified in paragraph (B), or in improvements, programs, or actions identified in paragraph (C), that are found by the agency to be in the interest of the public's health, safety and welfare. The action plan shall include a specific implementation schedule.

¹In San Mateo County, C/CAG is the agency referred to in the statute.

²This chapter describes the procedures allowed or required in order to implement development mitigation fees. It includes adoption requirements, allowable categories for fees including transportation, procedures for property donation, and procedures for assessment and payment of the fees.

(2) A city or county shall forward its adopted deficiency plan to the agency. The agency shall hold a noticed public hearing within 60 days of receiving the deficiency plan. Following the hearing, the agency shall either accept or reject the deficiency plan in its entirety, but the agency may not modify the deficiency plan. If the agency rejects the plan, it shall notify the city or county of the reasons for that rejection.

(c) The agency, after consultation with the regional agency, the department, and the local air quality management district or air pollution control district, shall exclude from the determination of conformance with the level of service standards, the impacts of any of the following:

(1) Interregional travel.

(2) Construction, rehabilitation, or maintenance of facilities that impact the system.

(3) Freeway ramp metering.

(4) Traffic signal coordination by the state or multi-jurisdictional agencies.

(5) Traffic generated by the provision of low and very low income housing.

(6) Traffic generated by high-density residential development located within one-fourth mile of a rail passenger station.

(7) Traffic generated by any mixed-use development located within one-fourth mile of a fixed rail passenger station, if more than half of the land area, or floor area, of the mixed-use development is used for high-density residential housing, as determined by the agency.

(d) For the purposes of this chapter, the impacts of a trip which originates in one county and which terminates in another county shall be included in the determination of conformance with level of service standards with respect to the originating county only. A round trip shall be considered to consist of two individual trips.

The procedures for a finding of nonconformance are found in California Government Code Section 65089.5, which states:

(a) If, pursuant to the monitoring provided for in Section 65089.3, the agency determines, following a noticed public hearing, that a city or county is not conforming with the requirements of the congestion management program, the agency shall notify the city or county in writing of the specific areas of nonconformance. If, within 90 days of the receipt of the written notice of nonconformance, the city or county has not come into conformance with the congestion management program, the governing body of the agency shall make a finding of nonconformance and shall submit the finding to the commission and to the Controller.

(b) Upon receiving notice from the agency of nonconformance, the Controller shall withhold apportionments of funds required to be apportioned to that nonconforming city or county by Section 2105 of the Streets and Highways Code, until the Controller is notified by the agency that the city or county is in conformance.

In addition, per SB 1435, a nonconforming jurisdiction will be disqualified from receiving funding from the Transportation Equity Act for the 21st Century (TEA-21).

Discussion/Q&A

The many issues influencing the preparation and adoption of deficiency plans are discussed in the following pages using a question and answer format.

1. Why prepare a deficiency plan?

A jurisdiction (a city or the County) should prepare a deficiency plan to achieve two key goals:

- To establish a program of actions intended to mitigate (or reduce) existing congestion by improving the level of service on the roadway segments or intersections included in the CMP Roadway System, and
- To assure that the jurisdiction is in conformance with the CMP and remains eligible to continue to receive gasoline tax subventions and TEA-21 funds.

The responsible jurisdiction(s) must prepare a deficiency plan when it (or they) has been notified by C/CAG that a deficiency has occurred. The responsible jurisdiction will forego additional gasoline tax subventions (pursuant to Section 2105 of the Streets and Highways Code) and funding from TEA-21 unless it (or they) prepares a deficiency plan. If no response is forthcoming, C/CAG will declare the jurisdiction with the deficiency to not be in conformance with the CMP.

2. What triggers the deficiency plan process?

The deficiency plan process is triggered when a CMP roadway segment or intersection is found to be “deficient” because it operates below its adopted LOS standard with the adjustments for all exclusions allowed by law. California Code Section 65089.3 states that a deficiency finding could emanate from the results of the LOS monitoring process. A LOS deficiency may also be found to exist as a result of a monitoring program developed by a city or the county as part of the approval process for a local land use decision, as discussed in Chapter 6. Only actual deficiencies, not projected deficiencies, will trigger the requirement for a deficiency plan.

3. What trips can be excluded from the deficiency determination?

As required in California Government Code Section 65089.3 and added to by AB 3093, the following types of travel shall be removed from the level of service calculation; interregional travel; changes in operating conditions resulting from the construction, rehabilitation, or maintenance of facilities that impact the roadway system; freeway ramp metering; traffic signal coordination by the state or a multi-jurisdictional agency; traffic generated by the provision of low and very low income housing; trips generated by high-density housing near rail stations; and trips generated by mixed-use development near rail stations. Trips which originate in one county and which terminate in another county are to be included in the determination of conformance with level of service standards in only the county where the trips originated. Therefore, the statute establishes that only trips originating inside San Mateo County will be considered toward the LOS determination for establishing conformance with the CMP.

4. Who is responsible for the preparation of deficiency plans?

Local jurisdictions are responsible for the preparation of deficiency plans for roadway segments or intersections that are wholly within their boundaries. For deficient segments or intersections within

more than one jurisdiction, all affected jurisdictions will collaborate in the preparation of a deficiency plan. C/CAG strongly encourages the cooperative development of deficiency plans. If a common approach is not acceptable to all jurisdictions involved, then each individual jurisdiction will be responsible for preparing a deficiency plan for the affected roadway(s) or intersection(s) within its jurisdiction. C/CAG can accept all the plans if they are complementary. If they are not complementary, C/CAG can require that complementary plans be developed.

5. What if a deficiency occurs due to an action by a jurisdiction not located within San Mateo County?

Representatives of all affected jurisdictions, those receiving the deficient location and those causing the deficiency, could develop a coordinated deficiency plan. Otherwise, the Metropolitan Transportation Commission (MTC), serving as the Regional Congestion Management Agency, would arbitrate between or among the jurisdictions. If MTC is not successful in their arbitrations, no penalties will be sanctioned against the jurisdictions located within San Mateo County.

6. What are the required components of a deficiency plan?

The contents of a deficiency plan are defined on pages 7-3 and 7-4 part (b) of Section 65089.3. The following is a summary description of those items:

- An analysis of the causes of the deficiency;
- A list of improvements and the costs that will be incurred to mitigate that deficiency on that facility itself;
- A list of possible actions and costs that would result in improvements to the CMP system's LOS and that would be beneficial to air quality; and
- An action plan, including a schedule, to implement improvements from the two lists identified above.

7. What improvements are acceptable for inclusion in a deficiency plan?

The process of preparing a deficiency plan allows a local jurisdiction to choose one of two options for addressing deficiencies. The two options are:

- a. To implement improvements directly on the deficient segments designed to eliminate the deficiency; or
- b. To designate the segment as deficient and implement a deficiency plan prescribing actions designed to measurably improve the overall LOS and contribute to *significant* air quality improvements throughout the CMP Roadway System. Such actions may not necessarily directly pertain to or have a measurable impact on the deficient segment itself.

If a local jurisdiction chooses the second option (b), the Bay Area Air Quality Management District (BAAQMD) has created a list of system deficiency plan measures that are regarded as beneficial for air quality. The latest list was approved by the BAAQMD on November 4, 1992 and is included in Appendix C (of this CMP). Measures not on the BAAQMD list may also be used but will need to be evaluated by the BAAQMD for their air quality impacts prior to being included as part of a deficiency plan. If a local jurisdiction selects the first option (a), measures designed to meet LOS standards on the deficient roadway(s) need not be drawn from the BAAQMD list, and they need not be approved by the BAAQMD.

8. How long does a jurisdiction have to prepare a deficiency plan?

Jurisdictions will be notified that a level of service deficiency has occurred when the results of the LOS monitoring are provided to C/CAG. The results will be submitted to C/CAG who will notify local jurisdictions, in writing, if any deficient locations have been identified. Local jurisdictions will then have up to twelve months from the receipt of written notification of the conformance findings, to develop and adopt at a public hearing, any required deficiency plans.

The deficiency plan process section of this Chapter provides more detail about time lines.

9. How is a deficiency plan adopted?

A deficiency plan is prepared by the affected local jurisdiction(s). The jurisdictions may elect to submit draft plans to C/CAG's Technical Advisory Committee (TAC) and Congestion Management and Air Quality Committee (CMAQ) for review to determine if the plan may be considered acceptable when submitted to C/CAG for approval. The deficiency plan must then be adopted by the affected jurisdiction(s) at a public hearing and then approved by C/CAG.

10. What constitutes an acceptable deficiency plan?

An acceptable deficiency plan shall contain all the components listed in the response to Question 6 above and may be reviewed by the TAC and CMAQ prior to action by C/CAG. The TAC and/or CMAQ may make a recommendation related to approval or rejection of the deficiency plan to C/CAG, but it is not required that they make a recommendation. The plan will be evaluated on the following technical criteria:

- a. Completeness as required in California Government Code Section 65089.3.
- b. The appropriateness of the deficiency plan's actions in relation to the magnitude of the deficiency.
- c. The reliability of the funding sources proposed in the deficiency plan.
- d. The reasonableness of the implementation plan's schedule.
- e. The ability to implement the proposed actions (including the degree of jurisdictional authority).

11. How should deficiency plans relate to the countywide transportation planning process?

Actions included in deficiency plans should be selected from information and decisions made as part of the countywide transportation planning process, including land use and travel forecasts, transit operational needs, and planned capital and service improvements. Likewise, the occurrence or projection of deficiencies should be a factor influencing the decisions made within the ongoing countywide transportation planning process to amend the Capital Improvement Program (CIP).

The Guidelines for Deficiency Plan is included in Appendix D.

Appendix D

Deficiency Plan Guidelines

Process

The processes for developing and approving deficiency plans are described on the following flow charts. Figure 7-1 describes the general deficiency plan process. Figure 7-2 depicts the deficiency identification process based on the biennial LOS monitoring process.

Figure 7-3 illustrates the process to be followed for development of two types of single-jurisdictional deficiency plans: location-specific and citywide. A location-specific deficiency plan is required for a deficiency at a single location wholly located within a single jurisdiction and caused by traffic from that jurisdiction. A citywide deficiency plan is required for deficiencies at several locations within a single jurisdiction all caused by traffic from that jurisdiction.

There are also two types of multi-jurisdictional deficiency plans, areawide and cross-county boundaries. An areawide deficiency plan is required for a deficiency located within San Mateo County and caused by traffic generated by more than one jurisdiction, all located within San Mateo County and for a deficiency located within San Mateo County caused by a traffic generator located within San Mateo County and owned by a jurisdiction outside of San Mateo County. The process for areawide deficiency plans is illustrated on Figure 7-4.

A cross-county boundary deficiency plan would be applicable for a deficiency with significant traffic contributions from other counties. These types of deficiency plans are not required by the law because they can be resolved by the exclusion of interregional traffic. It is C/CAG's intent to work with CMAs of contributing counties to jointly develop deficiency plans for these locations. The process for cross-county boundary deficiency plans is presented on Figure 7-5.

Figure 7-1

DEFICIENCY PLAN GENERAL PROCESS

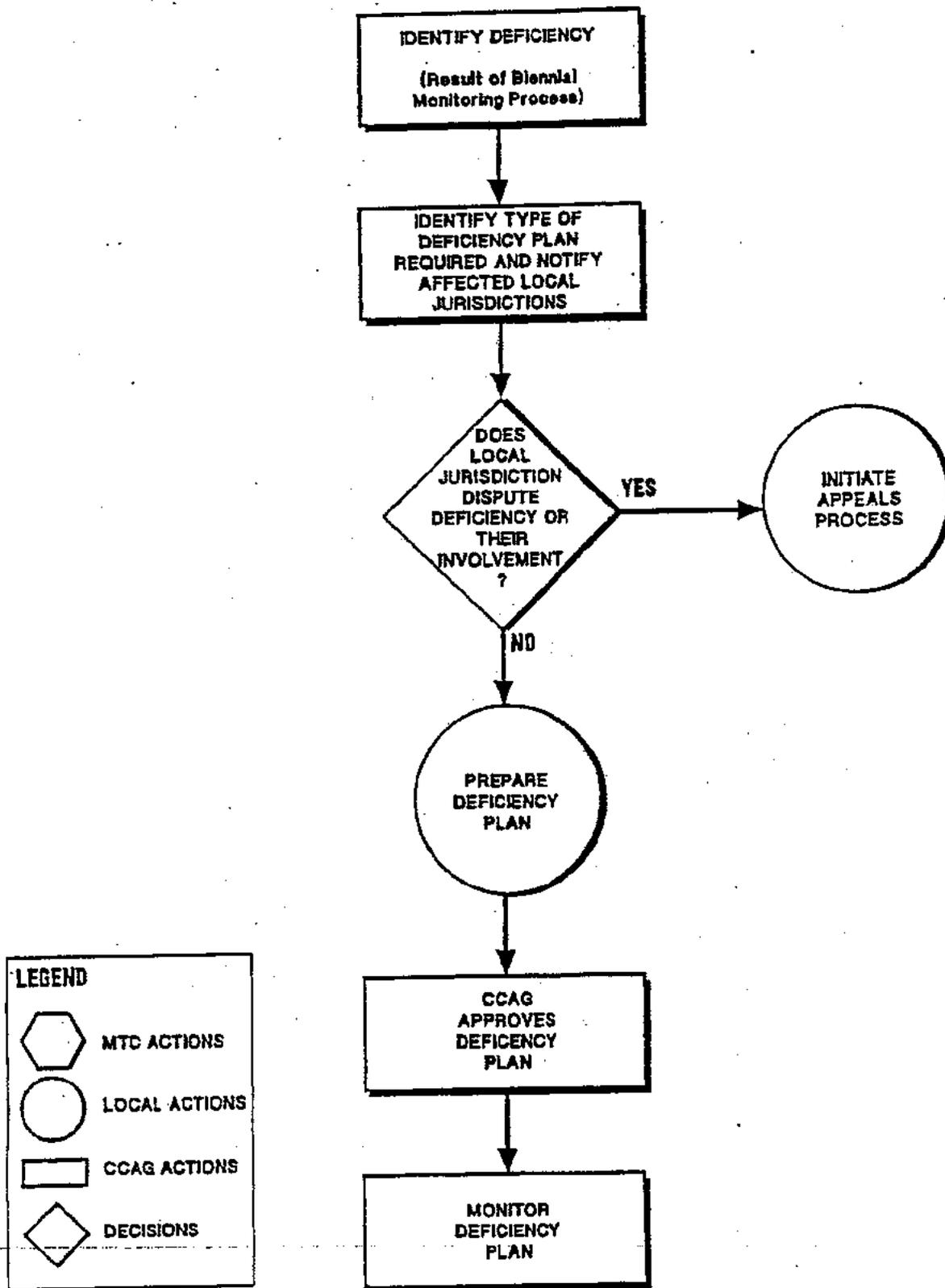


Figure 7-2

IDENTIFICATION OF DEFICIENCY AND TYPE OF DEFICIENCY PLAN (BIENNIAL MONITORING PROCESS)

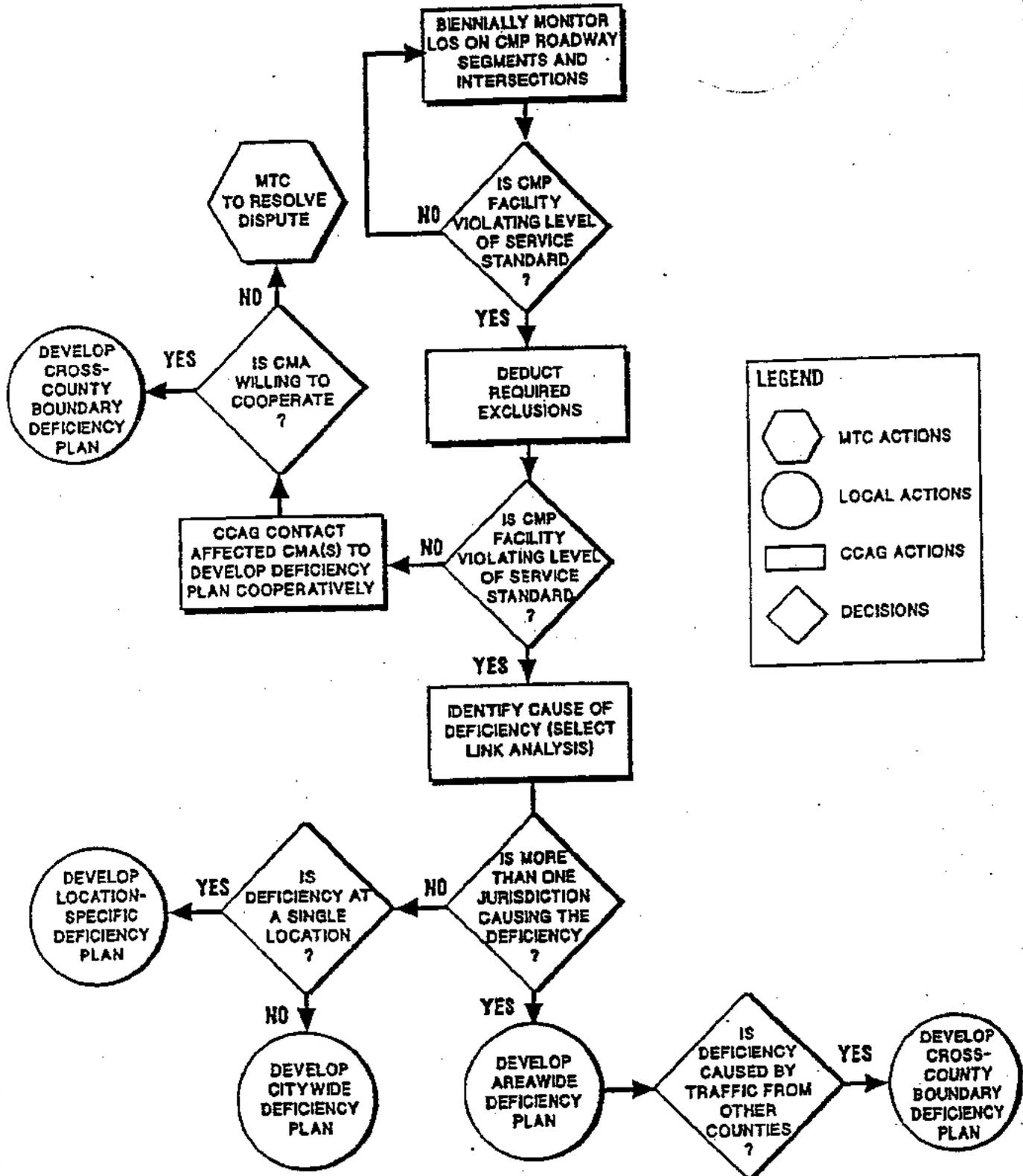


Figure 7-3

DEVELOPMENT OF LOCATION-SPECIFIC OR CITYWIDE DEFICIENCY PLAN

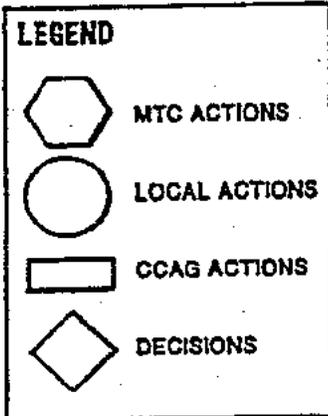
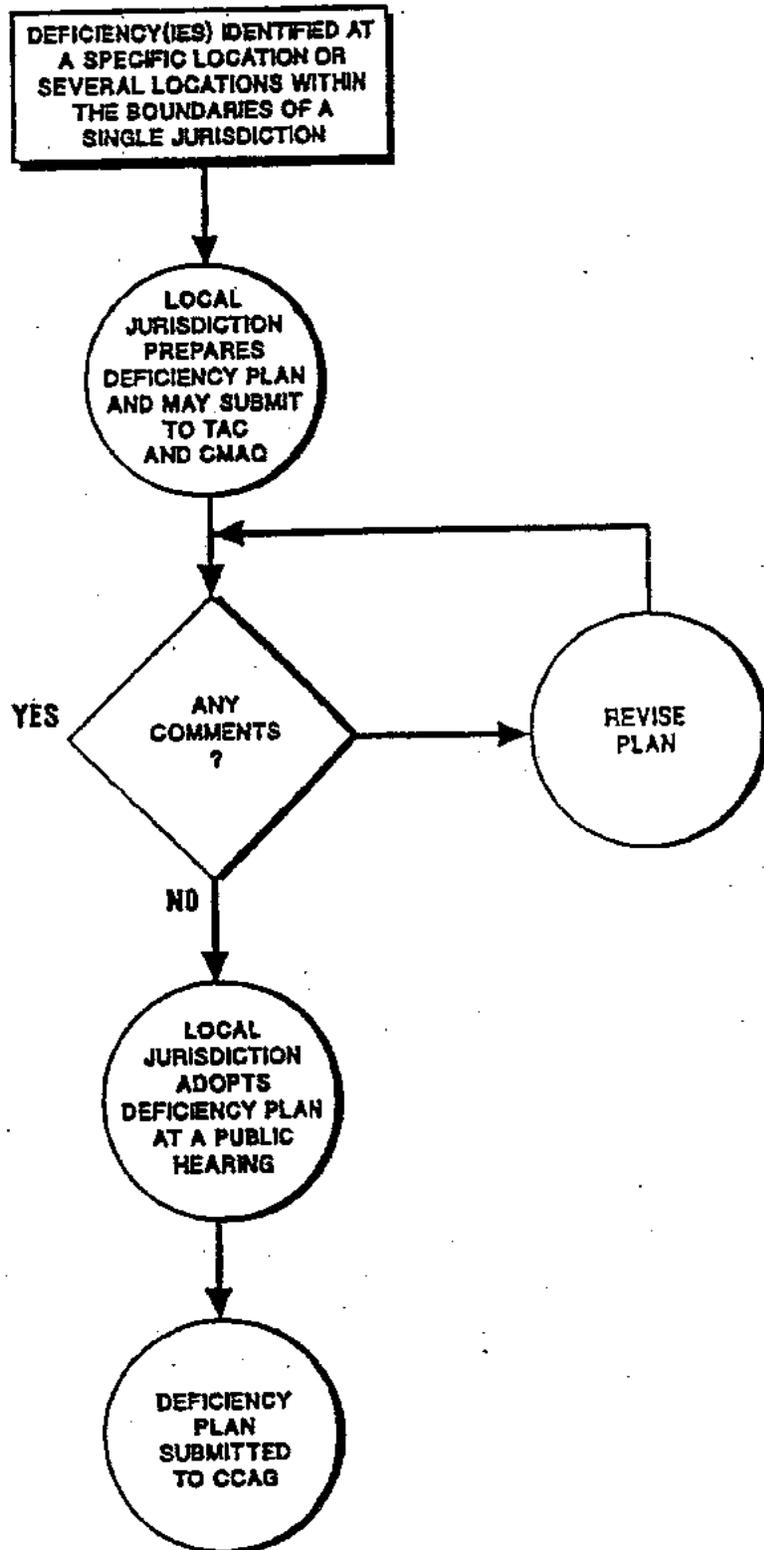


Figure 7-4

DEVELOPMENT OF AREAWIDE DEFICIENCY PLAN

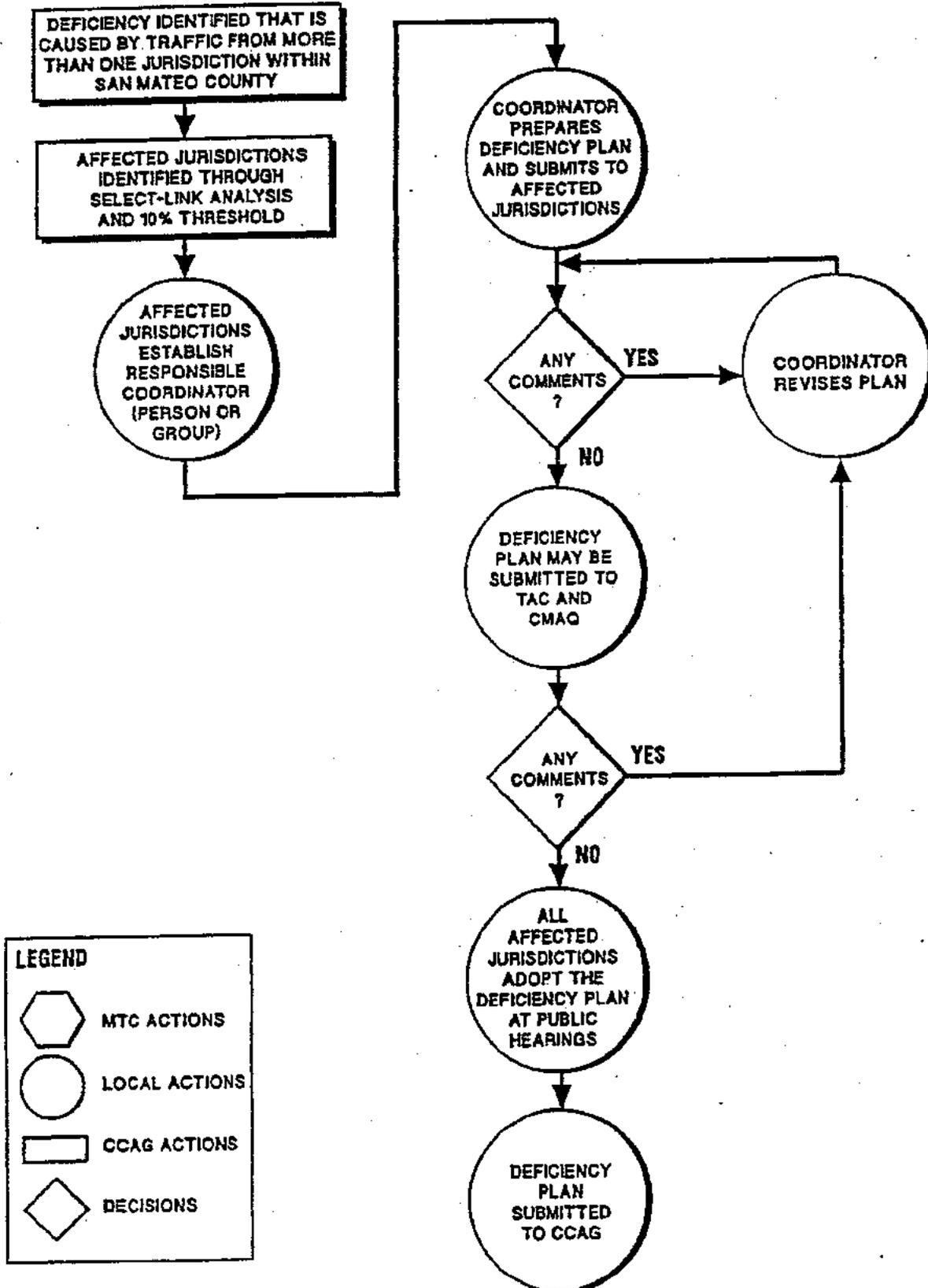


Figure 7-5

DEVELOPMENT OF CROSS COUNTY BOUNDARY DEFICIENCY PLAN

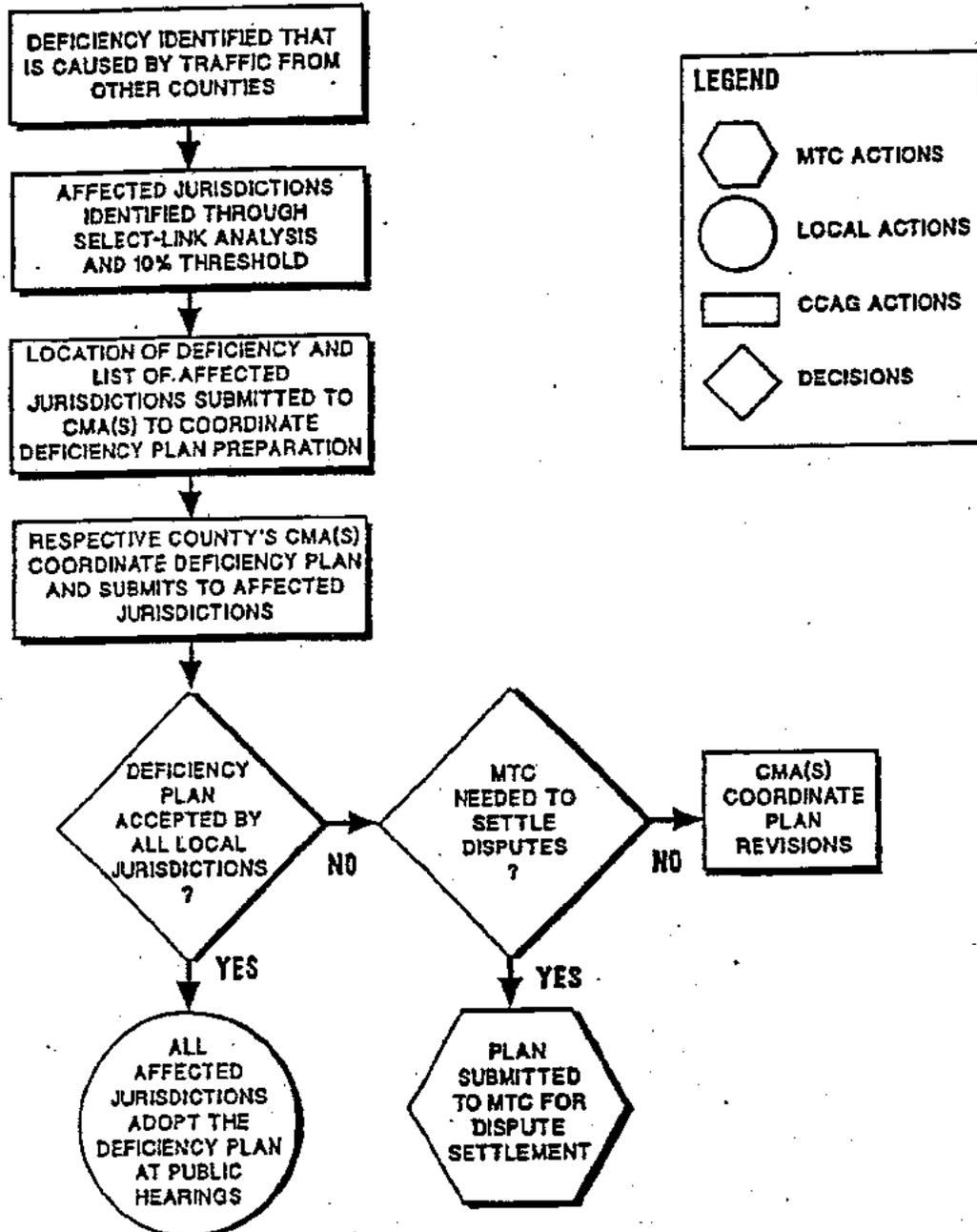


Figure 7-6 shows the process to be followed for C/CAG's approval of deficiency plans. Figure 7-7 presents the process for a local jurisdiction to appeal their involvement in a deficiency plan to C/CAG. Figure 7-8 illustrates the process for monitoring deficiency plans.

Deficiency Identification

The deficiency will be identified by the biennial level of service monitoring process (see Figure 7-2). Roadway segments or intersections on the CMP Roadway System whose existing LOS is F will be addressed in the Countywide Transportation Plan. An LOS deficiency may also be found to exist as a result of a monitoring program developed by a city or the County as part of the approval process for a local land use decision, as discussed in Chapter 6. The seven exclusions (see page 7-4) will be incorporated into the level of service calculations to determine whether a deficiency is occurring. Next, a select-link analysis will be conducted using the San Mateo Countywide Travel Demand Forecasting model to determine the origins of the traffic on the deficient roadway segments or intersections. A jurisdiction will be considered to be contributing to the deficiency if the amount of traffic at the deficiency and generated within its boundaries is greater than 10 percent of the capacity of the deficient location.¹

If only one jurisdiction is causing the deficiency, then it can either develop a location-specific deficiency plan or a citywide deficiency plan, if there are several deficiencies within that jurisdiction. If more than one jurisdiction is causing the deficiency, either an areawide or cross-county boundary deficiency plan would be required.

Development of Deficiency Plans

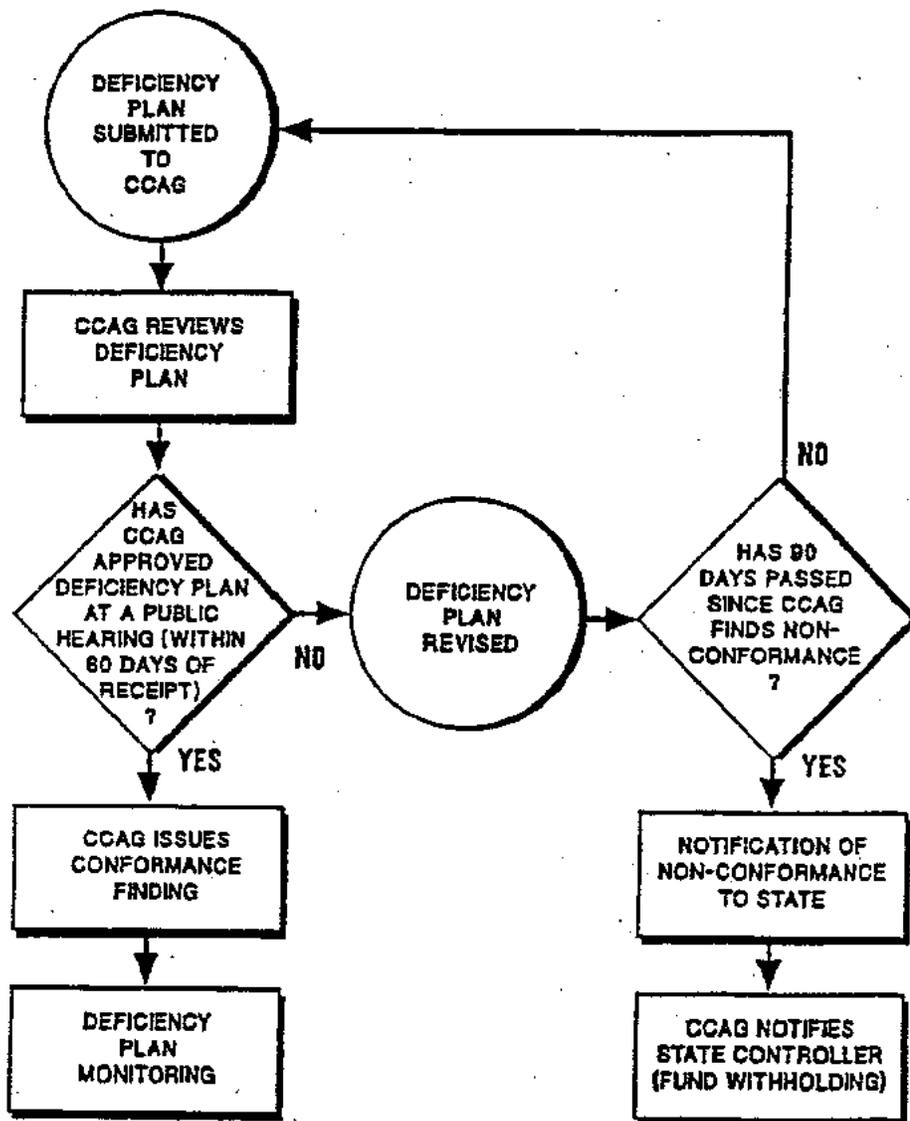
The steps to develop the four types of deficiency plans are outlined on Figures 7-3 through 7-5. If a jurisdiction must prepare a deficiency plan, the draft deficiency plan must address these following points:

- ! Each deficiency's cause and magnitude must be described.
- ! Actions to be considered should include those that remedy the specific deficiency or that improve the level of service on the CMP Roadway System overall.

¹The 10 percent of capacity threshold represents a Bay Area standard that was developed by the Bay Area CMA Association. It is based on the fact that 10 percent of capacity represents a change of one full level of service value. It was decided that if jurisdictions were contributing enough traffic to a specific location to change the level of service by one full value, then they should be required to participate in the deficiency plan preparation.

Figure 7-6

DEFICIENCY PLAN APPROVAL PROCESS



LEGEND

-  MTC ACTIONS
-  LOCAL ACTIONS
-  CCAG ACTIONS
-  DECISIONS

Figure 7-7

DEFICIENCY PLAN APPEALS PROCESS

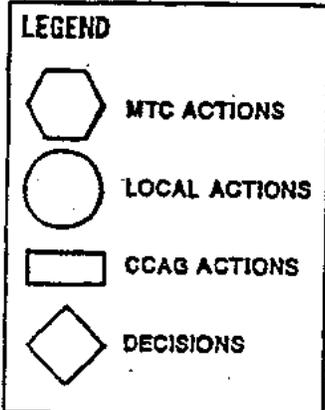
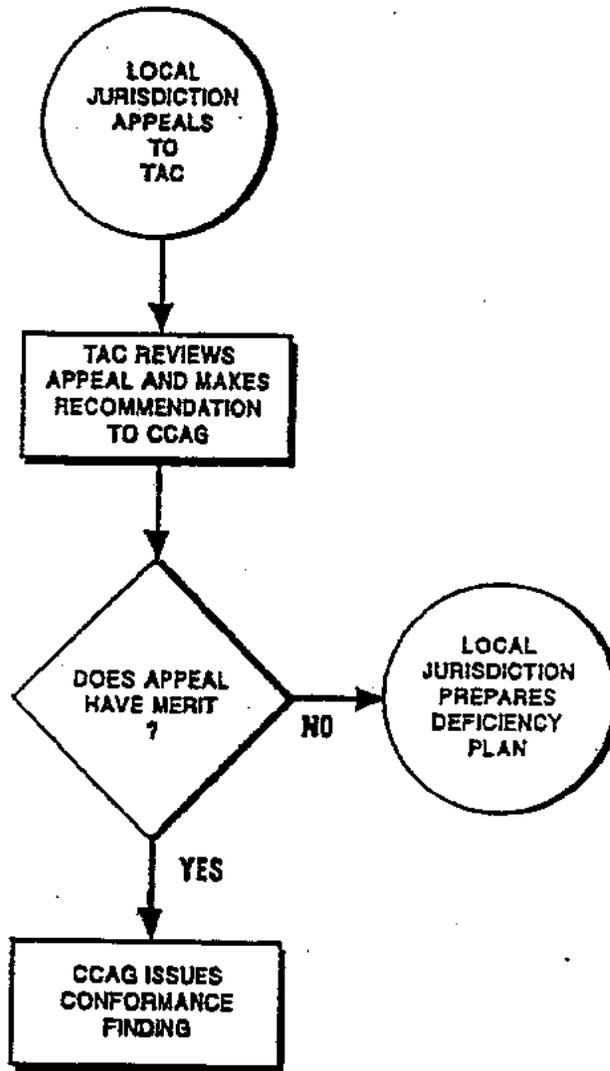
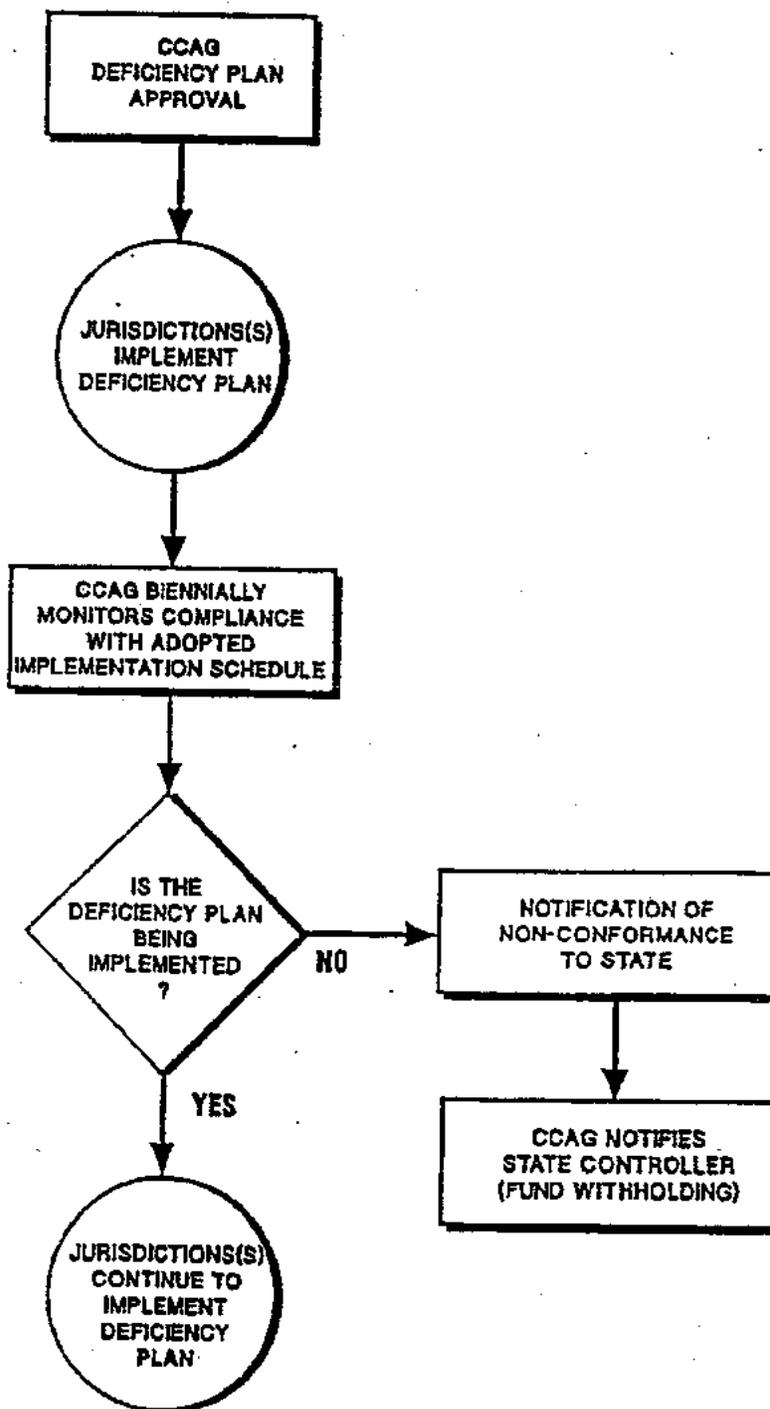


Figure 7-8

DEFICIENCY PLAN MONITORING



LEGEND

-  MTC ACTIONS
-  LOCAL ACTIONS
-  CCAG ACTIONS
-  DECISIONS

- If actions are considered that are intended to improve the overall LOS on the CMP Roadway System, those actions listed in the Bay Area Air Quality Management District's guidelines for deficiency plans, and other possible actions identified by affected jurisdictions and approved by the BAAQMD should be given a suitability assessment. Suitable system actions should be evaluated at a sketch-planning level in order to identify their potential effects on systemwide traffic congestion and air quality. (In some cases, traffic operations analyses or model forecasts may be required.) If this option is selected, a post implementation level of service should be established for the deficient locations, for monitoring purposes.
- A detailed action plan should be developed, including descriptions of the selected actions, anticipated costs and related funding sources, and a corresponding implementation schedule.

Deficiency Plan Approval

The activities included in the deficiency plan approval process are presented on Figure 7-6. As shown on that figure, local jurisdictions and C/CAG (and its representatives) will be responsible for ensuring that any deficiency plans that have to be prepared will meet the requirements of the CMP. Once C/CAG determines that a deficiency exists, a deficiency plan must be developed within 12 months. The jurisdictions may elect to have the TAC and CMAQ review the draft version of deficiency plans. These groups will try to resolve technical issues and will work with representatives of the local jurisdiction so that the local jurisdiction develops a deficiency plan acceptable to that jurisdiction and C/CAG.

A final deficiency plan must be adopted by the affected local jurisdiction(s) at a noticed public hearing. That public hearing must be scheduled not later than 90 days following the receipt by the local jurisdiction of C/CAG's written notification of the conformance findings.

A final plan must be approved by C/CAG. C/CAG will approve or reject a deficiency plan within 60 days of receipt of the deficiency plan from the local jurisdiction. C/CAG cannot modify a deficiency plan. If C/CAG rejects a deficiency plan, it must specify why it was rejected.

Deficiency Plan Appeals Process

The appeals process, as shown on Figure 7-7, has been added to accommodate local jurisdictions that dispute that a deficiency is occurring or that they should be involved in the development of a deficiency plan. The local jurisdiction would first make that appeal to the TAC. Information supporting their position (additional traffic counts, information refuting results of select-link analysis, etc.) should be presented. The TAC will then make a recommendation to C/CAG whether or not the appeal has merit. C/CAG will then make a decision to either uphold the appeal and issue a finding of conformance or to require the local jurisdiction to prepare or contribute to the deficiency plan.

Deficiency Plan Monitoring

Deficiency plans will be monitored biennially by C/CAG, prior to undertaking the conformance determination for the CMP, to establish whether they are being implemented according to the schedule described in their specific action elements. The monitoring process is shown on Figure 7-8.

- b. Whether changes have occurred that require modifications of the original deficiency plan or schedule.

Each deficiency plan will include a schedule for implementation of the proposed actions. Compliance with the stated schedule will be monitored. A jurisdiction which is either not implementing the actions stipulated in the approved deficiency plan, or not adhering to the stated schedule, may be found by C/CAG to be in nonconformance. Once the action plan is implemented, the results of the monitoring will determine if the deficiency is still occurring. The evaluation may result in recommending changes to other elements of the CMP, such as the Capital Improvements Program (CIP) or Trip Reduction Ordinances (TROs). Action plans prepared as part of deficiency plans will be incorporated into future updates of the CMP.

Methodology

The scope of each deficiency plan's actions should match the severity of the problem being addressed. Extreme deficiencies will need more significant actions, while minor deficiencies may require the definition of only minor actions. The magnitude of the deficiency shall be influenced by the constraint(s) on capacity that prevent(s) a roadway or intersection from operating at its appropriate level of service.

Actions to resolve problems will fall into one of the following two categories: improvements designed to directly mitigate the specific deficiency, and improvements designed to improve the overall level of service on the CMP Roadway System and provide air quality improvements. Actions of the first type are intended to directly mitigate a deficiency. These include highway, transit, and transportation system improvements. Actions of the second type are intended to provide measurable improvements to air quality and level of service on the CMP Roadway System in cases where deficiencies on specific segments or at specific intersections cannot be mitigated directly. For these types of situations, the Bay Area Air Quality Management District has developed a list of available deficiency plan actions which are considered beneficial for air quality and congestion management. Jurisdictions may include actions other than those on this list, provided that they are reviewed and approved by the BAAQMD prior to adoption of the local deficiency plan. However, C/CAG has ultimate approval of the specific actions included in a deficiency plan.

When developing a deficiency plan, the most current BAAQMD list of actions must be considered. The current list was adopted by the BAAQMD on November 4, 1992, and is contained in Appendix C.

Deficiency plans should contain the following sections:

Introduction and Setting--a short description of the deficient roadway facility, including a map showing its location.

Deficiency Analysis-- an explanation of the likely causes of the deficiency, and a quantitative assessment of the magnitude of the deficiency.

Improvement List-- a list of the improvements necessary for the deficient segment or intersection to maintain (or attain) the Level of Service Standard and the estimated costs of the improvements.

Action List (Screening of Actions)--a listing of possible actions and a sketch-planning level evaluation of the most suitable actions.

Implementation Plan-- a description of the actions proposed for implementation, their costs, a schedule for their implementation and completion, and the definition of responsible parties.

Monitoring Program-- a description of the steps that the jurisdiction preparing the deficiency plan will take to monitor implementation of the actions included in the plan.

**APPENDIX E: DESCRIPTIONS OF TRANSPORTATION CONTROL
MEASURES (TCM'S)**

transportation control measures

Transportation Control Measures (TCMs) are strategies to reduce vehicle emissions. The federal TCMs shown below were added over successive revisions to the State Implementation Plan (SIP). With the exception of the five new TCMs (A-E), the original set of 28 TCMs has been completed.

Federal TCMs in the State Implementation Plan

TCM Number **Federal Transportation Control Measure**

Original TCMs from 1982 Bay Area Air Quality Plan

TCM 1	Reaffirm commitment to 28 percent transit ridership increase between 1978 and 1983
TCM 2	Support post-1983 improvements in the operators' five-year plans and, after consultation with the operators, adopt ridership increase target for the period 1983 through 1987
TCM 3	Seek to expand and improve public transit beyond committed levels
TCM 4	High-occupancy-vehicle (HOV) lanes and ramp metering
TCM 5	Support RIDES efforts
TCM 6*	Continue efforts to obtain funding to support long-range transit improvements
TCM 7	Preferential parking
TCM 8	Shared-use park-and-ride lots
TCM 9	Expand commute alternatives program
TCM 10	Information program for local governments
TCM 11**	Gasoline Conservation Awareness Program (GasCAP)
TCM 12**	Santa Clara County commuter transportation program

Contingency Plan TCMs Adopted by MTC in February 1990 (MTC Resolution 2131)

TCM 13	Increase bridge tolls to \$1.00 on all bridges
TCM 14	Bay Bridge surcharge of \$1.00
TCM 15	Increase state gas tax by 9 cents
TCM 16*	Implement MTC Resolution 1876, Revised — New Rail Starts
TCM 17	Continue post-earthquake transit services
TCM 18	Sacramento-Bay Area Amtrak service
TCM 19	Upgrade Caltrain service
TCM 20	Regional HOV System Plan
TCM 21	Regional transit coordination

(Continues on next page)

* Deleted by EPA action from 1999 Ozone Attainment Plan

** Deleted by EPA action from 1999 Ozone Attainment Plan, but retained in Carbon Monoxide Maintenance Plan

transportation control measures

TCM Number	Federal Transportation Control Measure
TCM 22	Expand Regional Transit Connection ticket distribution
TCM 23	Employer audits
TCM 24	Expand signal timing program to new cities
TCM 25	Maintain existing signal timing programs
TCM 26	Incident management on Bay Area freeways
TCM 27	Update MTC guidance on development of local Transportation Systems Management (TSM) programs
TCM 28	Local TSM Initiatives

New TCMs in 2001 Ozone Attainment Plan (Being Implemented)

TCM A	Regional Express Bus Program
TCM B	Bicycle/Pedestrian Program
TCM C	Transportation for Livable Communities
TCM D	Expansion of Freeway Service Patrol
TCM E	Transit access to airports

The 19 proposed state Transportation Control Measures (TCMs) in the Draft 2005 Bay Area Ozone Strategy have been updated pursuant to the requirements of the California Clean Air Act (CCAA). The proposed TCMs include transit service improvements, rideshare programs, bicycle and pedestrian enhancements, and land-use, pricing, and traffic management strategies. The implementation steps outlined for each TCM include both near-term and long-term implementation. A full description of these state TCMs will be included in the *Draft 2005 Bay Area Ozone Strategy* publication, available in Summer 2005.

State TCMs Proposed in the Draft 2005 Bay Area Ozone Strategy

TCM Number	State Transportation Control Measure	Implementation Steps
TCM 1	Support voluntary employer-based trip reduction programs	<ul style="list-style-type: none"> • Provide core support for employer programs, based on an assessment of employer needs and the level of employer interest. Potential support includes assistance in developing or enhancing employer programs, information and referrals, employer networks, and programs to recognize outstanding employer programs. • Support legislation to maintain and expand incentives for employer programs, such as tax deductions and/or tax credits for employer efforts to promote ridesharing, transit, and other commute alternatives • Seek legislation to create stronger voluntary programs for all employers or to require certain minimum elements for public employers
TCM 2	Adopt employer-based trip reduction rule	<i>TCM deleted</i> — Health and Safety Code Section 40929 does not permit air districts to require mandatory employer-based trip reduction programs.
TCM 3	Improve local and areawide bus service	<ul style="list-style-type: none"> • Replace worn-out transit buses with clean-fuel buses and retrofit existing diesel buses with diesel emission control technology • Sustain the existing Regional Express Bus Program • Assist further planning work on enhanced bus and Bus Rapid Transit concepts • Sustain transit service to airports • Restore local bus routes that were eliminated due to economic recession • Implement new Enhanced Bus and Bus Rapid Transit services and additional Lifeline Transit services, and expand of Regional Express Bus Programs as funds become available
TCM 4	Upgrade and expand local and regional rail service	<ul style="list-style-type: none"> • Upgrade and expand local and regional rail service • Implement MUNI Metro Third Street Light Rail initial operating segment from Downtown SF to Hunter's Point • Implement Caltrain Express/Rapid Rail Phase 1 ("Baby Bullet") to San Francisco • Extend Tasman East and Vasona light-rail transit (LRT) in Santa Clara County • Extend BART to Warm Springs, eBART to Eastern Contra Costa County, tBART to Livermore/Amador Valley and implement Silicon Valley Rapid Transit Corridor and an Oakland International Airport connector • Implement MUNI Metro Central Subway in San Francisco • Implement Caltrain Downtown Extension/rebuild TransBay Terminal • Implement Downtown East Valley LRT in Santa Clara County • Implement new Marin/Sonoma Commuter Rail Service between Cloverdale and a San Francisco-bound ferry service • Implement an additional Capitol Corridor peak-period commuter service between Vacaville and Oakland • Implement Dumbarton Rail Service connecting BART and Caltrain over a rebuilt Dumbarton rail bridge
TCM 5	Improve access to rail and ferries	<ul style="list-style-type: none"> • Develop demonstration program for station car and bike station concepts at select regional transit centers • Determine long-term funding needs for existing shuttles and examine funding options • Implement Safe Routes to Transit to improve bicycle and pedestrian access • Complete Regional Transit Connectivity Plan • Develop a master plan for innovative secure bicycle storage strategies at key transit hubs

(Continues on next page)

transportation control measures

TCM Number	State Transportation Control Measure	Implementation Steps
TCM 6	Improve interregional rail service	<ul style="list-style-type: none"> • Implement additional interregional rail service in Capitol (Auburn–Sacramento–Oakland–San Jose) Corridor and track enhancements • Implement additional Altamont Corridor Express rail service and track enhancements • Implement high-speed rail service between Los Angeles and the Bay Area
TCM 7	Improve ferry service	<ul style="list-style-type: none"> • Conduct initial planning for new ferry service • Implement new high-speed low emission ferry to service Vallejo to San Francisco route • Expand existing ferry service between: Oakland/Alameda and San Francisco, and Larkspur and San Francisco • Implement new ferry service between Berkeley/Albany and San Francisco, and South San Francisco and San Francisco • Implement new intermodal transit hub at Vallejo Ferry Terminal • Expand berthing capacity at the San Francisco Ferry Terminal • Implement hydrogen fuel cell ferry demonstration project from Treasure Island to San Francisco • Assist ferry operators in converting vessel engines to lower emission engines • Study and potentially implement new service between Richmond, Hercules/Rodeo, Martinez, Redwood City and San Francisco; Port Sonoma and San Francisco; and Oakland and San Francisco airports
TCM 8	Construct carpool/express bus lanes on freeways	<ul style="list-style-type: none"> • Expand existing HOV network, based on 2003 Transportation Improvement Program, where beneficial to air quality. Special attention should be paid to express bus operations to maximize benefits for transit. Monitor and adjust occupancy requirements and hours of operation to maximize air quality and mobility benefits. • Implement HOV support facilities such as park & ride lots at various locations • Implement additional HOV lanes and support infrastructure identified in the Regional Transportation Plan, where beneficial to air quality
TCM 9	Improve bicycle access and facilities	<ul style="list-style-type: none"> • Fund Regional Bicycle Plan and Safe Routes to Transit improvements • Continue Transportation Development Act (TDA) Article 3, Transportation for Livable Communities (TLC) and Transportation Fund for Clean Air (TFCA) funding for bike improvements • Develop on-line bicycle mapping tool as part of the regional 511 traveler information number • Promote Bike to Work Week/Day • Encourage local jurisdictions to develop safe and convenient bicycle lane and route networks, provide secure bike racks and storage, and require bicycle access and amenities as conditions of approval of development projects • Encourage public education about bicycle safety for both bicyclists and motorists
TCM 10	Youth transportation	<ul style="list-style-type: none"> • Encourage walking and bicycling to school through the Safe Routes to Schools Program • Establish special carpool formation services for parents, students and staff at Bay Area elementary and secondary schools • Replace school buses with clean-fuel vehicles • Offer transit ride discounts to youth and students
TCM 11	Install freeway traffic management systems	<ul style="list-style-type: none"> • Integrate traffic management features into new freeway construction projects • Maintain current level of Freeway Service Patrol (FSP) • Maintain 511 transit information service and improve and customer convenience • Extend ramp metering in major freeway corridors • Seek funding for full deployment of Caltrans' Traffic Operation System/Traffic Management Center project • Expand FSP to other routes and times of the day
TCM 12	Arterial management measures	<ul style="list-style-type: none"> • Maintain current technical assistance program for local jurisdictions that seek to retime signals, including the evaluation of bus priority treatments • Continue TFCA program to fund arterial management projects where air quality benefits can be demonstrated • Coordinate the timing of an additional 1,200 signals and continue updating timing plans • Work with bus operators to provide priority treatment along major bus routes

TCM Number	State Transportation Control Measure	Implementation Steps
TCM 13	Transit use incentives	<ul style="list-style-type: none"> • Implement Translink® (universal fare card) on transit systems throughout the region • Implement improvements to the 511 transit information service • Encourage employers, transit operators, local governments and others to promote and expand employer-based transit subsidy programs like the Commuter Check and EcoPass programs • Improve signage at transit transfer hubs • Deploy real-time transit arrival information • Increase passenger amenities at transit hubs and stops • Complete Alameda and Contra Costa County transit centers identified in AC Transit's Comprehensive Service Plan
TCM 14	Carpool and vanpool services and incentives	<ul style="list-style-type: none"> • Maintain current programs of the Regional Ridesharing Program and increase efficiency in delivering services • Explore innovative concepts such as real-time ridematching and more formal pick-up/drop-off locations for casual carpoolers • Explore options for expanding medium-distance (15–30 miles) vanpools
TCM 15	Local land-use planning and development strategies	<p>MTC will:</p> <ul style="list-style-type: none"> • Implement its 5-point transportation and land-use platform including a new planning grant program to fund station area plans around major transit facilities • Maintain funding for expanded TLC planning and capital grant programs and HIP program • Continue providing Transportation Planning and Land-Use Solutions (T-PLUS) funding to congestion management agencies to promote community revitalization projects • Utilize a Caltrans grant to examine opportunities for transit-oriented development along major transit corridors • Develop incentives and conditions to promote supportive land use policies around major new transit investments <p>BAAQMD will:</p> <ul style="list-style-type: none"> • Continue to fund bicycle projects, traffic-calming, shuttles, low emission vehicles, trip reduction programs and other clean air projects through the TFCA program • Continue to provide technical assistance to local jurisdictions on air quality analyses in the environmental review process • Continue to encourage cities and counties to reduce emissions from sources other than motor vehicles including lawn and garden equipment, wood stoves and fireplaces, and residential and commercial uses <p>ABAG will:</p> <ul style="list-style-type: none"> • Periodically monitor and update its Smart Growth demographic projections • Promote multi-jurisdiction planning along select transit corridors to encourage transit-oriented development <p>MTC, ABAG and the BAAQMD will:</p> <ul style="list-style-type: none"> • Develop financial and other incentives and technical assistance to encourage innovative parking strategies such as reduced parking, parking fees, parking cash-out, shared parking and other parking programs • Pursue legislative changes to remove barriers and provide incentives for smart growth • Promote carsharing as a way to reduce parking requirements • Monitor indirect source mitigation programs in other regions for Bay Area feasibility • Provide technical assistance to local government agencies • Publicize noteworthy examples of local clean air plans, policies and programs, as well as endorse noteworthy development projects • Study opportunities to promote location efficient mortgages (LEMs) to encourage home purchases near transit

(Continues on next page)

transportation control measures

TCM Number	State Transportation Control Measure	Implementation Steps
TCM 16	Public education/ intermittent control measures	<ul style="list-style-type: none"> • Continue Spare the Air (STA) notices to media, employers, public agencies and individuals, with an emphasis on reactive organic gases (ROG) reductions, obeying freeway speed limits in electronic freeway signs and other outreach efforts • Expand STA notices to add emphasis on ROG reductions, obeying freeway speed limits, and discouraging use of pleasure craft • Expand the Clean Air consortium to include cities and counties, as well as other public agencies • Target major commercial airports and their tenants for greater participation in the STA program • Increase coordination between the Bay Area's STA program with the San Joaquin Valley's STA program • Continue public education program on the proper maintenance and operation of motor vehicles to reduce air pollution • Study effectiveness and costs of free transit on Spare the Air days • Explore possible legislative approaches to formalize and strengthen episodic approaches
TCM 17	Conduct demonstration projects	<ul style="list-style-type: none"> • Promote demonstration projects to develop new strategies to reduce motor vehicle emissions. Potential projects include: <ul style="list-style-type: none"> – Low and zero emission vehicles (LEV) and refueling infrastructure – Parts replacement program for middle-aged cars – Heavy duty diesel vehicle idling – Carsharing • Monitor Phase 1 projects and expand depending on effectiveness and resources available
TCM 18	Implement transportation pricing reform	<ul style="list-style-type: none"> • Advocate for legislative authority to develop and promote revenue measures for: <ul style="list-style-type: none"> – Congestion pricing on bridges – High-occupancy/toll lanes – Regional and state gas tax increases of up to \$.50 per gallon – Regional vehicle miles traveled (VMT) fees – Taxes on diesel fuel – Emissions-based vehicle registration fees
TCM 19	Improve pedestrian access and facilities	<ul style="list-style-type: none"> • Review and comment on general/specific plan policies to promote development patterns that encourage walking and circulation policies. Emphasize pedestrian travel and encourage amending zoning ordinances to include pedestrian-friendly design standards. • MTC will continue to fund local pedestrian improvement projects through the TLC program, and support the Pedestrian Safety Task Force and associated pedestrian safety programs. • TFCA program will continue to fund pedestrian improvement projects to reduce motor vehicle trips and emissions. • Continue to identify and fund planning projects that enhance pedestrian movement in neighborhoods, downtowns and near transit stops • Continue funding specific improvements through a variety of funding sources • Support Safe Routes to Schools
TCM 20	Promote traffic-calming measures	<ul style="list-style-type: none"> • Promote traffic-calming measures • Fund traffic-calming projects such as pedestrian-exclusive streets, residential and neighborhood traffic calming measures, and arterial and major route traffic-calming measures • Include traffic-calming strategies in the transportation and land use elements of general and specific plans • Encourage area-wide traffic-calming plans and programs • Include traffic-calming strategies in capital improvements programs

APPENDIX F: 2023 CMP MONITORING REPORT



City/County Association of Governments of San Mateo County

2023 CMP Monitoring Report

San Mateo County, California

Draft Report

September 11, 2023



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EXECUTIVE SUMMARY



US-101 during peak hour conditions

San Mateo County maintains a Congestion Management Program (CMP) through the City/County Association of Governments of San Mateo County (C/CAG), the designated Congestion Management Agency (CMA), as required by the California Government Code 65089. C/CAG is also required to monitor the implementation of all elements of the CMP and prepare a monitoring report every other year. This report fulfils the biennial monitoring task as required by the State. This 2023 CMP

Monitoring Report provides an insight into the performance of various freeways, multilane highways, two-lane highways, arterials and intersections throughout the County, and assists with key decisions on future investment of transportation dollars.

CMP and Companion Monitoring Network

C/CAG established the CMP Network in 1991 that included all state highways and principal arterials in the County. In total, the 464.7 directional miles of the CMP network includes 301.4 miles of arterials/highways and 163.3 miles of freeways. The CMP network also includes 16 arterial intersections. Each CMP segment and intersection has an adopted LOS standard, discussed further in Chapter 1. This CMP monitoring effort also includes the Companion Monitoring Network (Companion Network), which grew out of a desire to see additional locations monitored besides the CMP network. There are a total of 10 roadway segments and 17 intersections in this network. This network is not subject to the standards and are monitored for information only.

Data Collection and Congestion Analysis

The biennial monitoring task requires extensive data collection for all established CMP and Companion Network segments and intersections included in the network. With changing needs and technological advancements, the data collection methodology has evolved over the last three decades since the first CMP was adopted. In order to collect accurate and useful data that is consistent with prior monitoring efforts, certain data collection methods were followed. The data was collected during May 2023 only on normal commute travel days (i.e.

Tuesdays, Wednesday, and Thursdays), while non-school days and days with any special events or incidents were eliminated. Available commercial speed data, 72-hour traffic counts, turning movement counts, and floating car surveys were utilized for the analysis. The commercial speed data was analyzed to obtain average speeds for each freeway segment and convert to LOS using Highway Capacity Manual (HCM) 1994 methodologies. Arterials and highways were monitored using 72-hour traffic counts and turning movement counts which were used to calculate a volume/capacity (V/C) ratio and assign the LOS based on HCM 1994 procedures. Intersections were modeled in Synchro using either HCM 2010 or 2000 methodology. Further discussion on data collection efforts is included in Chapter 2.

Monitoring Results

A total of 53 roadway segments and 16 intersections were monitored in this report during the AM and PM peak periods. The worst case direction was chosen as the official LOS, and a summary of these monitoring results are provided in **Table 1**.

Table 1: 2023 CMP Network Monitoring Results

Roadway Type	# of CMP Segments	Before Interregional Exemption		After Interregional Exemption	
		LOS Standard Met	LOS Standard Not Met	LOS Standard Met	LOS Standard Not Met
Arterials	27	26	1	27	0
Multilane Highways	1	0	1	1	0
Two-Lane Highways	9	9	0	9	0
Freeways	16	6	10	16	0
Intersections	16	15	1	16	0
TOTAL	69	56	13	69	0

In the 2023 Monitoring Cycle, one arterial segment, one multi-lane highway segment, ten freeway segments and one intersection falls below the LOS standard prior to the interregional exemption. However, all roadway segments met the LOS standard after interregional exemptions.

Multi-Modal Performance Measures

C/CAG monitors four multi-modal performance measures: LOS, multi-modal travel times, bicycle and pedestrian counts, and transit ridership/person throughput. LOS results are provided in Chapter 3. Multi-modal travel times along the US-101 corridor are reported with each biannual CMP monitoring effort. Travel times are measured from county line to county line on US-101 for four modes: single occupancy vehicle, HOV lane, Caltrain, and SamTrans. Travel times improved for vehicles in the HOV lane due to the 16 mile extension of HOV lane on I-101. Single occupant travel times increased significantly compared to 2021, but are the same or less than 2019 travel times. Caltrain travel times decreased slightly from 2021, while SamTrans travel times decreased except for the southbound direction during the PM peak period.

Bicycle/pedestrian planning efforts and counts with historical comparisons are summarized in this section, as is transit ridership for SamTrans, BART, and Caltrain. Overall, all three agencies have seen ridership increase since the pandemic decline as measured in FY 21. However, the increase is still significantly short of the ridership volume measured pre-pandemic in FY 19. This indicates that transit ridership is slowly recovering and still has more growth to return to pre-pandemic levels.

CHAPTER 1: INTRODUCTION

C/CAG has an established CMP to monitor the transportation network within the county. All roadways included in the CMP network are evaluated for conformity at least every two years by the agency, which is the designated CMA for San Mateo County. 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.



CMP Intersection SR-82 at Whipple Avenue in Redwood City

Biennial monitoring provides an opportunity to monitor established LOS standards for the arterial, highway, and freeway segments, and identify appropriate strategies to employ when a segment fails to meet the established LOS standards. While the CMP is very critical to San Mateo County’s transportation vision, it also supports the broader transportation goals of the Regional Transportation Plan (RTP) developed by the Metropolitan Transportation Commission (MTC), the San Francisco Bay Area’s regional transportation planning agency. The San Mateo CMP roadway system is consistent with the RTP, as well as the CMPs of adjoining San Francisco, Alameda, and Santa Clara counties.

1.1: Designated CMP Network

Per state statute, all state highways are included in the CMP network. The current San Mateo County CMP network includes approximately 464.7 directional miles of freeways and arterials, as well as 16 highway and arterial intersections. The segments and intersections are summarized below in **Tables 2** and **3**, and mapped in **Figure 1**.

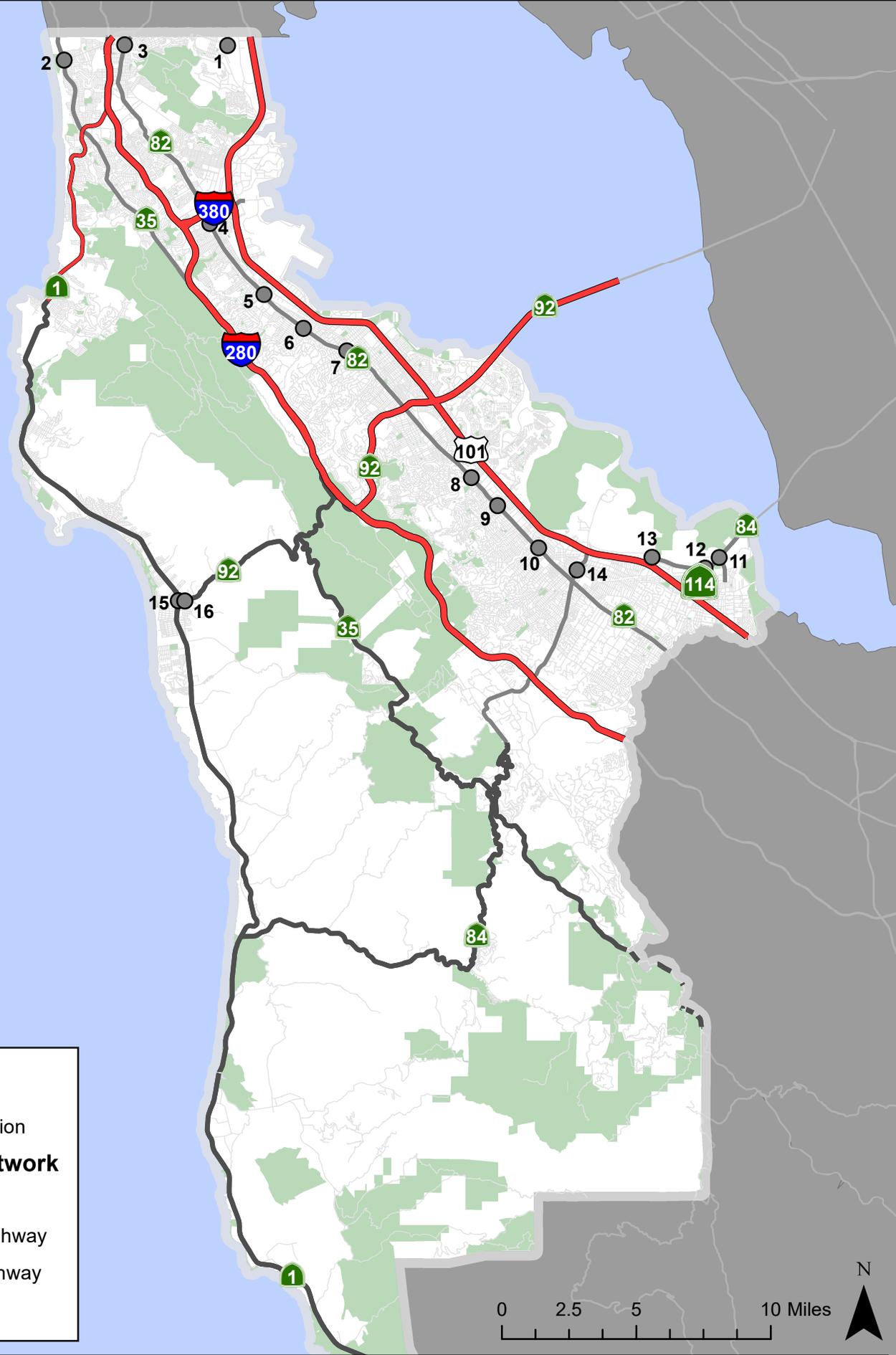
Table 2: CMP Network Segments

Route	From	To	Facility Type
SR-1	San Francisco County Line	Linda Mar Blvd	Multi-Lane Highway
SR-1	Linda Mar Blvd	Frenchmans Creek Rd	Two-Lane Highway
SR-1	Frenchmans Creek Rd	Miramontes Rd	Two-Lane Highway
SR-1	Miramontes Rd	Santa Cruz County Line	Two-Lane Highway
SR-35	San Francisco County Line	Sneath Ln	Arterial
SR-35	Sneath Ln	I-280	Arterial
SR-35	I-280	SR-92	Two-Lane Highway
SR-35	SR-92	SR-84	Two-Lane Highway
SR-35	SR-84	Santa Clara County Line	Two-Lane Highway
SR-82	San Francisco County Line	John Daly Blvd	Arterial
SR-82	John Daly Blvd	Hickey Blvd	Arterial
SR-82	Hickey Blvd	I-380	Arterial
SR-82	I-380	Trousdale Dr	Arterial
SR-82	Trousdale Dr	3 rd Ave	Arterial
SR-82	3 rd Ave	SR-92	Arterial
SR-82	SR-92	Hillsdale Ave	Arterial
SR-82	Hillsdale Ave	42 nd Ave	Arterial
SR-82	42 nd Ave	Holly St	Arterial
SR-82	Holly St	Whipple Ave	Arterial
SR-82	Whipple Ave	SR-84	Arterial
SR-82	SR-84	Glenwood Ave	Arterial
SR-82	Glenwood Ave	Santa Cruz Ave	Arterial
SR-82	Santa Cruz Ave	Santa Clara County Line	Arterial
SR-84	SR-1	Portola Rd	Two-Lane Highway
SR-84	Portola Rd	I-280	Two-Lane Highway
SR-84	I-280	Alameda de las Pulgas	Arterial
SR-84	Alameda de las Pulgas	US-101	Arterial
SR-84	US-101	Willow Rd	Arterial
SR-84	Willow Rd	University Ave	Arterial
SR-84	University Ave	Alameda County Line	Arterial
SR-92	SR-1	I-280	Two-Lane Highway
SR-92	I-280	US-101	Freeway
SR-92	US-101	Alameda County Line	Freeway
US-101	San Francisco County Line	I-380	Freeway
US-101	I-380	Millbrae Ave	Freeway

Route	From	To	Facility Type
US-101	Millbrae Ave	Broadway	Freeway
US-101	Broadway	Peninsula Ave	Freeway
US-101	Peninsula Ave	SR-92	Freeway
US-101	SR-92	Whipple Ave	Freeway
US-101	Whipple Ave	Santa Clara County Line	Freeway
SR-109	Kavanaugh Dr	SR-84	Arterial
SR-114	US-101	SR-84	Arterial
I-280	San Francisco County Line	SR-1 (North)	Freeway
I-280	SR-1 (North)	SR-1 (South)	Freeway
I-280	SR-1 (South)	San Bruno Ave	Freeway
I-280	San Bruno Ave	SR-92	Freeway
I-280	SR-92	SR-84	Freeway
I-280	SR-84	Santa Clara County Line	Freeway
I-380	I-280	US-101	Freeway
I-380	US-101	Airport Access Rd	Arterial
Mission St	San Francisco County Line	SR-82	Arterial
Geneva Ave	San Francisco County Line	Bayshore Blvd	Arterial
Bayshore Blvd	San Francisco County Line	Geneva Ave	Arterial

Table 3: CMP Network Intersections

ID	Jurisdiction	Intersection
1	Daly City/Brisbane	Bayshore Blvd/Geneva Ave
2	Daly City	SR-35/John Daly Blvd
3	Daly City	SR-82/Hillside Blvd/John Daly Blvd
4	San Bruno	SR-82/San Bruno Ave
5	Millbrae	SR-82/Millbrae Ave
6	Burlingame	SR-82/Broadway
7	Burlingame/San Mateo	SR-82/Peninsula Ave/Park Rd
8	Belmont	SR-82/Ralston Ave
9	San Carlos	SR-82/Holly St
10	Redwood City	SR-82/Whipple Ave
11	Menlo Park	University Ave/SR-84
12	Menlo Park	Willow Rd/SR-84
13	Menlo Park	Marsh Rd/SR-84
14	Redwood City	Middlefield Rd/SR-84
15	Half Moon Bay	SR-1/SR-92
16	Half Moon Bay	SR-92/Main St



Legend

- CMP Intersection
- Existing CMP Network**
- Freeway
- Multi Lane Highway
- Two Lane Highway
- Arterial



FIGURE 1
EXISTING CMP NETWORK



1.2: Companion Network

The 2023 CMP Update continues with the monitoring of the Companion Network which was developed for the 2021 CMP Update. C/CAG staff developed a new Companion Network alongside the CMP network, including ten roadway segments and 17 intersections. The purpose of this network is to monitor congestion in other areas of the county that may not be on the CMP network, such as local arterial roadways. The Companion Network includes roadway segments other than freeways and state routes (as these are already in the CMP network), however, intersections with state routes as the major street may be included as part of the Companion Network so long as they are not an existing CMP intersection. These locations are monitored for informational purposes.

The criteria used to select the Companion Network focused on roadway classification/function, past collision history, bicycle Level of traffic stress, facilities that were identified in local city/county plans, and locations that connected to existing CMP segments that had a failing LOS in 2019.

The Companion Network is detailed in **Tables 4** and **5**, and mapped in **Figure 2**.



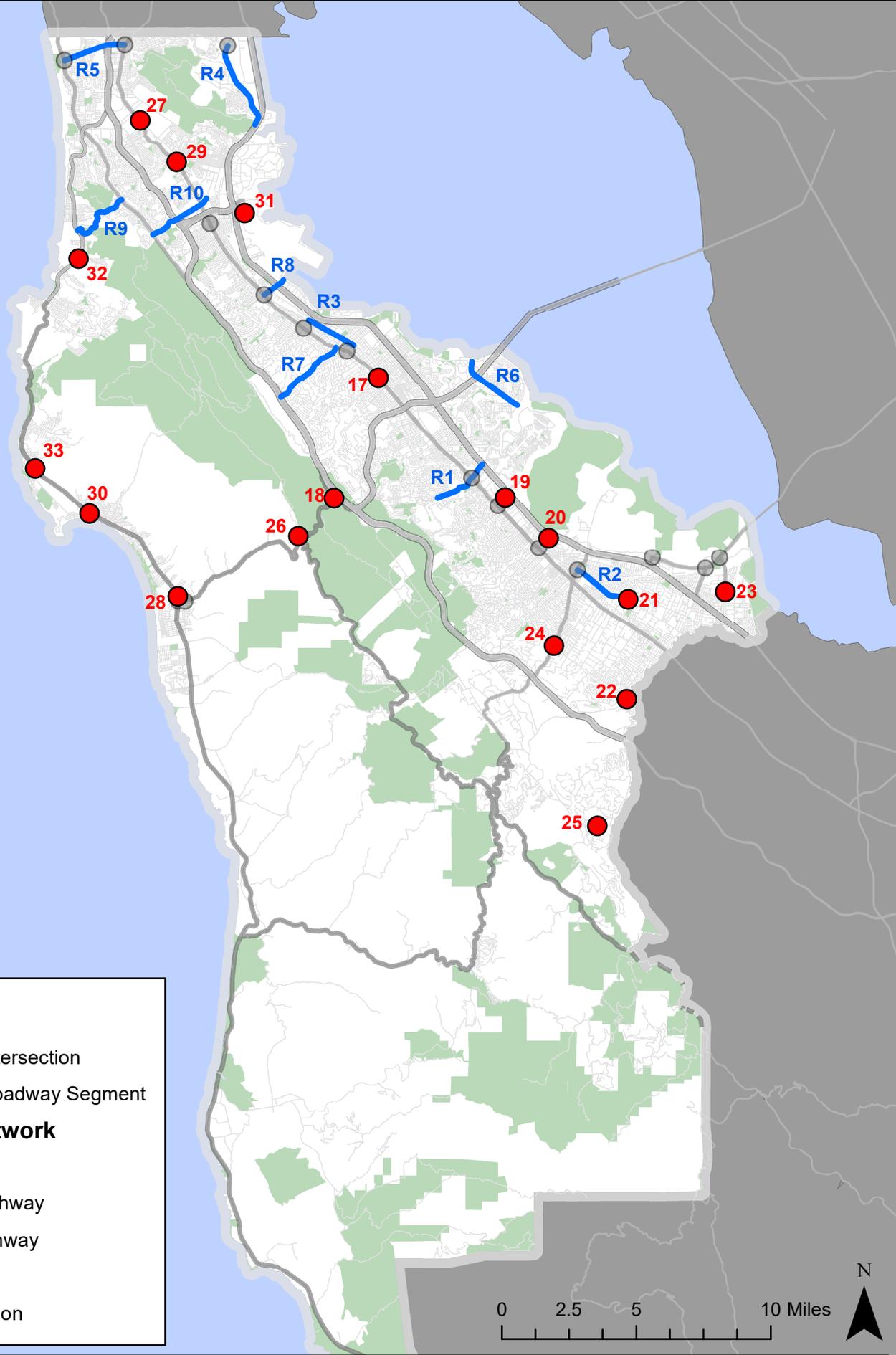
John Daly Boulevard in Daly City looking west from SR-82; one of the Companion Network segments

Table 4: CMP Companion Network Intersections

#	Jurisdiction	Intersection
17	San Mateo	SR-82/3rd Ave
18	Unincorporated San Mateo County	Skyline Blvd (SR-35)/SR-92
19	San Carlos	Holly St/Industrial Rd
20	Redwood City	Whipple Ave/Veterans Blvd
21	Atherton	Middlefield Rd/Marsh Rd
22	Menlo Park	Sand Hill Rd/Santa Cruz Ave
23	East Palo Alto	Bay Rd/University Ave
24	Woodside/Redwood City	SR-84/Alameda de las Pulgas
25	Portola Valley	Alpine Rd/Portola Rd
26	Unincorporated San Mateo County	SR-35/SR-92
27	Colma	El Camino Real (SR-82)/Mission Rd
28	Half Moon Bay	SR-1/Main St
29	South San Francisco	El Camino Real (SR-82)/Westborough Blvd
30	Unincorporated San Mateo County (El Granada/Coastside)	SR-1/Capistrano Blvd
31	Unincorporated San Mateo County (SFO Airport)	S. Airport Blvd/San Bruno Ave
32	Pacifica	SR-1/Reina del Mar Ave
33	Unincorporated San Mateo County (Moss Beach/Coastside)	SR-1/Cypress Ave

Table 5: CMP Companion Network Roadway Segments

ID	Jurisdiction	Name	Extent
R1	Belmont	Ralston Avenue	US-101 to Alameda de las Pulgas
R2	Unincorporated San Mateo County (North Fair Oaks), Atherton, Redwood City	Middlefield Road	SR-84 to Marsh Rd
R3	Burlingame	California Drive	Broadway to Peninsula Ave
R4	Brisbane	Bayshore Boulevard	Geneva Ave to US-101 NB Off-Ramp
R5	Daly City	John Daly Boulevard	SR-35 to Mission St
R6	Foster City	Foster City Boulevard	E. 3 rd Ave to Beach Park Blvd
R7	Hillsborough	Chateau Drive/Ralston Avenue	I-280 to El Camino Real
R8	Millbrae	Millbrae Avenue	SR-82 to Old Bayshore Hwy
R9	Pacifica	Sharp Park Boulevard	SR-1 to SR-35
R10	San Bruno	Sneath Lane	SR-35 to Huntington Ave



Legend

- Companion Intersection
- Companion Roadway Segment

Existing CMP Network

- Freeway
- Multi Lane Highway
- Two Lane Highway
- Arterial
- CMP Intersection



FIGURE 2

COMPANION MONITORING NETWORK



1.3: Level of Service Standards

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) requires that LOS standards be established by, in this case, C/CAG for the roadways and intersections designated to be in the CMP Roadway System. Furthermore, roadway levels of service (LOS) are to be measured by methods described in one of the following documents: The Transportation Research Board's *Circular 212*, the latest version of the HCM, or a uniform methodology adopted by the CMA that is consistent with the HCM. An explanation of the various levels of service is shown below in **Table 6**.

Table 6: LOS Definitions

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: San Mateo CCAG Traffic LOS Calculation Methods, Highway Capacity Manual

The CMP legislation stipulates that the CMP's LOS standards can be set at any LOS - A through F. However, only roadway segments or intersections operating at LOS F when the CMP network was established may have a LOS F standard set for them. The LOS standards established for San Mateo County vary by roadway segment. By adopting LOS standards based on geographic differences, C/CAG signaled that it intends to use the CMP process to prevent future congestion levels in San Mateo County from getting worse than currently anticipated. At the same time, the variations in LOS standards by geographic area conform to current land use plans and development differences between the Coastside and Bayside, between older downtowns near Caltrain stations and other areas of San Mateo County.

Based on data collected during the 1991 CMP monitoring process, the following LOS standards were selected for the roadway segments:

- If the existing (1990/91) LOS was F, then the standard was set to be LOS F.
- If the existing or future LOS was or will be E, then the standard was set to be LOS E.
- The standard for roadway segments near the San Francisco, Santa Clara, and Alameda County borders, with one exception,¹ was set to be LOS E to be consistent with the recommendations in those counties' 1991 CMPs. (This standard would apply unless those roadway segments were already operating at LOS F.)
- On SR-82 (El Camino Real), the standard was set to be LOS E.
- For the remaining roadway segments, the standard was set to be one letter designation worse than the LOS projected for the year 2000.

Intersection LOS standards were selected based on the following considerations:

- If the existing (1990/91) LOS is F, then the standard is set to be LOS F.
- If the existing or future LOS is or will be E, then the standard is also set to be E.
- The standard of the intersections near the San Francisco, Santa Clara, and Alameda Counties will be LOS E to be consistent with the LOS standards adopted in those counties.
- On SR-82 (El Camino Real), the standard is set to be LOS E to be consistent with the roadway segment standards.
- For the remaining intersections, the standard is set to be LOS E to correspond to the standard established for the adjacent roadway segment. (All the segments on which these intersections are located have standards set to LOS E).
- Note that as the Companion Network is not part of the CMP network, it does not have an established LOS standard and is monitored for informational purposes only. CMP and Companion Network locations monitored on weekends similarly have no adopted LOS standard and are also monitored for informational purposes only.
- The LOS standards for roadway segments and intersections is mapped below in **Figure 3**.

¹For I-280 south of SR 84, the adopted standard is LOS D.



Legend

LOS Standard

- B
- C
- D
- ● E
- ● F

Existing CMP Network

- Freeway
- Multi Lane Highway
- Two Lane Highway
- Arterial



FIGURE 3
LEVEL OF SERVICE STANDARDS (2023)



CHAPTER 2: STUDY METHODOLOGY



CMP Intersection of SR-92 and Main Street in Half Moon Bay

This section discusses the methodology utilized for measuring LOS on freeways, multi-lane highways, two-lane highways, arterials, and intersections throughout San Mateo County. The process begins with screening days within the monitoring period to ensure that only those expected to result in normal commuter traffic conditions are retained. Days that could produce lighter or heavier than usual traffic conditions, such as public holidays or special event days, were identified for removal.

2.1: Data Collection

This year's monitoring study was conducted in May 2023 on mid-week days (Tuesday-Thursday) during the AM (7:00 AM – 9:00 PM) and PM (4:00 PM – 6:00 PM) peak periods. Note that in monitoring efforts prior to 2021, the PM peak period was listed as 4:00 PM – 7:00 PM; however, in practice the actual peak period used varied across locations. In order to ensure uniformity, the PM peak period was set to 4pm-6pm across all locations and methodologies.

The CMP data collection takes place under normal traffic conditions, including clear weather conditions and not during special events or holidays. It is unknown when or even if traffic conditions/patterns will return to pre-pandemic levels. This CMP will identify how traffic has changed compared to pandemic levels during the 2021 CMP Monitoring Report as well as compared to pre-pandemic levels during the 2019 CMP Monitoring Report.

This section describes the type of data used and their collection methods.

Travel Speed Data

This LOS Monitoring Study used the commercial speed data from INRIX for all freeways in San Mateo County. INRIX aggregates traffic data from GPS-enabled vehicles and mobile devices, traditional road sensors and hundreds of other sources.

Once collected from the INRIX database, the commercial speed data points will be associated with the appropriate CMP segment. Once reduced, the data will be averaged on each segment to determine the average speed for all selected data points. Only data points derived from observed, real-time sources will be used. The data will then be processed to present average speed and travel time on each CMP segment during the AM and PM peak periods.

72-Hour Traffic Counts

Two-lane highways and arterial segments are primarily monitored using data from 72-hour traffic counts, which are performed using pneumatic tubes that are laid in the road. The tubes record volumes, speeds, and vehicle classifications in each direction during the specified count period. These counts were conducted by TJKM and IDAX Data Solutions at 25 CMP locations and 10 Companion Network locations countywide. At four CMP locations on the Coastsides (three on SR-1 and one on SR-92), these counts were also conducted on a Saturday and Sunday to provide weekend monitoring of tourist traffic.

Intersection Turning Movement Counts

Turning movement counts (TMCs) record the total volume of vehicles, bicycles, and pedestrians that pass through an intersection observed periods. Typically, the data is recorded showing how many cars make each possible movement (left turn, proceed straight, right turn, etc.) as they approach the intersection from each direction. Bicycles are recorded in a similar manner, while pedestrians are recorded by how many use the crosswalk on each leg of the intersection. TMCs were conducted at 16 CMP intersections and 17 Companion Network intersections during the AM and PM peak period. At eight of the locations on the Coastsides (two CMP and six Companion Network), TMCs were conducted on a Saturday during the AM, Mid-Day (11:00 AM – 1:00 PM), and PM peak periods.

HOV Lane Floating Car Survey

Floating car surveys are a method by which average speed and travel time can be measured along a defined roadway segment. As INRIX does not separate out High Occupancy Vehicle (HOV) lanes in their data, floating car surveys were conducted in the US-101 HOV lane from the Santa Clara County Line to Grand Avenue. The surveys

were completed using GPS technology to determine the travel time between the start and end of the segment. A minimum of five surveys were completed for each peak period and in each direction of travel.

Transit Ridership and Schedule Data

As part of the multi-modal performance element, transit ridership for all three major transit agencies serving San Mateo County (BART, Caltrain, and SamTrans) was collected for FY 23. Total ridership and average weekday ridership was reported. Transit schedules for Caltrain and SamTrans applicable during the monitoring period (April-May 2023), were obtained to calculate multi-modal travel times along the US-101 corridor.

Caltrans PeMS Data

To conduct an assessment of travel time reliability along San Mateo County freeway corridors, travel time index data was obtained from Caltrans Performance Monitoring System (PeMS).

2.2: LOS Methodology

All freeway segments in the network were monitored using the INRIX travel time data, which allows for determination of LOS on the basis of average operating speed. C/CAG primarily uses the 1994 and 2010 HCM methodology to monitor LOS on the CMP network. The specific methodologies used for monitoring freeway and arterial segments are listed below per HCM definitions:

Freeway and Multilane Highway Segments (HCM 1994 - Chapter 3) – All freeway and multilane highway segments were evaluated using the “basic freeway sections” and “multilane highways” methodology of HCM 1994 where the LOS for each freeway segment was determined using its average travel speed. Travel speed data was pulled from INRIX for April-May 2023, discussed above in Section 2.1. The routes that fall into this classification include:

- SR-1 from San Francisco County Line to Linda Mar Avenue
- SR-92 from I-280 to Alameda County Line
- US-101
- I-280
- I-380²

² Although travel speed data is used to determine LOS on all segments of I-380, one segment (US-101 to Airport Access Road) is classified as an Arterial and as such the “Arterial” criteria in HCM 1994 is used.

Two-Lane and Arterial Segments (HCM 1994 – Chapters 7, 8, and 11) – All non-freeway surface street segments were evaluated based on the volume to capacity ratio (V/C) dependent on the local free-flow speed, cross-section, number of lanes, % no-passing zones, and functional class.

Two-lane highways and arterials were evaluated primarily based on the current volumes as measured through 72-hour traffic counts at 35 CMP and Companion Network locations and turning movement counts at 10 locations throughout the county. These counts and resulting V/C were then compared to the applicable criteria in the HCM 1994 to determine the respective LOS. Companion Network segments were monitored using the same methodology as the CMP network.

The routes that fall into this classification include:

- SR-1 (south of Linda Mar Avenue)
- SR-35
- SR-82
- SR-84
- SR-92 (from SR-1 to I-280)
- SR-109
- SR-114
- Mission Street
- Geneva Avenue
- Bayshore Boulevard

Intersections – Turning movement counts were conducted at each CMP and Companion Network intersection during the AM and PM peak periods (for intersections that were analyzed on Saturday, mid-day peak period was also collected). These were modeled in Synchro and used the HCM 2010 methodology. Where intersection parameters did not allow the use of HCM 2010 in Synchro (one example is split signal phasing), HCM 2000 was used. The applicable methodology used is noted in the LOS results tables for intersections.

Figure 4 maps the CMP network with the applicable LOS methodology used. Detailed explanations of the LOS methodologies used is included in **Appendix B**.



Legend

LOS Methodology

- Average Speed
- V/C Ratio
- Turning Movement Counts

CMP Network

- Freeway
- Multi Lane Highway
- Two Lane Highway
- Arterial

FIGURE 4

LEVEL OF SERVICE METHODOLOGY



2.3: Data Analysis

As has been previously mentioned, C/CAG uses three methodologies for monitoring the CMP and Companion Network in San Mateo County: Average Speed, V/C Ratio, and Turning Movement Counts. The methodology to analyze each is described below.

Average Speed – Commercial Speed Data (INRIX)

Once collected from the INRIX database, the commercial speed data points filtered to ensure a high quality data sample. Three grades (10, 20, or 30) are associated with INRIX data, with a grade of 10 representing low quality, historical speed data, 30 representing high-quality probe data, and 20 representing a mixture of the two. The collected datasets were graded and then filtered to ensure only grade 30 INRIX data was used in the analysis. The data was then associated with the appropriate CMP segment. Once reduced, the travel time data was extracted for each segment in seconds. This was then converted to an hour metric, and divided by the length of the INRIX segment, producing an average speed for the segment. This average speed was then compared against HCM 1994 methodologies to report the appropriate LOS. This methodology is consistent with past monitoring efforts. LOS is reported for both directions, however, only the worst case direction is listed. The official result is the worst case LOS between the AM and PM peak period.

Volume/Capacity Ratio

V/C ratios are used to calculate LOS on two-lane highway and arterial CMP and Companion Network segments. These ratios are calculated based on 72-hour traffic counts taken at 25 CMP locations and 10 Companion Network locations. Once the data had been received and quality checks had been performed on the data collected, the highest one hour traffic volume was calculated for each peak period in each direction across all three days. Consistent with past monitoring efforts, the highest one hour in each peak period and each direction across these three hours was selected as the official volume per hour to calculate the V/C ratio. On 10 segments, 72-hour counts were not conducted instead turning movement counts from intersections on that applicable segment were used. To extract the volumes, all movements approaching to moving away from the intersection in a certain direction during the intersection's peak one hour of traffic, were combined to form the official volume. For example, if volumes from north of an intersection were used, then the SBL, SBT, and SBR movements were used for southbound volumes, while NBT, WBL, and EBR movements were used for northbound movements. For arterials, LOS is reported for both directions, however, only the worst case direction is listed. Two-lane highways are reported as bi-directional LOS. The official result is the worst case LOS between the AM and PM peak period.

Consistent with past monitoring efforts and HCM methodology, the capacity of each segment was assumed to be 1,100 vehicles per lane, per hour; with the exception of two-lane highways, where the capacity was assumed to be 2,800 vehicles per hour in both directions combined. For arterials, the subsequent V/C was compared to the "Arterials" criteria under HCM 1994 to assign the appropriate LOS. For two-lane highways, two additional inputs are required: terrain (level, rolling, or mountainous), and percent no passing. These are used to find the correct criteria under HCM 1994 and assign the correct LOS.

Intersections

16 CMP intersections and 17 Companion Network intersections were analyzed as part of the 2023 LOS Monitoring. The performance measure for intersections is LOS, but different from freeways and highways, the HCM 2010 was used to determine the LOS (Note: where signal timing parameters prevented Synchro from using HCM 2010, HCM 2000 was used). Turning movement counts were collected for each intersection on a weekday during the AM and PM peak periods and modeled in Synchro. For eight Coastside intersections, counts were also conducted on a Saturday in the AM, Mid-Day (11am-1pm) and PM peak periods. In addition to turning movement counts, pedestrian and bike counts were collected. The intersections were analyzed as if they were isolated (not coordinated or part of a signal system) and optimized given the current geometry. The modeled results provide an estimate of the optimized LOS and may not represent the actual conditions if the intersection is either using less than optimal phasing, splits or cycle length. TJKM updated the Synchro file from past CMP monitoring years to more accurately reflect current signal parameters and intersection controls observed out in field (for one example, changing a Permissive + Protected left turn to a Protected left turn if it was observed in current conditions). This modification in signal control changes the operation of the intersection in field and hence to reflect the current conditions this change was also modeled in Synchro. As such, the LOS at some intersections may be higher or lower than in previous years due to these changes.

CHAPTER 3: LOS MONITORING RESULTS

3.1: 2023 LOS Monitoring Results

This chapter discusses the 2023 LOS monitoring results for roadway segments and intersections based on the data collected for the project during May 2023. Recovery from the COVID-19 pandemic has seen an increase closer to pre-pandemic levels in traffic across San Mateo County. This is evidenced by the fact that in 2021 only five roadway segments were failing before interregional exemptions compared to 14 pre-exemption failing segments in 2023 (all of which improved to an acceptable LOS after interregional exemptions). However, these 14 failing segments in 2023 does not reflect the same level of traffic congestion compared to pre-pandemic conditions since there were 19 segments that were failing in 2019.

There were no significant changes in intersection LOS as 2023, 2021 and 2019 each had one intersection which was failing, but improved to an acceptable LOS after interregional reductions.

The Companion Network includes 10 roadway segments and 17 intersections beyond the CMP network countywide. Additionally, weekend LOS monitoring is conducted at select locations on the Coastside. The Companion Network was designated in 2021 out of a desire to see additional locations monitored countywide which are not included in the CMP network. Weekend monitoring is done at select Coastside locations due to the high amounts of weekend tourist traffic experienced at these locations (causing traffic levels oftentimes greater than experienced on weekdays). These are presented alongside the CMP LOS monitoring results for informational purposes only.

Tables 7 and 8 list out the reported worst case direction LOS for each roadway segment on the CMP and Companion Networks. The CMP segments are then mapped in **Figure 5** (AM Peak Period) and **Figure 6** (PM Peak Period), while the Companion Network segments are mapped in **Figure 7** (AM Peak Period) and **Figure 8** (PM Peak Period). CMP and Companion Network intersection LOS is reported in **Tables 8 and 9**, and mapped in **Figure 9** (CMP AM), **Figure 10** (CMP PM), **Figure 11** (Companion Network AM), and **Figure 12** (Companion Network PM). Weekend LOS is reported in **Tables 10 and 11**, and mapped in **Figure 13** (AM), **Figure 14** (Mid-Day), and **Figure 15** (PM). Lastly, roadway segments and intersections that are failing before interregional travel exemptions is mapped in **Figure 16**.

Table 7: 2023 CMP Roadway Segment LOS

Route	Roadway Segment	LOS Standard	2023 LOS	
			AM Peak Hour	PM Peak Hour
SR-1	San Francisco County Line to Linda Mar Blvd	E	F	F
SR-1	Linda Mar Blvd to Frenchmans Creek Rd	E	D	D
SR-1	Frenchmans Creek Road to Miramontes Rd	E	E	E
SR-1	Miramontes Rd to Santa Cruz County Line	D	B	C
SR-35	San Francisco Co Line to Sneath Ln	E	B	A
SR-35	Sneath Ln to I-280	F	F	F
SR-35	I-280 to SR-92	B	C	C
SR-35	SR-92 to SR-84	B	B	B
SR-35	SR-84 to Santa Clara County Line	E	B	B
SR-82	San Francisco County Line to John Daly Blvd	E	A	A
SR-82	John Daly Blvd to Hickey Blvd	E	A	A
SR-82	Hickey Blvd to I-380	E	A	A
SR-82	I-380 to Trousdale Dr	E	A	A
SR-82	Trousdale Dr to 3 rd Ave	E	A	A
SR-82	3 rd Ave to SR-92	E	A	A
SR-82	SR-92 to Hillsdale Ave	E	A	B
SR-82	Hillsdale Ave to 42 nd Ave	E	A	A
SR-82	42 nd Ave to Holly St	E	A	A
SR-82	Holly St to Whipple Ave	E	A	A
SR-82	Whipple Ave to SR-84	E	A	A
SR-82	SR-84 to Glenwood Ave	E	A	A
SR-82	Glenwood Ave to Santa Cruz Ave	E	A	B
SR-82	Santa Cruz Ave to Santa Clara County Line	E	A	A

Route	Roadway Segment	LOS Standard	2023 LOS	
			AM Peak Hour	PM Peak Hour
SR-84	SR-1 to Portola Rd	C	B	B
SR-84	Portola Rd to I-280	E	B	B
SR-84	I-280 to Alameda de las Pulgas	C	C	C
SR-84	Alameda de las Pulgas to US-101	E	B	B
SR-84	US-101 to Willow Rd	D	B	A
SR-84	Willow Rd to University Ave	E	F	A
SR-84	University Ave to Alameda County Line	F	F	E
SR-92	SR-1 to I-280	E	E	E
SR-92	I-280 to US-101	D	F	F
SR-92	US-101 to Alameda County Line	E	F	F
US-101	San Francisco County Line to I-380	E	E	F
US-101	I-380 to Millbrae Ave*	E	E	F
US-101	Millbrae Ave to Broadway*	E	F	F
US-101	Broadway to Peninsula Ave*	E	F	F
US-101	Peninsula Ave to SR-92*	F	F	F
US-101	SR-92 to Whipple Ave*	E	E	F
US-101	Whipple Ave to Santa Clara County Line	F	F	F
SR-109	Kavanaugh Dr to SR-84 (Bayfront Expwy.)	E	A	C
SR-114	US-101 to SR-84 (Bayfront Expressway)	E	A	B
I-280	San Francisco County Line to SR-1 (north)	E	D	E
I-280	SR-1 (north) to SR-1 (south)	E	D	E
I-280	SR-1 (south) to San Bruno Ave	D	F	F
I-280	San Bruno Ave to SR-92	D	A	A
I-280	SR-92 to SR-84	D	A	E
I-280	SR-84 to Santa Clara County Line	D	A	F
I-380	I-280 to US-101	F	F	F
I-380	US-101 to Airport Access Road	C	A	A
Mission St	San Francisco County Line to SR-82	E	A	A
Geneva Ave	San Francisco County Line to Bayshore Blvd	E	A	A
Bayshore Blvd	San Francisco County Line to Geneva Ave	E	A	A

Red shading indicates below LOS standard

Table 8: 2023 Companion Network Roadway Segment LOS

Route	Roadway Segment	2023 LOS	
		AM Peak Hour	PM Peak Hour
Ralston Ave	US-101 to Alameda de las Pulgas	A	A
Middlefield Rd	SR-84 to Marsh Rd	A	A
California Dr	Broadway to Peninsula Ave	A	A
Bayshore Blvd	Geneva Ave to US-101 NB Off Ramp	A	B
John Daly Blvd	SR-35 to Mission St	A	A
Foster City Blvd	E. 3rd Ave to Beach Park Dr	A	A
Chateau Dr/Ralston Ave	I-280 to El Camino Real	C	C
Millbrae Ave	SR-82 to Old Bayshore Hwy	A	B
Sharp Park Blvd	SR-1 to SR-35	A	A
Sneath Ln	SR-35 to Huntington Ave	A	A

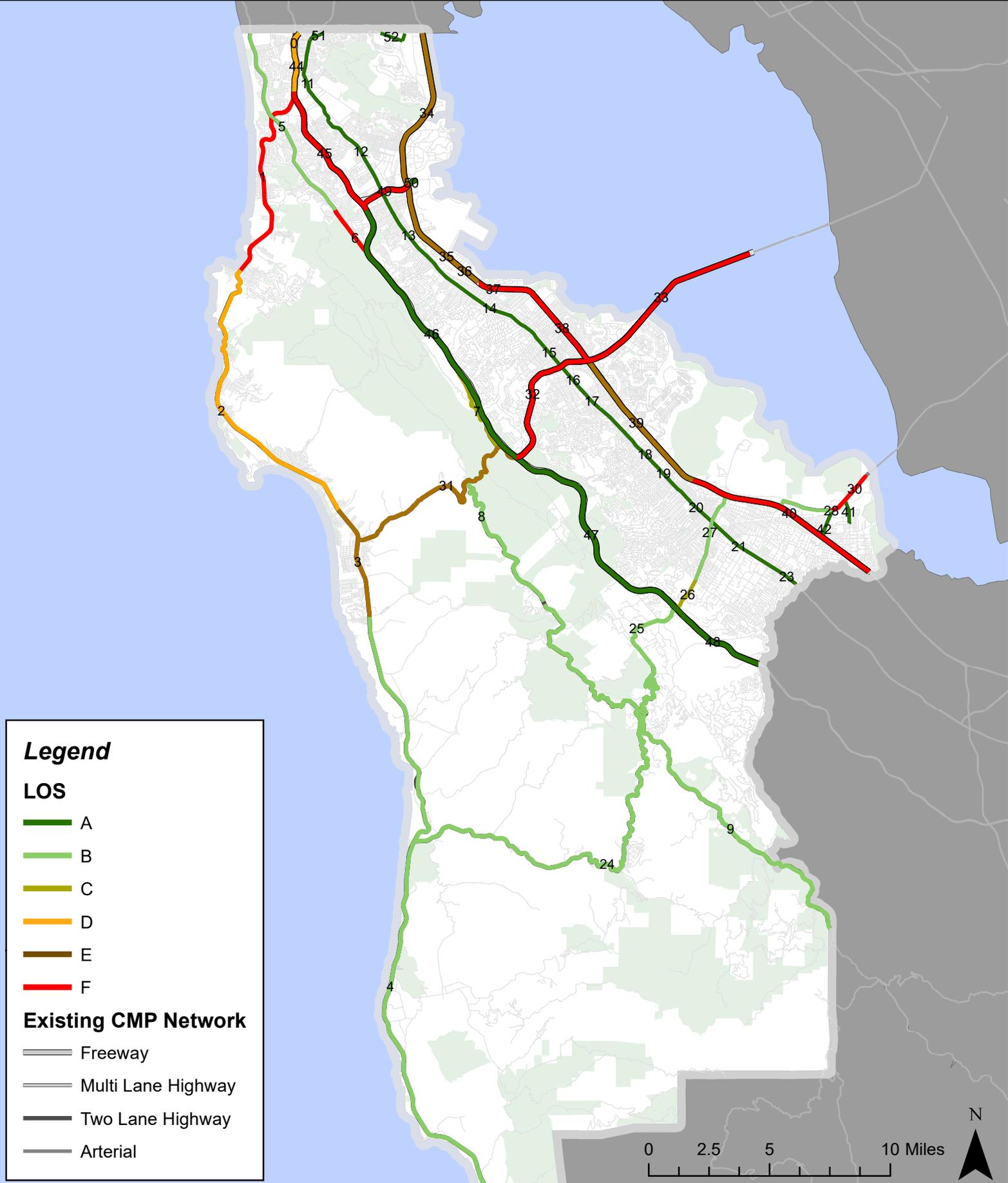


FIGURE 5

**CMP ROADWAY SEGMENT LOS - AM PEAK PERIOD
(WITHOUT INTERREGIONAL EXEMPTION) (2023)**



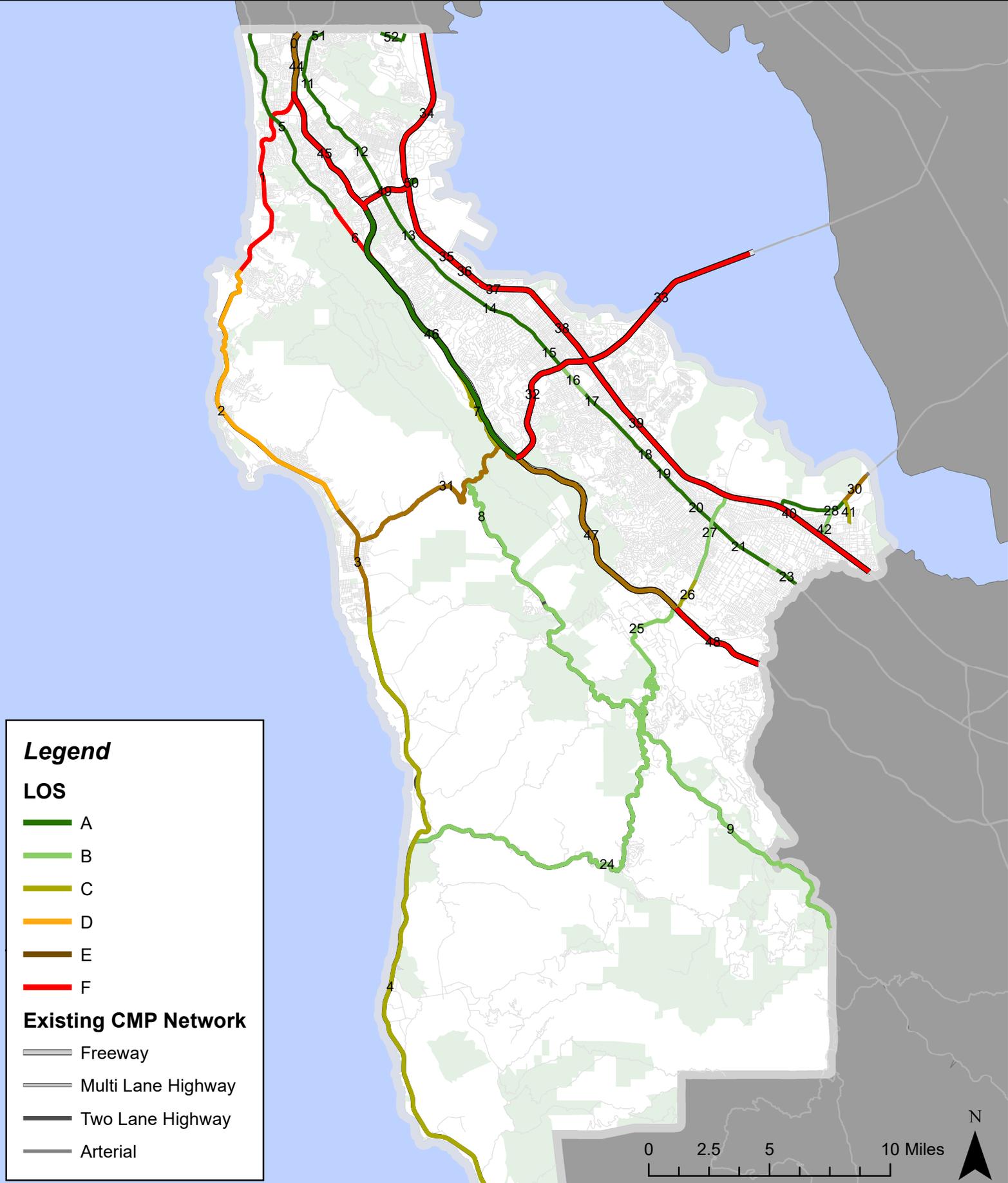


FIGURE 6
CMP ROADWAY SEGMENT LOS - PM PEAK PERIOD
(WITHOUT INTERREGIONAL EXEMPTION) (2023)



Legend

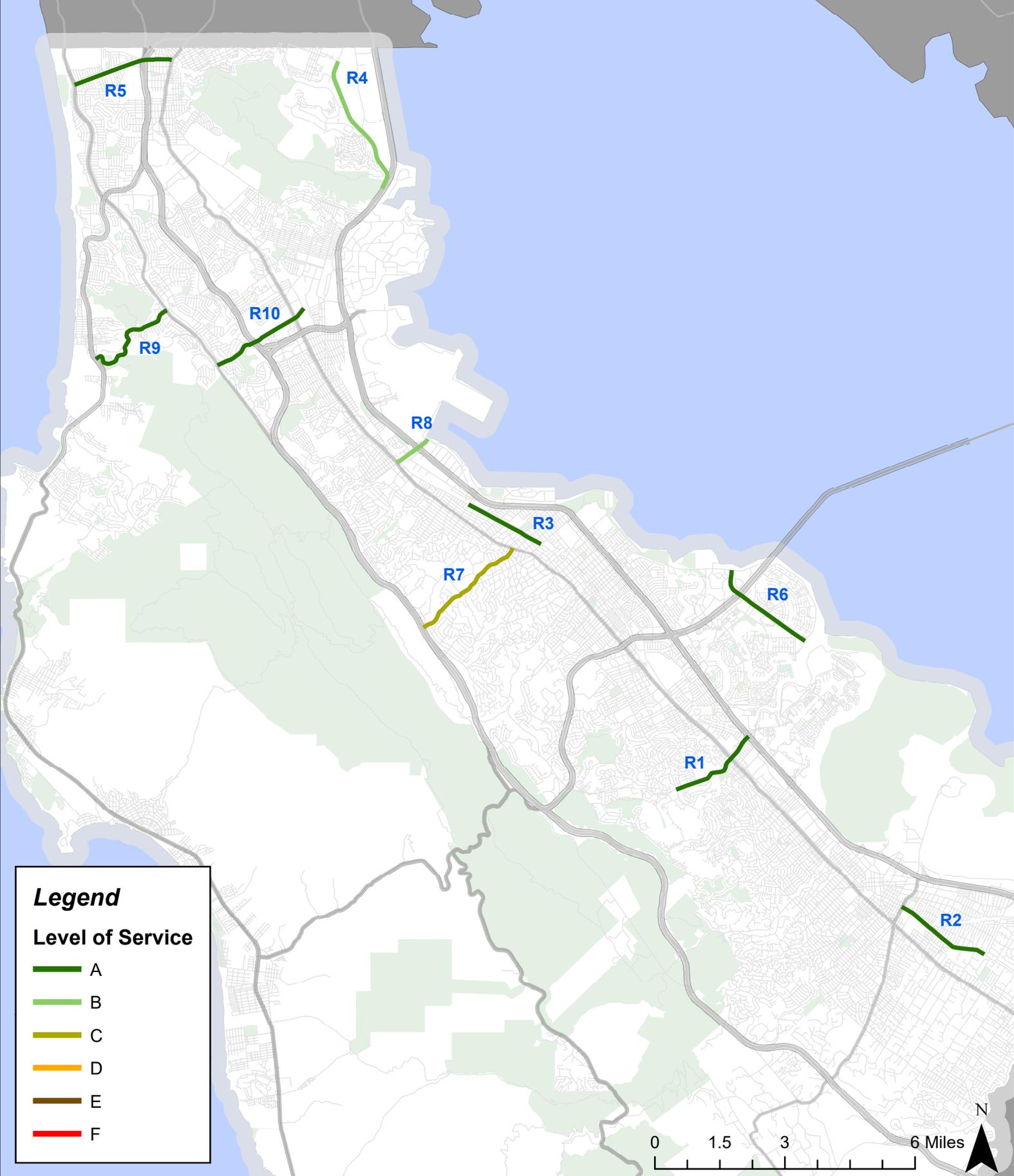
Level of Service

- A
- B
- C
- D
- E
- F



FIGURE 7
COMPANION ROADWAY SEGMENT LOS
AM PEAK PERIOD (2023)



Legend

Level of Service

- █ A
- █ B
- █ C
- █ D
- █ E
- █ F



FIGURE 8
COMPANION ROADWAY SEGMENT LOS
PM PEAK PERIOD (2023)

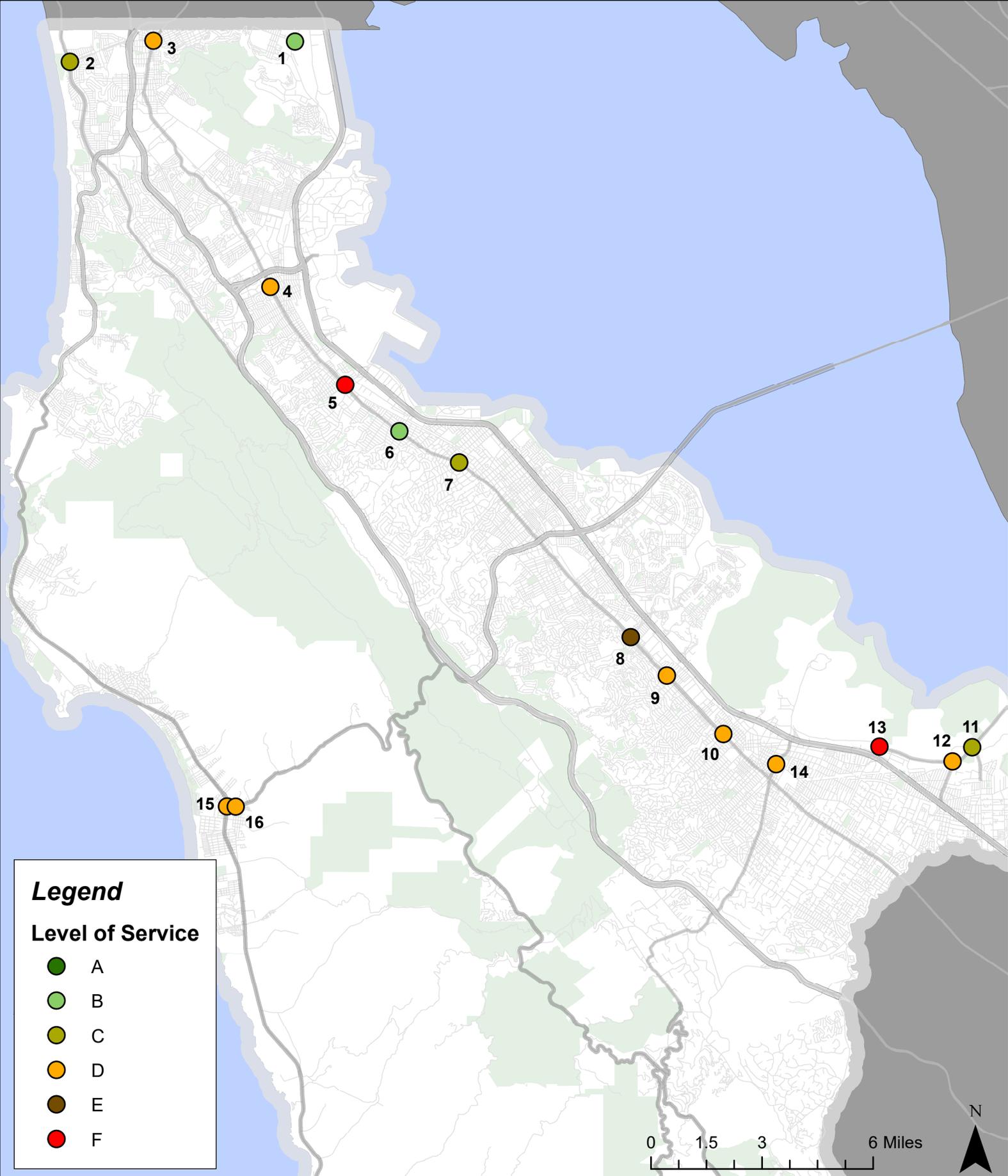



Table 9: 2023 CMP Intersection LOS

ID	Intersection	Methodology	LOS Standard	AM Peak Hour		PM Peak Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
1	Bayshore Blvd/Geneva Ave	HCM 2000	E	15.7	B	25.1	C
2	SR-35/John Daly Blvd	HCM 2000	E	24.3	C	32.5	C
3	SR-82/John Daly Blvd/Hillside Ave	HCM 2010	E	40.6	D	38.1	D
4	SR-82/San Bruno Ave	HCM 2010	E	45.9	D	67.1	E
5	SR-82/Millbrae Ave	HCM 2010	E	80.6	F	89.5	F
6	SR-82/Broadway	HCM 2010	E	14.8	B	13.7	B
7	SR-82/Park Rd/Peninsula Ave	HCM 2000	E	21.6	C	18	B
8	SR-82/Ralston Ave	HCM 2000	E	57.7	E	61.5	E
9	SR-82/Holly St	HCM 2010	E	44	D	45.4	D
10	SR-82/Whipple Ave	HCM 2010	E	39	D	38.3	D
11	University Ave/SR-84	HCM 2000	F	22.5	C	153.7	F
12	Willow Rd/SR-84	HCM 2010	F	46.1	D	58.5	E
13	SR-84/Marsh	HCM 2000	F	179.3	F	197.1	F
14	SR-84/Middlefield Rd	HCM 2010	E	49.9	D	50.9	D
15	SR-1/SR-92	HCM 2000	E	53.6	D	49	D
16	Main St/SR-92	HCM 2010	F	41.4	D	65.1	E

Table 10: 2023 Companion Network Intersection LOS

ID	Intersection	Methodology	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
17	El Camino Real/3 rd Ave	HCM 2000	16.7	B	17.2	B
18	SR-92/Skyline Blvd (SR-35)	HCM 2000	31.9	C	35.9	D
19	Industrial Rd/Holly St	HCM 2010	80.9	F	47.9	D
20	Veterans Blvd/Whipple Ave	HCM 2010	51.2	D	32.9	C
21	Middlefield Rd/Marsh Rd	HCM 2010	31.4	C	48.5	D
22	Santa Cruz Ave/Sand Hill Rd	HCM 2010	54.9	D	29.5	C
23	University Ave/Bay Rd	HCM 2000	49.4	D	49.1	D
24	SR-84/Alameda de las Pulgas	HCM 2010	106.1	F	41.8	D
25	Alpine Rd/Portola Rd	HCM 2010	15.5	C	10.5	B
26	SR-92/SR-35	HCM 2010	44.4	E	24.8	C
27	El Camino Real/Mission Rd	HCM 2010	12.8	B	18.9	C
28	SR-1/Main St	HCM 2000	72.3	E	45.7	D
29	El Camino Real/Westborough Blvd	HCM 2000	51.4	D	49.5	D
30	SR 1/Capistrano Rd	HCM 2010	17.1	B	18.8	B
31	S Airport Blvd/San Bruno Ave	HCM 2000	15.6	B	15.7	B
32	SR-1/Reina del Mar Ave	HCM 2000	139.6	F	55.6	E
33	SR-1/Cypress Ave	HCM 2010	33.9	D	97.4	F



Legend

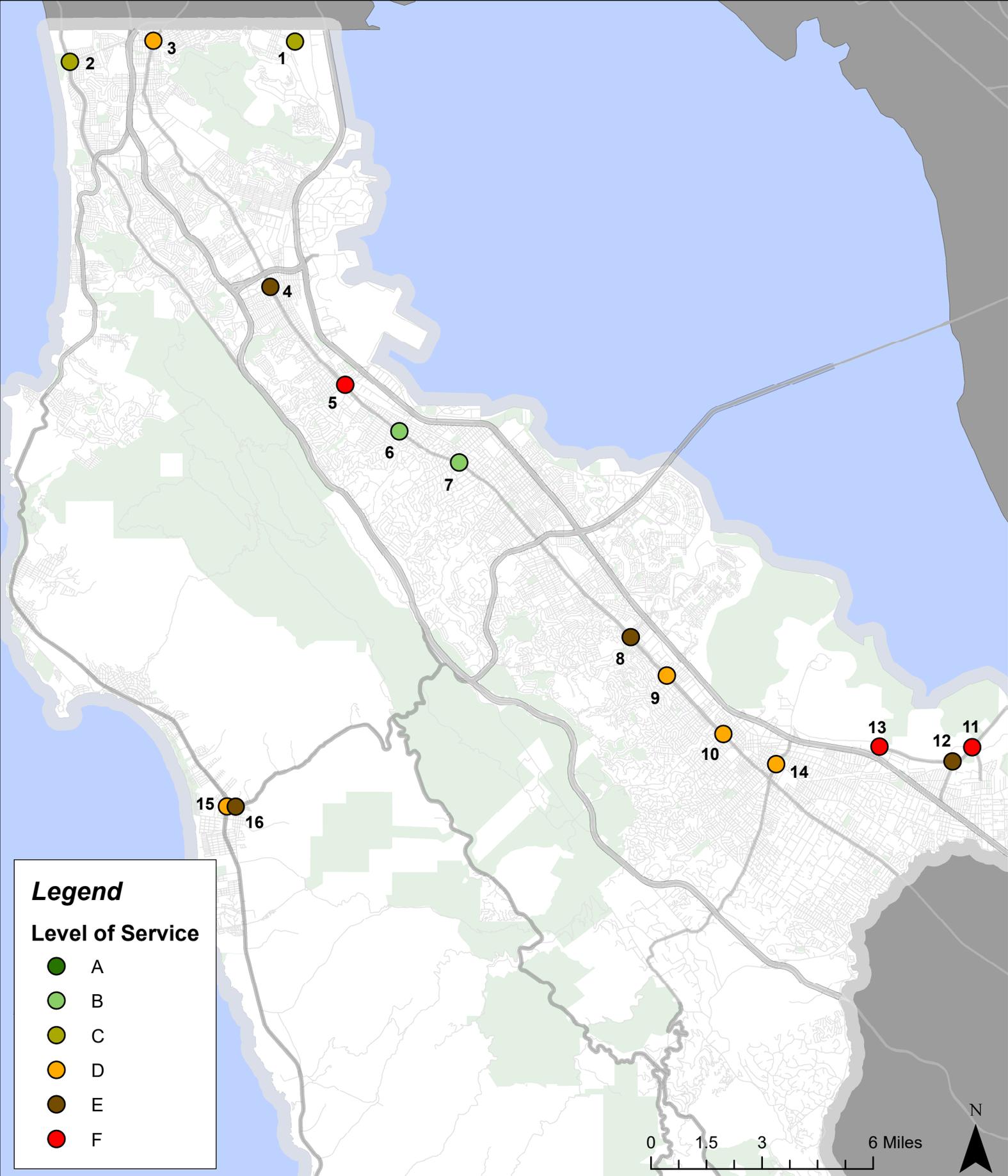
Level of Service

- A
- B
- C
- D
- E
- F

FIGURE 9

**CMP INTERSECTION LOS - AM PEAK PERIOD
(WITHOUT INTERREGIONAL EXEMPTION (2023))**





Legend

Level of Service

- A
- B
- C
- D
- E
- F

FIGURE 10

**CMP INTERSECTION LOS - PM PEAK PERIOD
(WITHOUT INTERREGIONAL EXEMPTION (2023))**



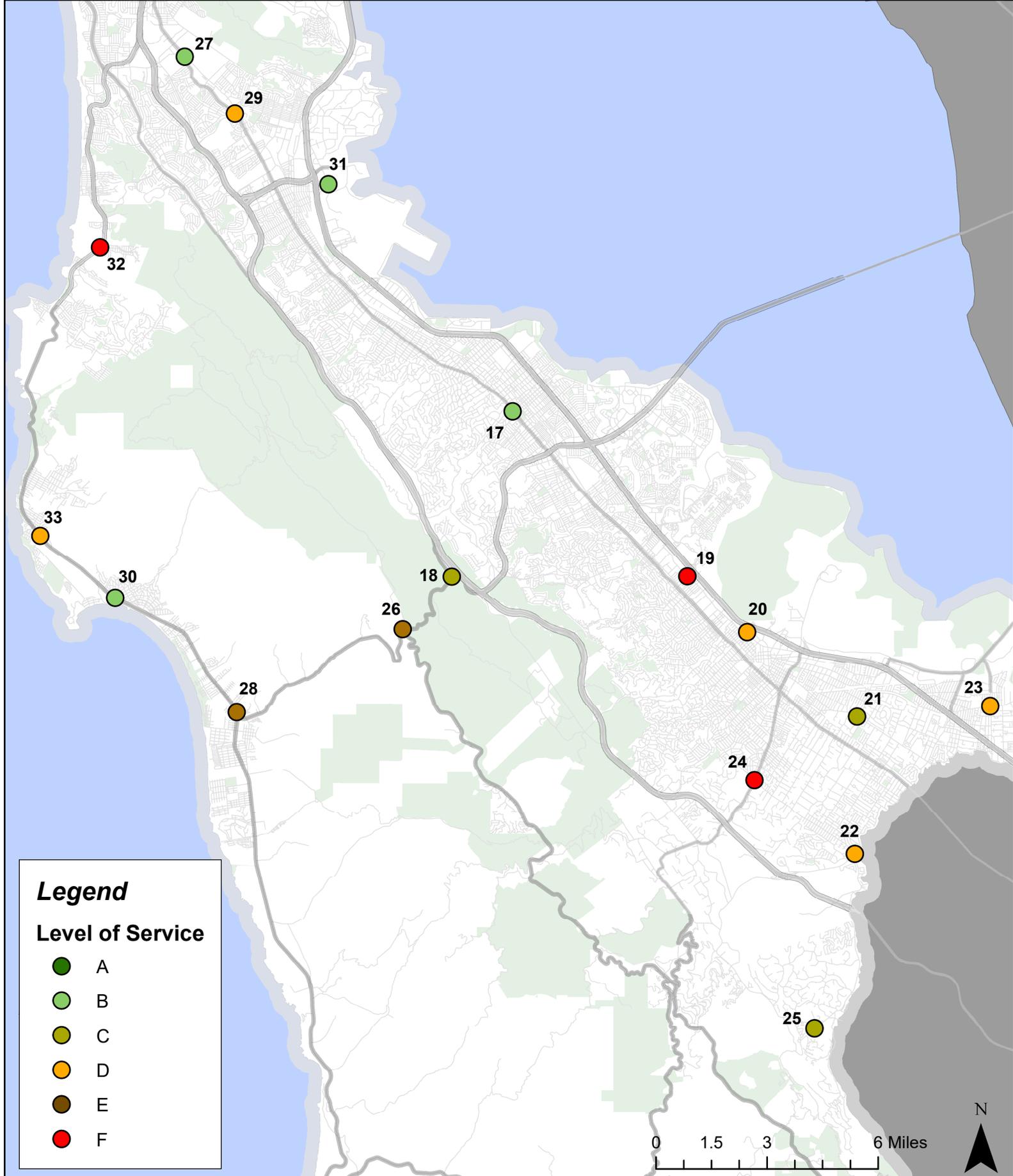


FIGURE 11

**COMPANION INTERSECTION LOS
AM PEAK PERIOD (2023)**



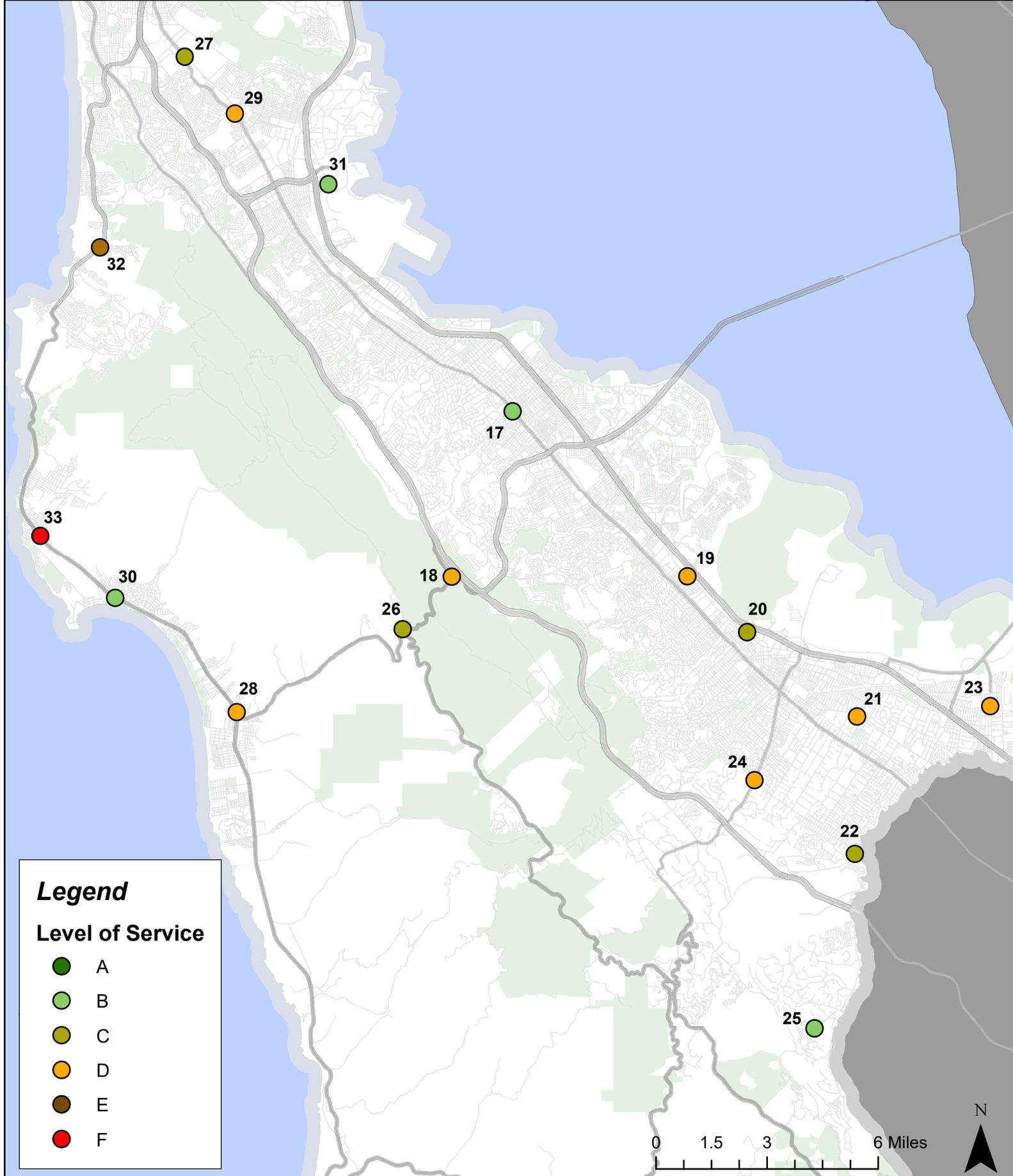


FIGURE 12

**COMPANION INTERSECTION LOS
PM PEAK PERIOD (2023)**



Table 11: 2023 Roadway Segment Weekend LOS

Route	Roadway Segment	2023 LOS		
		AM Peak Period	Mid-Day Peak Hour	PM Peak Hour
SR-1	Linda Mar Blvd to Frenchmans Creek Rd	C	D	E
SR-1	Frenchmans Creek Rd to Miramontes Rd	D	E	E
SR-1	Miramontes Rd to Santa Cruz County Line	B	C	D
SR-92	SR-1 to I-280	E	E	E

Table 12: 2023 Intersection Weekend LOS

ID	Intersection	AM Peak		Mid-Day Peak		PM Peak	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
15	SR-1/SR-92	39.4	D	49.4	D	36.2	D
16	Main St/SR-92	27.4	C	70.1	E	35	D
18	SR-92/Skyline Blvd (SR-35)	67.1	E	115.2	F	83.3	F
26	SR-35/SR-92	16.8	C	110.8	F	67.7	F
28	SR-1/Main St	47.2	D	40.8	D	39.7	D
30	SR-1/Capistrano Rd	15.5	B	20.8	C	21.4	C
32	SR-1/Reina Del Mar Ave	32.3	C	59.2	E	102.4	F
33	SR-1/Cypress Ave	23.4	C	254.7	F	285.8	F

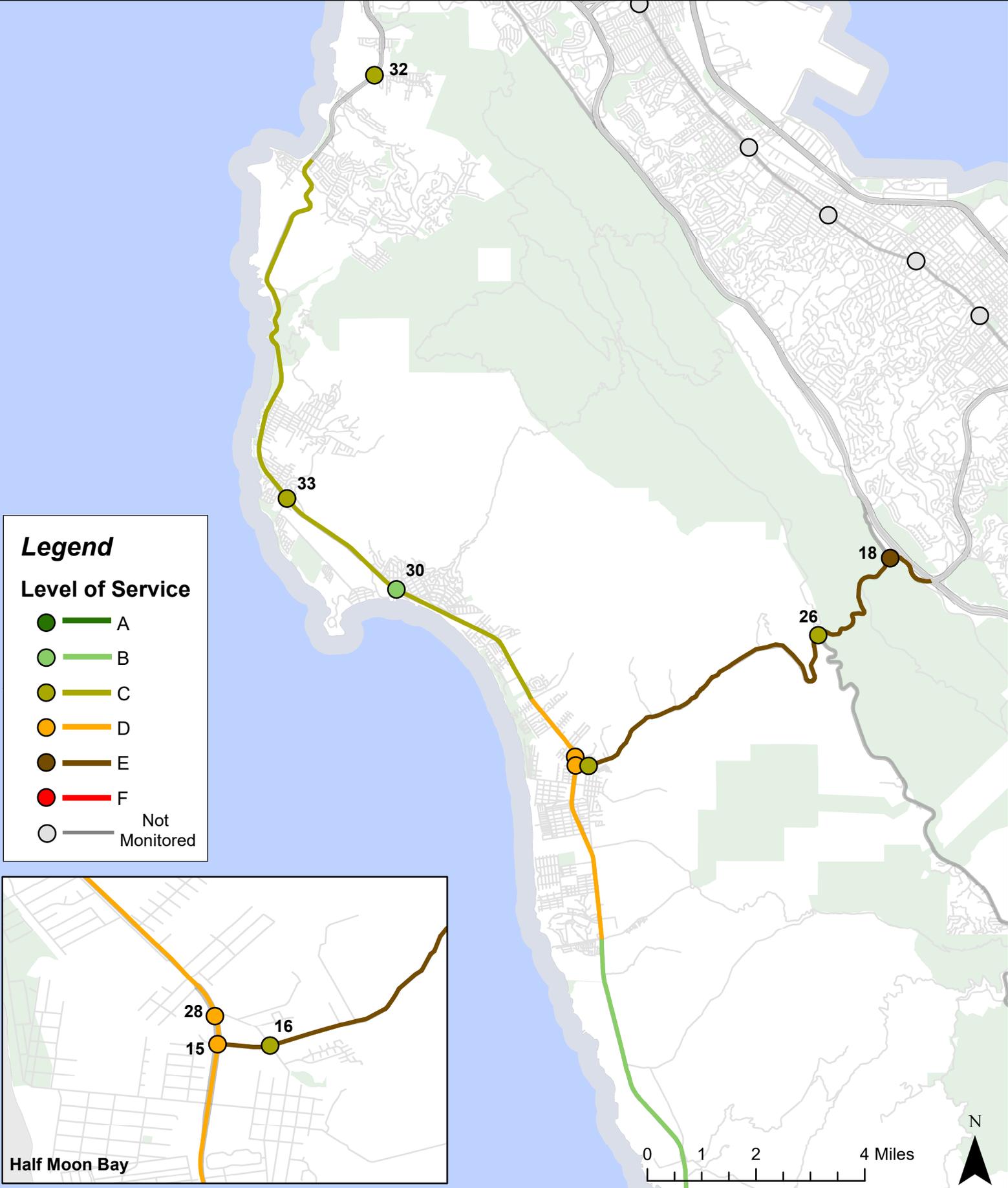


FIGURE 13

**WEEKEND SEGMENT & INTERSECTION LOS
AM PEAK PERIOD (2023)**



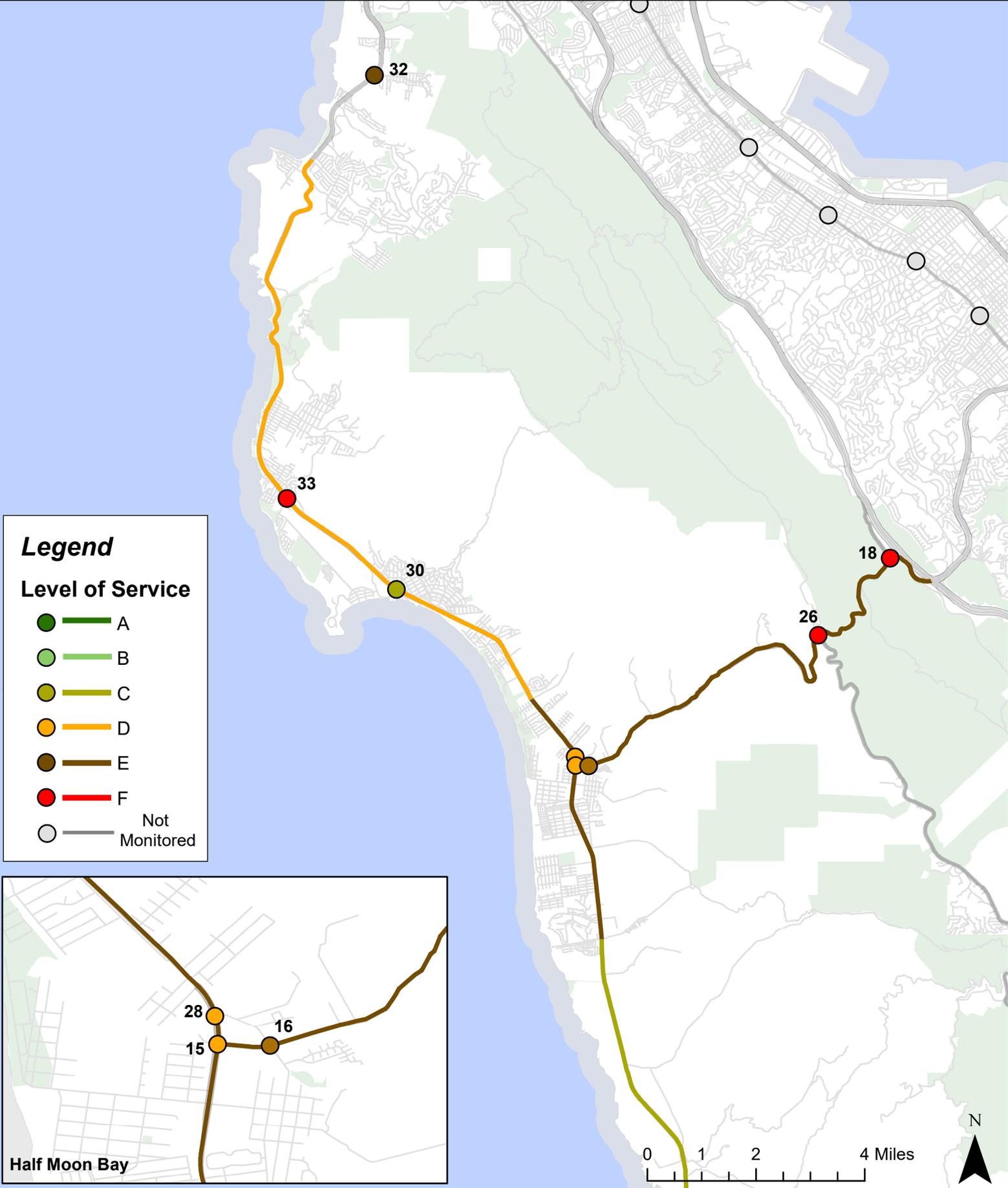


FIGURE 14

**WEEKEND SEGMENT & INTERSECTION LOS
MID-DAY PEAK PERIOD (2023)**



Legend

Level of Service

- — A
- — B
- — C
- — D
- — E
- — F
- Not Monitored

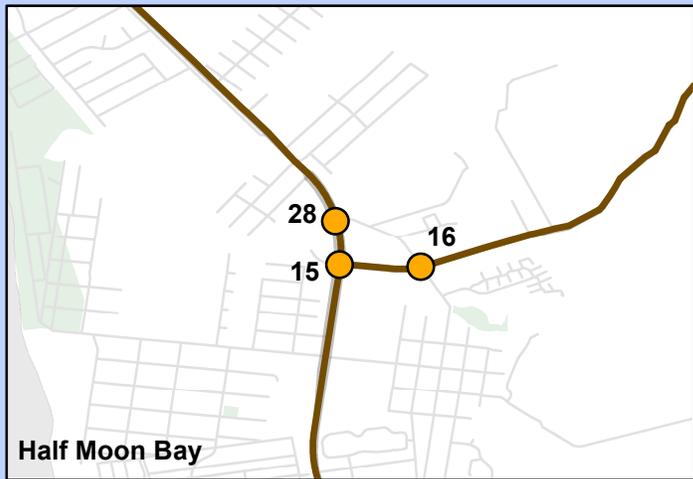
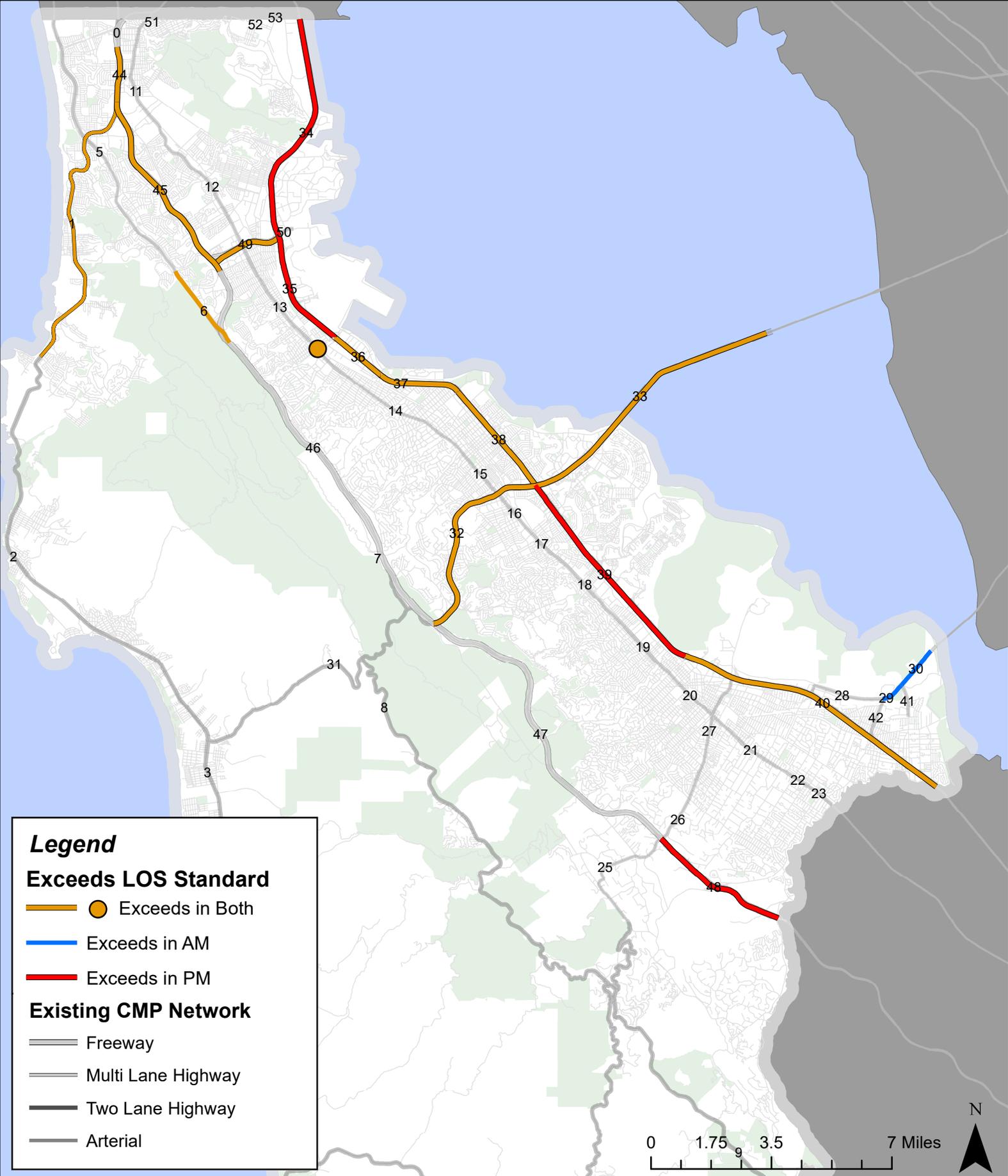


FIGURE 15
WEEKEND SEGMENT & INTERSECTION LOS
PM PEAK PERIOD (2023)



Legend

Exceeds LOS Standard

- Exceeds in Both
- Exceeds in AM
- Exceeds in PM

Existing CMP Network

- Freeway
- Multi Lane Highway
- Two Lane Highway
- Arterial

FIGURE 16

**FAILING ROADWAY SEGMENTS/INTERSECTIONS
(WITHOUT INTERREGIONAL EXEMPTION) (2023)**



3.2: Reduction in Volumes Due to Interregional Trips

The CMP legislation allows for the reduction in volume for those trips that are interregional. In this case, “interregional” are those trips that originate from outside the county (either traversing the county or ending within the county). For those CMP segments found with a LOS below the standard, the county travel demand model (C/CAG-VTA Model) is used to determine the proportion of the volume estimated to be from interregional travel. As shown in **Tables 4** and **6**, there were twelve segments and one intersection that had at least one direction in either the AM or PM peak period that had a lower LOS than the established standard. **Table 13** includes the resulting percentage of traffic from the C/CAG-VTA Model that is estimated to be interregional by segment and **Table 14** includes the resulting percentage of traffic that is estimated to be interregional by intersection.

Table 13: Interregional Trips by Failing Segment

Route	Roadway Segment	Direction	Peak Hour	% Reduction
SR-1	San Francisco Co Line to Linda Mar Blvd	NB	AM	22.9%
			PM	27.6%
		SB	PM	18.3%
SR-92	I-280 to US-101	EB	AM	26.8%
			PM	33.3%
		WB	AM	27.3%
			PM	25.8%
SR-92	US-101 to Alameda Co Line	EB	PM	37.8%
		WB	AM	26.0%
US-101	San Francisco Co Line to I-380	NB	PM	16.0%
		SB	PM	19.8%
US-101	I-380 to Millbrae Ave	SB	PM	30.4%
US-101	Millbrae Av to Broadway	SB	AM	30.3%
		SB	PM	27.8%
US-101	Broadway to Peninsula Ave	NB	AM	26.1%
			PM	26.2%
		SB	AM	28.9%
			PM	24.9%
US-101	SR 92 to Whipple Ave	NB	PM	22.2%
I-280	SR-1 (South) to San Bruno Ave	NB	PM	21.9%
		SB	AM	30.1%
I-280	SR-84 to Santa Clara Co Line	NB	PM	32.1%

Table 14: Interregional Trip Percentage Reduction by Failing Intersection

#	Intersection	Peak Hour	% Reduction
5	SR-82 / Millbrae Ave	AM	8.10%
		PM	7.10%

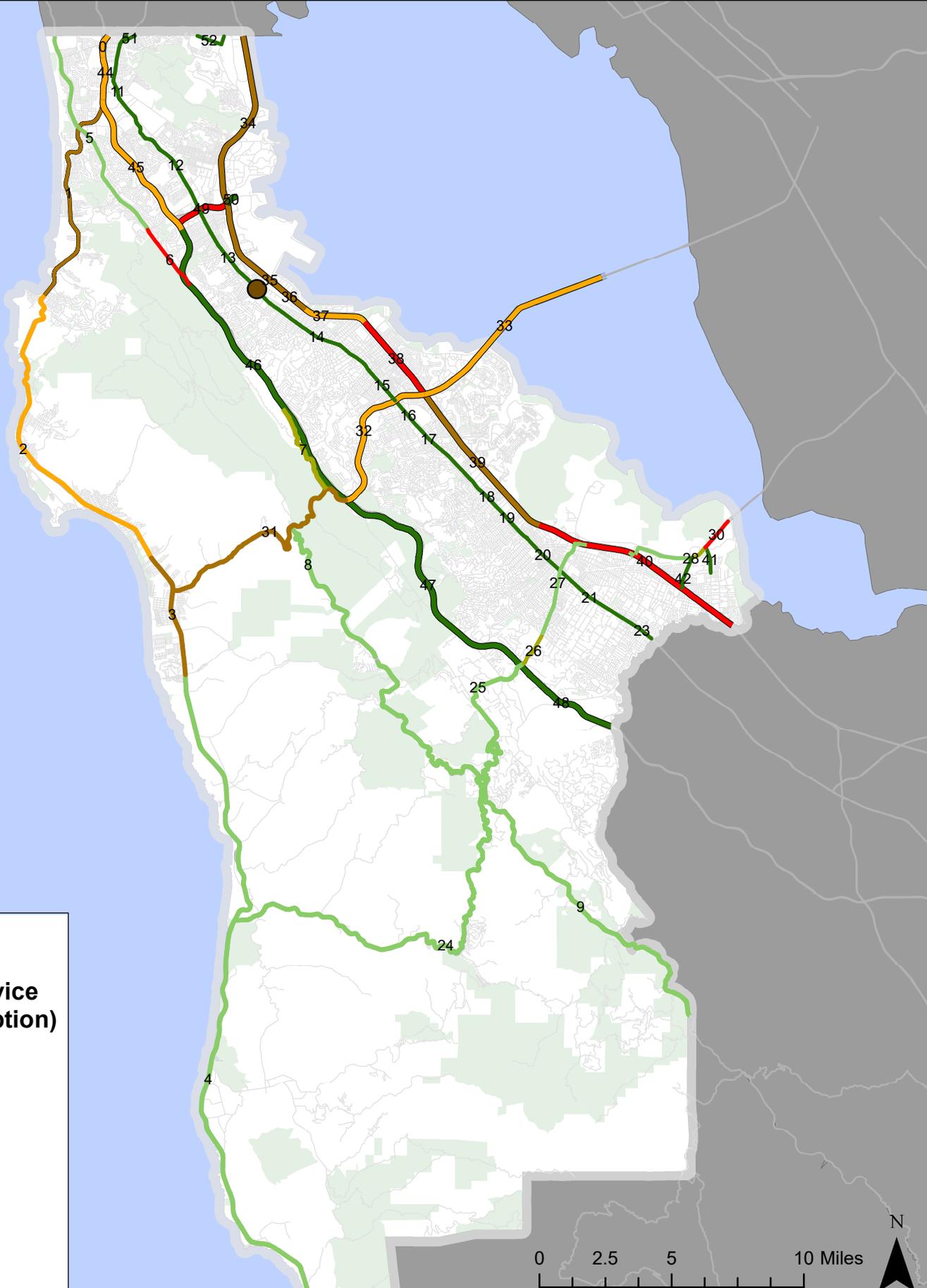
When applying reductions, they can be deducted directly for those where V/C is the performance measure used, but for those segments that use INRIX travel speed, a few extra steps are required to reflect the exemption. Historically, the LOS Monitoring Study has made use of the LOS tables as included in the HCM 1994 that include reference speeds for given free-flow speeds and LOS. In order to reflect the reduction, the V/C must first be estimated from the same tables. This adds a level of error given that density is the preferred performance measure and the methodology is to use a secondary measure to estimate another secondary measure, take the reduction, and then reverse the calculation using the V/C and determine the adjusted LOS with the exemption. After incorporating the reduction in volumes for segments and intersections found to have an LOS lower than the standard, all raised to an acceptable LOS. Therefore, for the 2021 CMP monitoring cycle, **there are no deficient segments or intersections after interregional reductions**. Failing segments and intersections after their respective interregional reductions are mapped in **Figures 17 and 18**.

Table 15: 2023 CMP Roadway Segment LOS with Interregional Reductions

Route	Roadway Segment	LOS Standard	2023 LOS		LOS with Interregional Reduction - AM	LOS with Interregional Reduction - PM
			AM Peak Period	PM Peak Period		
SR-1	San Francisco County Line to Linda Mar Blvd	E	F	F	E	E
SR-1	Linda Mar Blvd to Frenchmans Creek Rd	E	D	D	-	-
SR-1	Frenchmans Creek Road to Miramontes Rd	E	E	E	-	-
SR-1	Miramontes Rd to Santa Cruz County Line	D	B	C	-	-
SR-35	San Francisco Co Line to Sneath Ln	E	B	A	-	-
SR-35	Sneath Ln to I-280	F	F	F	-	-
SR-35	I-280 to SR-92	B	C	C	-	-
SR-35	SR-92 to SR-84	B	B	B	-	-
SR-35	SR-84 to Santa Clara County Line	E	B	B	-	-
SR-82	San Francisco County Line to John Daly Blvd	E	A	A	-	-
SR-82	John Daly Blvd to Hickey Blvd	E	A	A	-	-
SR-82	Hickey Blvd to I-380	E	A	A	-	-
SR-82	I-380 to Trousdale Dr	E	A	A	-	-
SR-82	Trousdale Dr to 3 rd Ave	E	A	A	-	-
SR-82	3 rd Ave to SR-92	E	A	A	-	-
SR-82	SR-92 to Hillsdale Ave	E	A	B	-	-
SR-82	Hillsdale Ave to 42 nd Ave	E	A	A	-	-
SR-82	42 nd Ave to Holly St	E	A	A	-	-
SR-82	Holly St to Whipple Ave	E	A	A	-	-

Route	Roadway Segment	LOS Standard	2023 LOS		LOS with Interregional Reduction - AM	LOS with Interregional Reduction - PM
			AM Peak Period	PM Peak Period		
SR-82	Whipple Ave to SR-84	E	A	A	-	-
SR-82	SR-84 to Glenwood Ave	E	A	A	-	-
SR-82	Glenwood Ave to Santa Cruz Ave	E	A	B	-	-
SR-82	Santa Cruz Ave to Santa Clara County Line	E	A	A	-	-
SR-84	SR-1 to Portola Rd	C	B	B	-	-
SR-84	Portola Rd to I-280	E	B	B	-	-
SR-84	I-280 to Alameda de las Pulgas	C	C	C	-	-
SR-84	Alameda de las Pulgas to US-101	E	B	B	-	-
SR-84	US-101 to Willow Rd	D	B	A	-	-
SR-84	Willow Rd to University Ave	E	F	A	C	-
SR-84	University Ave to Alameda County Line	F	F	E	-	-
SR-92	SR-1 to I-280	E	E	E	-	-
SR-92	I-280 to US-101	D	F	F	D	D
SR-92	US-101 to Alameda County Line	E	F	F	D	D
US-101	San Francisco County Line to I-380	E	E	F	-	E
US-101	I-380 to Millbrae Ave*	E	E	F	-	E
US-101	Millbrae Ave to Broadway*	E	F	F	E	D
US-101	Broadway to Peninsula Ave*	E	F	F	D	D
US-101	Peninsula Ave to SR-92*	F	F	F	-	-
US-101	SR-92 to Whipple Ave*	E	E	F	-	D
US-101	Whipple Ave to Santa Clara County Line	F	F	F	-	-
SR-109	Kavanaugh Dr to SR-84 (Bayfront Expwy.)	E	A	C	-	-
SR-114	US-101 to SR-84 (Bayfront Expressway)	E	A	B	-	-
I-280	San Francisco County Line to SR-1 (north)	E	D	E	-	-
I-280	SR-1 (north) to SR-1 (south)	E	D	E	-	-
I-280	SR-1 (south) to San Bruno Ave	D	F	F	D	D
I-280	San Bruno Ave to SR-92	D	A	A	-	-
I-280	SR-92 to SR-84	D	A	E	-	D
I-280	SR-84 to Santa Clara County Line	D	A	F	-	D
I-380	I-280 to US-101	F	F	F	-	-
I-380	US-101 to Airport Access Road	C	A	A	-	-
Mission St	San Francisco County Line to SR-82	E	A	A	-	-
Geneva Ave	San Francisco County Line to Bayshore Blvd	E	A	A	-	-
Bayshore Blvd	San Francisco County Line to Geneva Ave	E	A	A	-	-

Red shading indicates LOS below standard



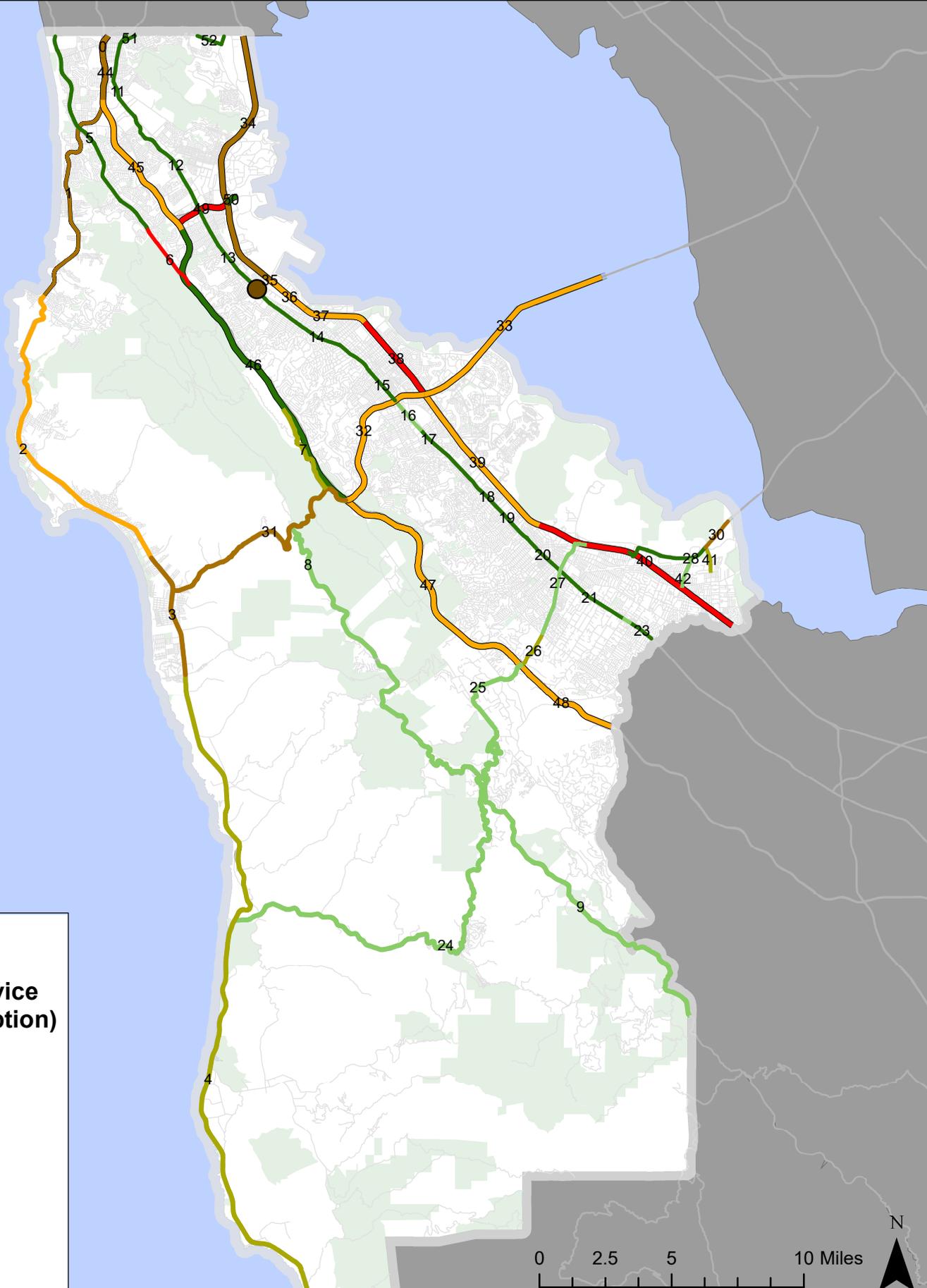
Legend
Level of Service
(After Exemption)

- — A
- — B
- — C
- — D
- — E
- — F

FIGURE 17

**DEFICIENT ROADWAY SEGMENTS/INTERSECTIONS
 AM PEAK PERIOD (AFTER EXEMPTION) (2023)**





Legend

Level of Service (After Exemption)

- — A
- — B
- — C
- — D
- — E
- — F



FIGURE 18

**DEFICIENT ROADWAY SEGMENTS/INTERSECTIONS
PM PEAK PERIOD (AFTER EXEMPTION) (2023)**



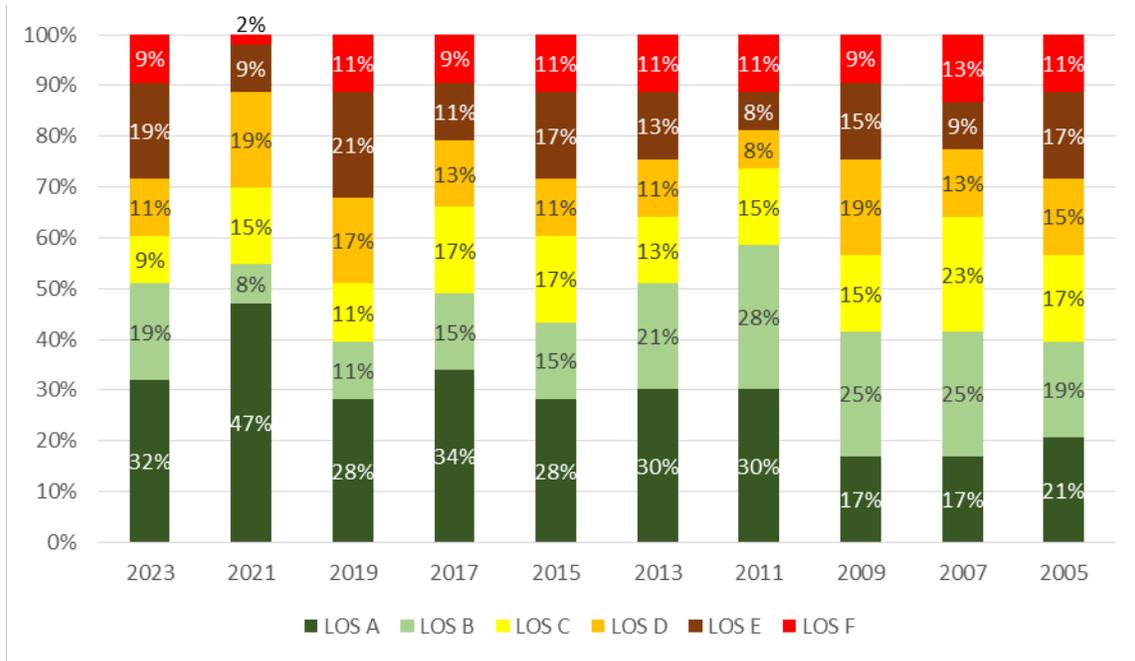
Table 16: 2023 CMP Intersection LOS with Interregional Reductions

ID	Intersection	LOS Standard	2023 LOS		AM LOS with Interregional Trip Reduction	PM LOS with Interregional Trip Reduction
			AM	PM		
1	Bayshore Blvd/Geneva Ave	E	B	C	-	-
2	SR 35/John Daly Blvd	E	C	C	-	-
3	SR 82/Hillside	E	D	D	-	-
4	SR 82/San Bruno Ave	E	D	E	-	-
5	SR 82/Millbrae Ave	E	F	F	E	E
6	SR 82/Broadway	E	B	B	-	-
7	SR 82/Park Rd/Peninsula Ave	E	C	B	-	-
8	SR 82/Ralston Ave	E	E	E	-	-
9	SR 82/Holly St	E	D	D	-	-
10	SR 82/Whipple Ave	E	D	D	-	-
11	University Ave/SR 84	F	C	F	-	-
12	Willow Rd/SR 84	F	D	E	-	-
13	SR 84/Marsh	F	F	F	-	-
14	SR 84/Middlefield Rd	E	D	D	-	-
15	SR 1/SR92	E	D	D	-	-
16	Main St/SR 92	E	D	E	-	-

3.3: Historical Comparisons

C/CAG has continuously conducted monitoring of the CMP network every two years since the CMP was established in 1991. As such, it presents the opportunity to examine the historical trends along each segment and at each intersection. **Figure 19** below illustrates the percentage of each LOS grade for roadway segments across the last ten monitoring cycles. From this, it can be seen that the LOS E & LOS F grade percentages is more than 2021 indicating an increase in traffic volumes post-covid. However, the high percentage of LOS A grades indicates a continued reduction and change in traffic patterns post pandemic.

Figure 19: Historical LOS Comparison for Roadway Segments



In 2023, intersections in the AM peak period saw more LOS F intersections and the same number of LOS E intersections compared to 2021, but the same number of LOS E and F intersections compared to 2019. In the PM peak periods there were more LOS F and significantly more LOS E intersections when compared to 2021, and the same number of LOS F intersections and more LOS E intersections when compared to 2019.

As intersection LOS has traditionally been reported for both the AM and PM peak period, we have the opportunity to examine historical trends for each individually. **Figure 20** shows the historical trends of intersection LOS in the AM peak period, while **Figure 21** illustrates the PM peak period.

Tables showing the historical LOS for all roadway segments and intersections are presented below in **Tables 14 and 15**. All historical LOS is presented after interregional exemptions.

Figure 20: Historical LOS Comparison for Intersections – AM Peak Period

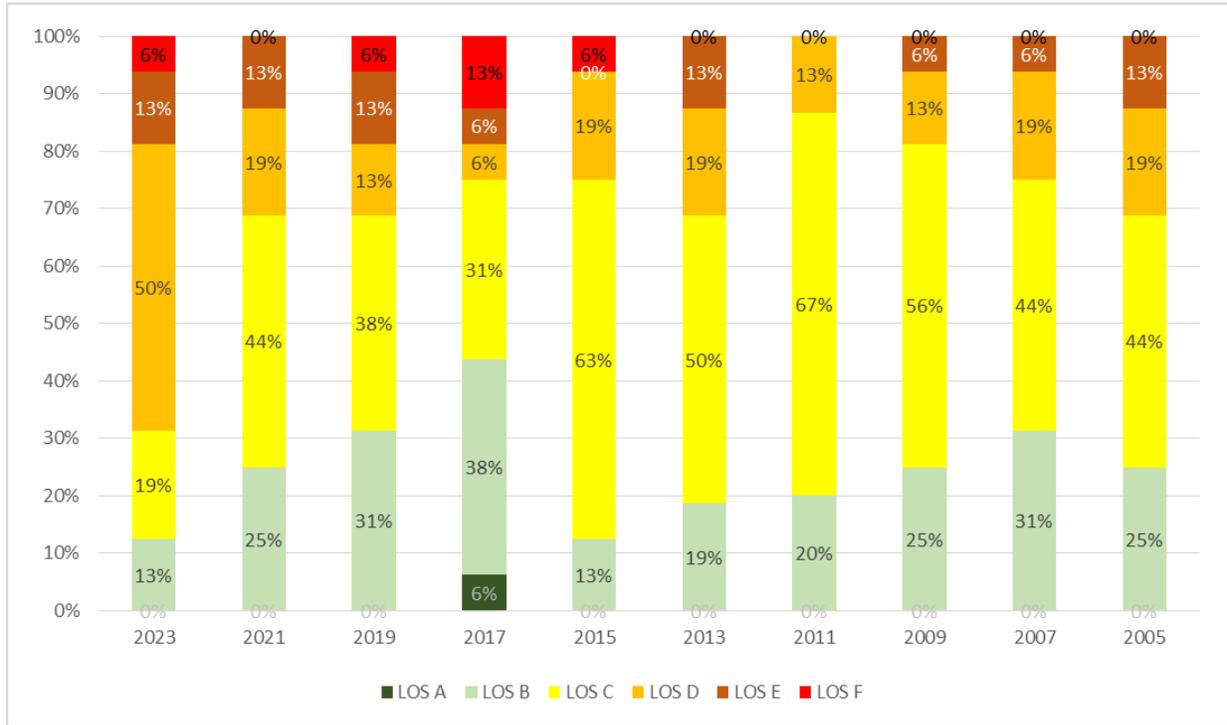


Figure 21: Historical LOS Comparison for Intersections – PM Peak Period

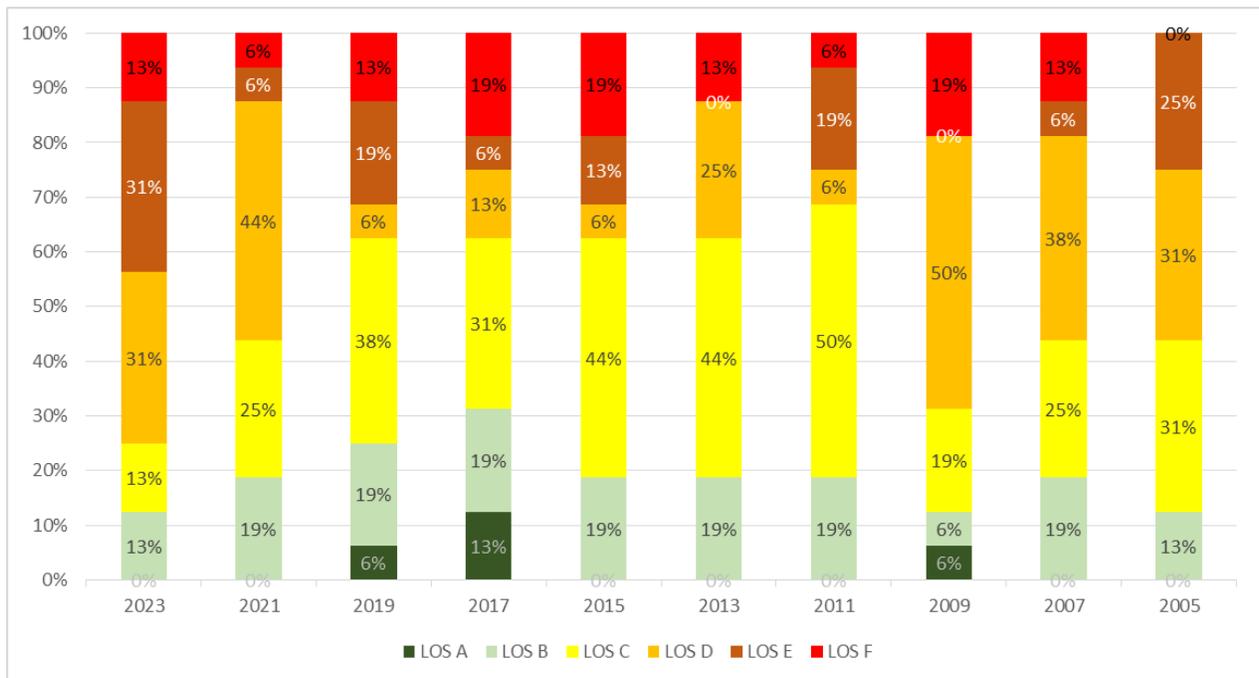


Table 17: Historical LOS for Roadway Segments

Route	Roadway Segment	2023	2021	2019	2017	2015	2013	2011	2009	2007	2005
SR-1	San Francisco County Line to Linda Mar Blvd	E	C	C	A	A	F	B	F	F	F
SR-1	Linda Mar Blvd to Frenchmans Creek Rd	D	D	D	D	D	D	D	D	D	D
SR-1	Frenchmans Creek Road to Miramontes Rd	E	E	E	E	E	E	E	E	E	E
SR-1	Miramontes Rd to Santa Cruz County Line	C	C	C	C	C	B	B	B	B	C
SR-35	San Francisco Co Line to Sneath Ln	B	A	D	C	D	B	A	C	C	C
SR-35	Sneath Ln to I-280	F	C	F	F	F	F	F	E	F	F
SR-35	I-280 to SR-92	C	B	C	B	A	B	B	B	B	C
SR-35	SR-92 to SR-84	B	B	B	B	B	B	B	B	B	B
SR-35	SR-84 to Santa Clara County Line	B	B	B	B	B	B	B	B	B	B
SR-82	San Francisco County Line to John Daly Blvd	A	A	A	A	A	A	A	A	A	A
SR-82	John Daly Blvd to Hickey Blvd	A	A	A	A	A	A	A	A	A	A
SR-82	Hickey Blvd to I-380	A	A	A	A	A	A	A	A	C	A
SR-82	I-380 to Trousdale Dr	A	A	A	A	A	A	A	A	B	A
SR-82	Trousdale Dr to 3 rd Ave	A	A	A	A	A	A	B	A	A	A
SR-82	3 rd Ave to SR-92	A	A	A	A	A	A	A	A	A	A
SR-82	SR-92 to Hillsdale Ave	B	A	A	A	A	A	A	B	B	B
SR-82	Hillsdale Ave to 42 nd Ave	A	A	B	C	C	B	B	B	B	B
SR-82	42 nd Ave to Holly St	A	A	A	B	B	A	A	B	B	A
SR-82	Holly St to Whipple Ave	A	A	A	A	B	B	C	C	D	D
SR-82	Whipple Ave to SR-84	A	B	A	A	A	A	B	C	C	C
SR-82	SR-84 to Glenwood Ave	A	A	A	A	B	A	B	B	B	B
SR-82	Glenwood Ave to Santa Cruz Ave	B	A	C	C	C	C	B	B	C	D
SR-82	Santa Cruz Ave to Santa Clara County Line	A	A	D	B	B	B	A	B	B	C
SR-84	SR-1 to Portola Rd	B	C	D	B	B	C	C	C	C	C
SR-84	Portola Rd to I-280	B	C	B	C	C	B	B	B	B	B
SR-84	I-280 to Alameda de las Pulgas	C	C	E	D	D	D	C	C	A	C
SR-84	Alameda de las Pulgas to US-101	B	C	E	D	D	D	E	E	E	E
SR-84	US-101 to Willow Rd	B	A	B	B	C	C	B	E	C	B
SR-84	Willow Rd to University Ave	C	C	E	B	B	B	C	E	F	F

Route	Roadway Segment	2023	2021	2019	2017	2015	2013	2011	2009	2007	2005
SR-84	University Ave to Alameda County Line	F	D	F	F	F	F	F	F	F	F
SR-92	SR-1 to I-280	E	E	E	E	E	E	E	E	E	E
SR-92	I-280 to US-101	D	D	E	E	E	E	F	D	D	E
SR-92	US-101 to Alameda County Line	D	E	F	C	F	E	A	B	B	B
US-101	San Francisco County Line to I-380	E	D	D	E	E	E	A	D	E	D
US-101	I-380 to Millbrae Ave	E	D	E	D	D	C	C	D	C	D
US-101	Millbrae Ave to Broadway	E	D	E	C	E	C	C	C	C	D
US-101	Broadway to Peninsula Ave	D	D	D	D	E	C	C	D	C	D
US-101	Peninsula Ave to SR-92	F	F	F	F	F	F	F	F	F	F
US-101	SR-92 to Whipple Ave	E	D	E	E	E	D	D	E	D	E
US-101	Whipple Ave to Santa Clara County Line	F	D	F	F	F	F	F	F	F	F
SR-109	Kavanaugh Dr to SR-84 (Bayfront Expwy.)	C	A	C	C	D	D	C	D	D	C
SR-114	US-101 to SR-84 (Bayfront Expressway)	B	A	C	C	C	A	B	C	C	B
I-280	San Francisco County Line to SR-1 (north)	E	D	E	E	E	E	E	D	A	E
I-280	SR-1 (north) to SR-1 (south)	E	E	E	D	E	E	B	E	E	E
I-280	SR-1 (south) to San Bruno Ave	D	A	D	D	C	D	D	D	C	E
I-280	San Bruno Ave to SR-92	A	A	D	A	C	B	D	C	B	B
I-280	SR-92 to SR-84	E	A	B	A	C	C	B	D	D	D
I-280	SR-84 to Santa Clara County Line	D	A	D	A	A	A	A	D	D	C
I-380	I-280 to US-101	F	E	F	F	F	F	F	F	F	E
I-380	US-101 to Airport Access Road	A	A	A	A	A	A	A	B	C	A
Mission St	San Francisco County Line to SR-82	A	A	A	A	A	A	A	A	A	A
Geneva Ave.	San Francisco County Line to Bayshore Blvd	A	A	A	A	A	A	A	A	A	A
Bayshore Blvd.	San Francisco County Line to Geneva Ave	A	A	A	A	A	A	A	A	A	A

Table 18: Historical LOS for Intersections

ID	Intersection	Peak Period	2023	2021	2019	2017	2015	2013	2011	2009	2007	2005
1	Bayshore Blvd/Geneva Ave	AM	B	B	E	B	B	B	B	C	B	C
		PM	C	B	B	A	B	B	B	C	C	C
2	SR-35/John Daly Blvd	AM	C	B	B	C	D	C	C	B	B	B
		PM	C	B	B	B	E	C	C	C	B	C
3	SR-82/John Daly Blvd/Hillside Ave	AM	D	C	B	B	C	C	B	C	C	C
		PM	D	C	C	C	C	C	C	D	C	D
4	SR-82/San Bruno Ave	AM	D	C	C	B	C	C	C	C	C	C
		PM	E	C	C	C	C	C	C	D	D	D
5	SR-82/Millbrae Ave	AM	E	C	E	D	D	E	D	E	E	E
		PM	E	D	E	D	E	D	E	D	E	E
6	SR-82/Broadway	AM	B	B	B	A	B	B	B	B	B	B
		PM	B	B	A	A	B	B	B	A	B	B
7	SR-82/Park Rd/Peninsula Ave	AM	C	C	C	B	C	C	C	B	B	B
		PM	B	C	C	B	C	C	C	B	B	B
8	SR-82/Ralston Ave	AM	E	D	C	C	C	C	C	D	D	E
		PM	E	D	C	C	C	D	C	D	D	E
9	SR-82/Holly St	AM	D	C	C	C	C	C	C	C	C	C
		PM	D	C	C	C	C	C	C	D	C	C
10	SR-82/Whipple Ave	AM	D	D	C	C	C	C	C	C	C	D
		PM	D	D	D	D	C	C	C	D	D	D
11	University Ave/SR-84	AM	C	B	C	F	C	E	C	B	B	B
		PM	F	D	F	F	F	F	F	F	F	F
12	Willow Rd/SR-84	AM	D	C	D	C	D	D	C	C	C	C
		PM	E	D	E	F	F	F	E	F	F	E
13	SR-84/Marsh Rd	AM	F	E	F	F	F	D	D	C	C	C
		PM	F	E	F	F	F	D	E	F	D	C
14	SR-84/Middlefield Rd	AM	D	E	D	E	C	D	C	D	D	D
		PM	D	E	E	E	D	D	D	D	D	D
15	SR-1/SR-92	AM	D	C	B	B	C	C	D	C	D	D
		PM	D	D	C	C	C	C	C	D	D	D
16	Main St/SR-92	AM	D	D	B	B	C	B	C	C	C	C
		PM	E	D	B	B	B	B	B	C	C	C

CHAPTER 4: MULTI-MODAL PERFORMANCE MEASURES

Beginning in 1995, the Transit LOS Standard element of the San Mateo County CMP was replaced with the Performance Measure element. Four Performance Measures were selected and incorporated in the 1997 CMP Update and used each update cycle through 2009. The four measures are used to measure the performance of the overall multi-modal transportation system, including non-automotive modes. They are:



BART at South San Francisco station (Source: BART.gov)

- LOS;
- Travel times from single-occupant automobiles, carpools, and transit;
- Pedestrian and bicycle improvements; and
- Ridership/person throughput for transit.

This section presents the 2023 measurements of these performance measures and includes the historic results for context.

4.1: LOS

The levels of service of the CMP corridors and segments are included in the previous sections of this monitoring report. The results show that no roadway segments or intersections exceeded their respective LOS standard following reflection of the interregional trips.

4.2: Travel Times for Single-Occupant Automobiles, Carpools, and Transit

This multi-modal performance measure compares the travel time of the various modes available in the US 101 corridor from the Santa Clara County line to the San Francisco County line. Those include using the general purpose lanes, using the carpool lane for the limits available, or using transit via SamTrans or Caltrain.

The general-purpose travel times previously presented early in this report were the result of a two-month average between April and May 2023. Those included in **Table 19** for the single occupant vehicle represent the calculated

INRIX travel time using the average speed over each TMC segment for each five-minute interval during each respective AM and PM peak period. The HOV travel times are based on five runs in the field for the limits of the HOV between the Santa Clara County line and Whipple Avenue summed with the INRIX results for the balance of the route to the San Francisco County line on the north. Therefore, the HOV portion represents a far smaller sample size than an average for the peak period over two months.

The current limits of the carpool lane in San Mateo County are from the Santa Clara County line to Grand Avenue. For those that are able to use this lane during the peak hours, the remainder of the run will take place in the general purpose lane. Since the 2021 CMP Monitoring Report, the HOV lane was extended an additional 16 miles from Whipple Avenue to Grand Avenue.

Travel times for those using transit include the option to access SamTrans Route 398 along the US-101 corridor or Caltrain. The travel times for the transit options are represented based on the published schedules during the April-May 2023 monitoring period. Actual data collection for these routes was not performed but is shown consistent with methods used in previous LOS monitoring studies.

The travel times for the various mode options are included in **Table 19** below. The table includes the respective travel times, listed by direction and peak periods, for the current reporting period as well as previous years back to 2013.

The results show that travel times are longer in the general purpose lanes along US-101 from 2021 to 2023, in some cases degrading by as much as 12 minutes (AM southbound). This is primarily due to traffic conditions returning to pre-COVID-19 levels since the 2023 travel times are similar to years prior to COVID-19. Travel time savings using the HOV lane are substantial compared to the general purpose lanes, with the HOV lane travel time at least 30 percent less than single occupancy travel time.

Travel time on Caltrain decreased slightly in both directions in both the AM and PM peak periods due to re-implementation of the Baby Bullet express train, which was suspended during the pandemic. The greatest decrease was four minutes in the AM direction.

Established in August 2019, SamTrans Route 398 provides service from the Redwood City Transit City to San Francisco via El Camino Real and US-101 in the AM and PM peak periods, with small detours to the San Bruno

BART Station and San Francisco International Airport. The route runs hourly from 5:07 a.m. to just after midnight on weekdays, and 5:50 a.m. to 11:10 p.m. on weekends. Travel times in the northbound direction either stayed close to the same or increased slightly.

C/CAG has also been exploring the integration of observed travel time data on SamTrans based on automatic vehicle locator (AVL) data. Buses can get stuck in traffic or otherwise be delayed and as such observed travel times may differ from the published schedule. This is not considered for this report.

Table 19: Multi-Modal Travel Times Along US-101 Corridor (in minutes)

Mode of Transportaton	AM - Morning Commute Peak Period												PM - Evening Commute Peak Period											
	Northbound						Southbound						Northbound						Southbound					
	2023	2021	2019	2017	2015	2013	2023	2021	2019	2017	2015	2013	2023	2021	2019	2017	2015	2013	2023	2021	2019	2017	2015	2013
Auto - General Lane	29	23	28	32	32	28	30	22	40	35	36	41	33	24	40	36	39	30	33	26	32	32	32	33
Carpool - HOV Lane	20	24	26	32	36	32	20	22	38	34	35	37	22	24	40	36	42	37	22	26	31	32	35	32
Caltrain (Palo Alto to BayShore Stations)	42	46	40	40	39	23	42	46	43	44	43	27	42	44	40	40	38	24	42	44	39	36	38	23
SamTrans Route 398	58	65	57	80	80	68	70	67	74	-	-	73	66	84	83	-	-	72	61	63	74	91	91	74

4.3: Pedestrian and Bicycle Improvements

The purpose of this performance measure is to maintain a focus on non-vehicular alternatives. This should be reflected in connectivity to transit and other modes to not only make connections convenient, but safe and attractive. During the CMP update process, seven-year Capital Improvement Program (CIP) projects are identified and evaluated. The top-ranked projects are forwarded to MTC to be evaluated in the regional process for State and Federal funding.

C/CAG developed the San Mateo County Comprehensive Bicycle and Pedestrian Plan in 2011 to address the planning, design, funding, and implementation of bicycle and pedestrian projects of countywide significance. The Plan includes a policy framework to guide and evaluate implementation of projects identified by the local implementing cities/towns and the County. To maximize funding available for bikeway projects, the Plan emphasizes projects that improves safety, promote access to jobs, and located within high population as well as employment densities. The Plan also establishes geographical focus areas for countywide investment in pedestrian infrastructure.

The San Mateo County Comprehensive Bicycle and Pedestrian Plan was subsequently updated in 2021 and adopted by the C/CAG Board at their June 2021 meeting. The updated plan proposes 250 miles of bicycle projects and pedestrian projects that address gaps to transit, between jurisdictions, or are within pedestrian priority areas. In addition to the C/CAG plan, approximately 14 cities and towns in San Mateo County have their own bicycle/pedestrian plans.

Bicycle and pedestrian counts were conducted at all 16 CMP intersections and 17 Companion Network intersections during the AM and PM peak period, as well as at eight Coastside intersections during the Saturday AM, Mid-Day, and PM peak periods. **Tables 20 through Table 22** detail the results of these counts.

Table 20: CMP Intersection Bicycle and Pedestrian Counts

ID	Intersection	2hr Peak Period	Total Bike	Total Ped
1	Bayshore Blvd/Geneva Ave	AM	19	41
		PM	10	31
2	SR 35/John Daly Blvd	AM	2	5
		PM	3	14
3	SR 82/John Daly Blvd	AM	8	346
		PM	4	349
4	SR 82/San Bruno Ave	AM	0	59
		PM	2	86
5	SR 82/Millbrae Ave	AM	0	70
		PM	1	140
6	SR 82/Broadway	AM	6	88
		PM	13	134
7	SR 82/Peninsula Ave	AM	1	52
		PM	2	96
8	SR 82/Ralston Ave	AM	6	160
		PM	4	233
9	SR 82/ Holly St	AM	9	45
		PM	7	53
10	SR 82/Whipple Ave	AM	13	72
		PM	16	91
11	University Ave/SR 84	AM	7	16
		PM	1	22
12	Willow Rd/SR 84	AM	3	22
		PM	1	17
13	Marsh Rd/SR 84	AM	8	46
		PM	5	34
14	SR 84/Middlefield Rd	AM	15	121
		PM	17	143
15	SR 1/SR 92	AM	2	28
		PM	1	43
16	Main St/SR 92	AM	1	44
		PM	0	121

Table 21: Companion Network Intersection Bicycle and Pedestrian Counts

ID	Intersection	Peak Period	Total Bike	Total Ped
17	SR 82/3rd Ave	AM	7	124
		PM	16	253
18	Skyline Blvd/SR 92	AM	24	0
		PM	23	1
19	Holly St/Industrial St	AM	4	19
		PM	8	22
20	Whipple Ave/Veterans Blvd	AM	9	52
		PM	1	67
21	Marsh Rd/Middlefield Rd	AM	71	15
		PM	42	16
22	Sand Hill Rd/Santa Cruz Ave	AM	131	27
		PM	141	29
23	University Ave/Bay Rd	AM	7	123
		PM	19	207
24	SR 84/Alamedas de las Pulgas	AM	68	70
		PM	75	39
25	Portola Rd/Alpine Rd	AM	72	26
		PM	68	49
26	SR 35/SR 92	AM	1	0
		PM	1	1
27	El Camino Real/Mission Rd	AM	4	0
		PM	2	0
28	SR 1/Main St	AM	4	47
		PM	0	66
29	El Camino Real/Westborough Rd	AM	4	48
		PM	1	54
30	Capistrano Rd/SR 1	AM	14	36
		PM	3	64
31	S Airport Blvd/San Bruno Ave	AM	15	3
		PM	17	2
32	SR 1/Reina Del Mar Ave	AM	3	50
		PM	2	81
33	SR 1/Cypress Ave	AM	8	3
		PM	5	4

Table 22: Weekend Intersection Bicycle and Pedestrian Counts

ID	Intersection	Peak Period	Total Bike	Total Ped
15	SR 1/SR 92	AM	2	28
		MID	27	26
		PM	9	58
16	Main Street/SR 92	AM	4	34
		MID	21	141
		PM	1	211
18	Skyline Blvd/SR 92	AM	52	0
		MID	141	2
		PM	32	0
26	SR 35/SR 92	AM	3	0
		MID	21	0
		PM	5	0
28	SR 1/Main St	AM	7	24
		MID	28	48
		PM	16	78
30	Capistrano Rd/SR 1	AM	2	7
		MID	13	5
		PM	11	19
31	SR 1/Reina Del Mar Ave	AM	4	64
		MID	13	860
		PM	2	741
33	SR 1/Cypress Ave	AM	8	3
		MID	31	8
		PM	22	2

The results of the counts show that bicycle and pedestrian activity varies across the peak periods and across the county. For the CMP intersections, the intersection with the highest bike activity in the AM peak period was Bayshore Boulevard at Geneva Avenue with 19 bikes, while in the PM peak period it was SR-84/Middlefield Road with 17 bikes. SR-82/John Daly Boulevard had the highest number of pedestrians in both the AM and PM peak periods with 346 and 349 pedestrians respectively.

For the Companion Network intersections, Sand Hill Road/Santa Cruz Avenue had the highest amount of bike activity in the AM and PM peak periods with 131 and 141 bikes respectively. SR-82/3rd Avenue had the highest pedestrian activity in both peak periods with 124 and 253 pedestrians respectively.

On the weekend, Skyline Boulevard/SR-92 had the highest amount of bike activity in all peak periods, with 52 bikes in the AM, 141 bikes in the Mid-Day, and 32 bikes in the PM peak periods. SR-1/Reina del Mar had the highest pedestrian activity in all peak periods, with 41 pedestrians in the AM, 860 pedestrians in the mid-day and 741 in the PM peak period.

Table 23: Historical Comparison Bicycle Counts at CMP Intersections

ID	Intersection	AM Peak Period			PM Peak Period				
		2023	2021	% Change 2021 to 2023	2019	2023	2021	% Change 2021 to 2023	2019
1	Bayshore Blvd/Geneva Ave	15	9	67%	0	6	3	100%	4
2	SR 35/John Daly Blvd	0	5	-100%	4	0	1	-100%	0
3	SR 82/John Daly/Hillside	4	2	100%	2	1	5	-80%	4
4	SR 82/San Bruno Ave	0	0	0%	2	2	3	0%	4
5	SR 82/Millbrae Ave	0	1	-100%	6	0	1	-100%	1
6	SR 82/Broadway	5	9	-44%	6	10	2	400%	8
7	SR 82/Park Rd/Peninsula Ave	1	0	100%	8	1	1	0%	4
8	SR 82/Ralston Ave	0	4	-100%	5	4	3	33%	11
9	SR 82/Holly St	3	5	-40%	6	2	4	-50%	8
10	SR 82/Whipple Ave	8	17	-53%	11	10	10	0%	6
11	University Ave/SR 84	3	4	-25%	20	1	3	-67%	26
12	Willow Rd/SR 84	2	1	100%	29	0	7	-100%	7
13	SR 84/Marsh	2	3	-33%	7	5	10	-50%	23
14	SR 84/Middlefield Rd	10	6	67%	24	8	17	-53%	12
15	SR 1/SR92	1	3	-67%	20	1	4	-75%	5
16	Main St/SR 92	0	2	-100%	7	0	1	-100%	11
	TOTAL BIKES	54	71	-24%	157	51	75	-32%	134

The project team also compared the number of bikes and pedestrians during the peak hour of each intersection between 2019 and 2021, to better understand pandemic effects on active transportation.

Historical comparisons of the CMP intersections are presented in **Table 23** and **Figures 22** and **23** for bicycles, and **Table 24** and **Figures 24** and **25** for pedestrians.

Table 23 indicates that bicycle counts continue to decrease since 2021 by as much as 32% during the PM peak period. Although vehicular volumes have increased and recovered to close to pre-pandemic levels, bicycle volumes are continuing to decrease. It should be noted, however, that active modes of travel can also be sensitive to moderate changes in weather, temperature, or other field conditions.

Figure 22: Historical Bicycle Counts Comparison – AM Peak Hour

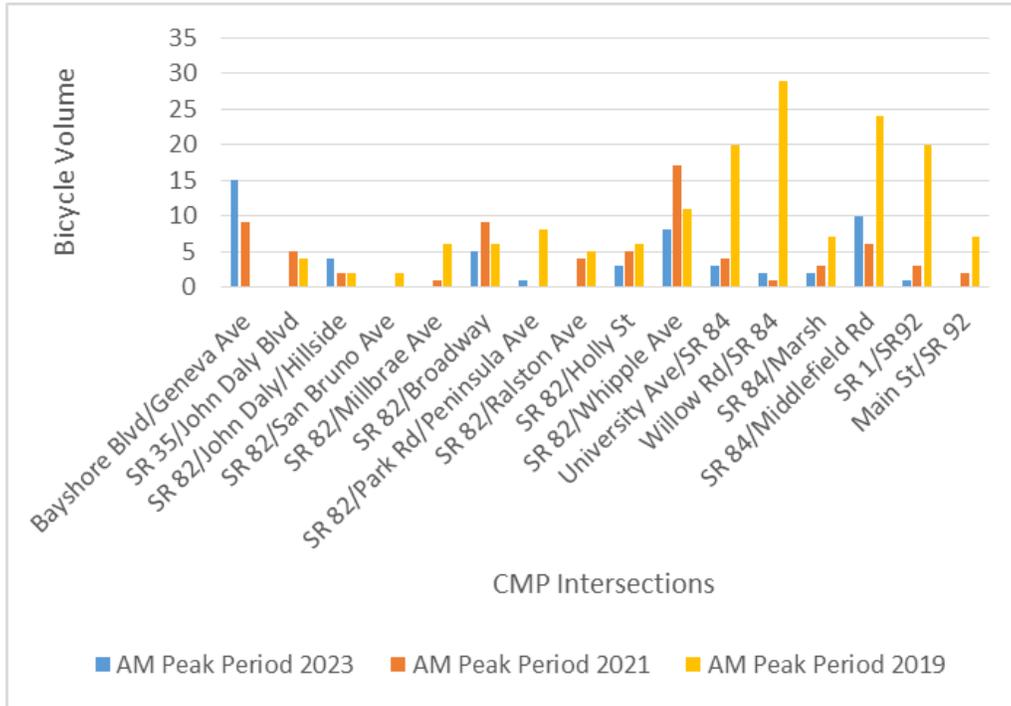


Figure 23: Historical Bicycle Counts Comparison – PM Peak Hour

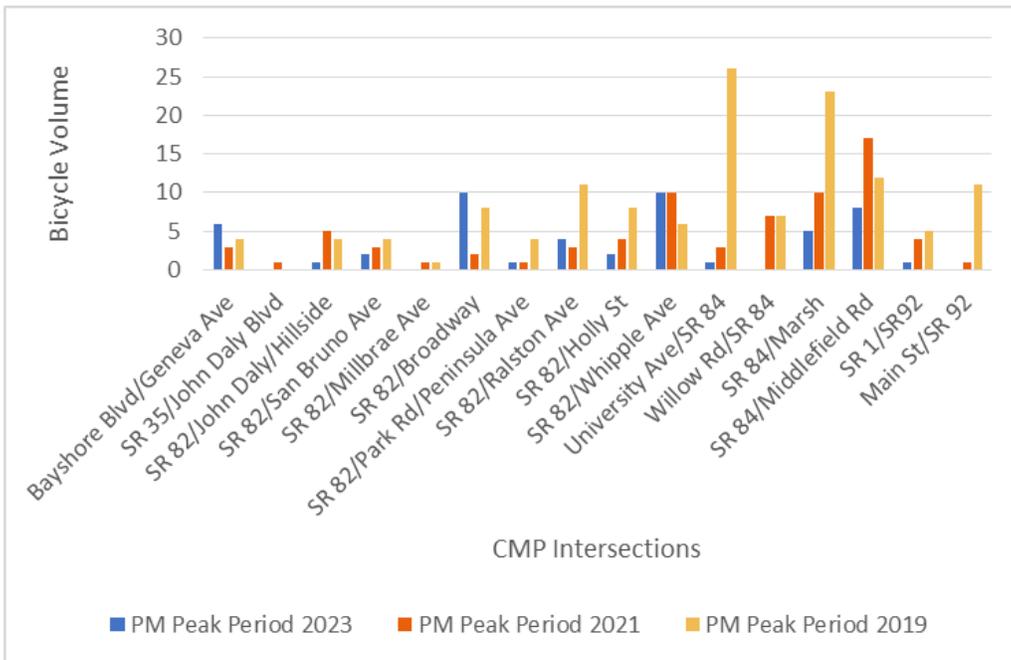


Table 24: Historical Comparison Pedestrian Counts at CMP Intersections

ID	Intersection	AM Peak Period				PM Peak Period			
		2023	2021	% Change 2021 to 2023	2019	2023	2021	% Change 2021 to 2023	2019
1	Bayshore Blvd/Geneva Ave	14	9	56%	20	20	5	300%	15
2	SR 35/John Daly Blvd	4	5	-20%	2	7	2	250%	1
3	SR 82/John Daly/Hillside	199	67	197%	173	196	107	83%	292
4	SR 82/San Bruno Ave	36	18	100%	49	49	41	20%	63
5	SR 82/Millbrae Ave	42	29	45%	244	67	13	415%	224
6	SR 82/Broadway	43	63	-32%	63	65	49	33%	64
7	SR 82/Park Rd/Peninsula Ave	26	17	53%	16	46	12	283%	30
8	SR 82/Ralston Ave	110	29	279%	92	103	42	145%	120
9	SR 82/Holly St	30	28	7%	40	27	29	-7%	49
10	SR 82/Whipple Ave	46	46	0%	32	35	31	13%	57
11	University Ave/SR 84	7	4	75%	12	18	3	500%	9
12	Willow Rd/SR 84	11	4	175%	22	9	7	29%	52
13	SR 84/Marsh	27	8	238%	11	24	19	26%	6
14	SR 84/Middlefield Rd	70	38	84%	22	81	49	65%	23
15	SR 1/SR92	16	14	14%	21	18	25	-28%	23
16	Main St/SR 92	29	18	61%	50	52	47	11%	50
	TOTAL PEDESTRIANS	710	397	79%	869	817	481	70%	1078

On Table 24, between 2023 and 2021, pedestrian activity increased on average by 79% in the AM peak hour and 70% in the PM peak hour with slight decreases at four intersections. Pedestrian volumes are nearly as high as those in 2019.

Figure 24: Historical Pedestrian Counts Comparison – AM Peak Hour

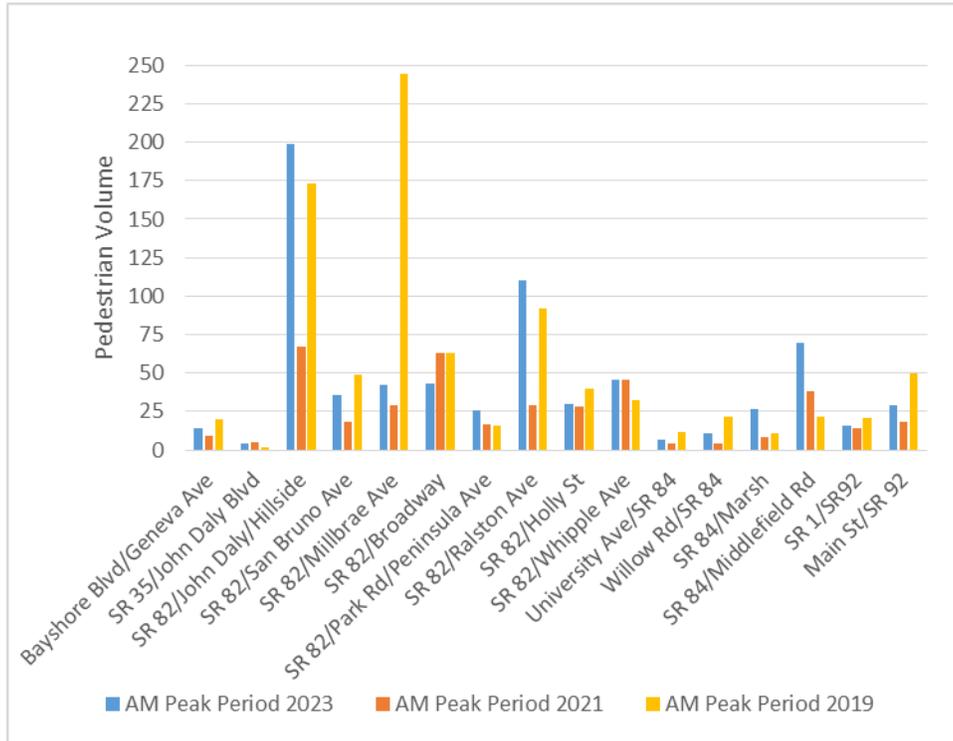
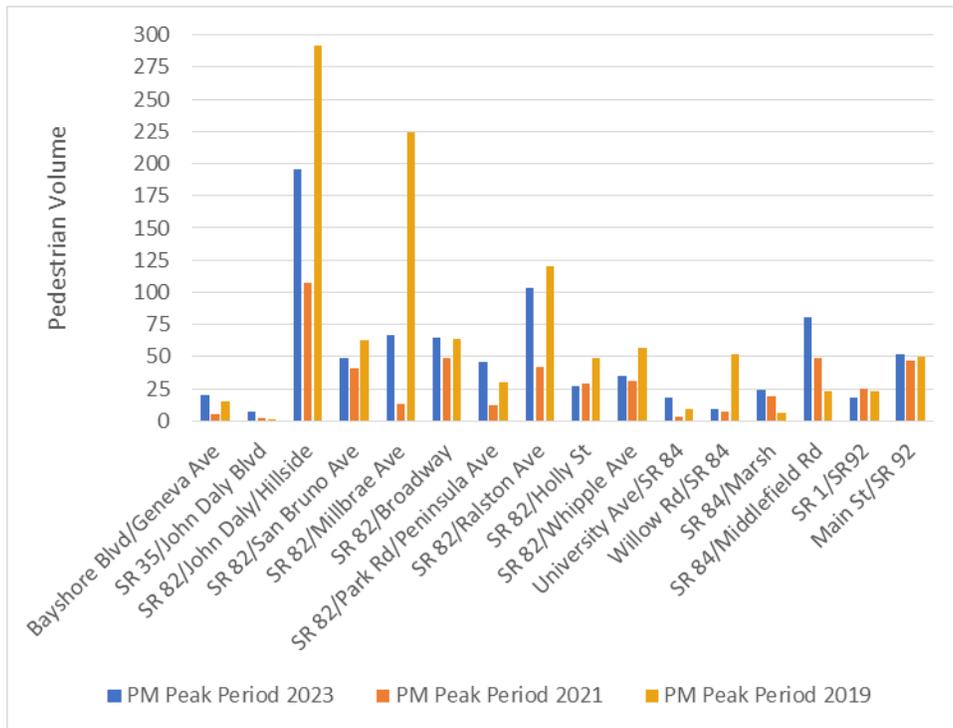


Figure 25: Historical Pedestrian Counts Comparison – PM Peak Hour



4.4: Ridership/Person Throughput for Transit

The purpose of this performance measure is to document the number of patrons using the available transit options. Within San Mateo County, there are three options, including SamTrans, Caltrain, and BART. BART has six stations within San Mateo County: Daly City, Colma, South San Francisco, San Francisco International Airport, San Bruno, and Millbrae.

The COVID-19 pandemic caused a drastic decrease in ridership for transit agencies across San Mateo County in FY 21. However, there is a measurable recovery in transit ridership in FY 23. SamTrans total ridership saw an increase of 73%, Caltrain saw an increase of 290% and BART saw an increase of 217% over FY 21.

Even with these increases in annual ridership, it is still well below pre-pandemic numbers. When comparing FY 23 with pre-pandemic ridership numbers from FY 19, SamTrans total ridership is 27% lower, Caltrain is 71% lower and BART is 58% lower.

This indicates that although transit ridership is continuing to increase in the wake of the pandemic, it is slow to recover as many travel patterns have not shifted to pre-pandemic patterns. For example, many companies have implemented work from home policies. Additionally, although vehicle traffic volumes have increased, congestion is not quite back to the pre-pandemic level, so potentially, commuters are choosing to drive rather than take transit. Annual ridership and average weekday ridership for FY 21 is presented in **Table 25** alongside historical data back to FY 17.

Table 25: Transit Ridership by Agency

Transit Agency	Annual Total					Average Weekday				
	FY 2023	FY 2021	FY 2019	FY2017	FY 2015	FY 2023	FY 2021	FY 2019	FY 2017	FY 2015
SamTrans	7,796,753	4,503,358	10,670,850	11,816,760	13,158,703	30,387	13,620	35,150	38,700	42,981
Caltrain	5,052,371	1,295,656	17,662,773	18,648,850	18,995,161	20,453	4,099	63,597	62,190	58,245
BART (Colma and Daly City)	3,203,688	1,211,716	7,741,549	7,818,023	8,155,340	10,340	3,934	26,483	25,269	28,050
BART (South San Francisco, San Bruno, SFO, and Millbrae)	4,798,306	1,312,774	11,261,768	12,102,872	12,614,731	14,630	4,236	37,687	39,989	40,741
Combined Transit	20,851,118	8,323,504	47,336,940	50,386,505	52,923,935	75,810	25,889	162,917	166,148	170,017

Sources: SamTrans Board Agenda Packet Aug 2, 2023, Caltrain Board Agenda Packet Aug 3, 2023, BART website

CHAPTER 5: OTHER PERFORMANCE METRICS



Ralston Avenue in Belmont, one of the Companion Network segments

In addition to the LOS monitoring and multi-modal performance metrics presented above, two additional metrics are offered to measure the status of the CMP network in San Mateo County: volume comparisons during the COVID-19 pandemic and after, and travel time reliability. Each is described below.

5.1: COVID-19 Pandemic Volume Comparisons

The COVID-19 pandemic recovery has resulted in an increase in traffic across San Mateo County, which can be evidenced in the degraded LOS on more roadway segments countywide (described in Chapter 3) compared to the 2021 CMP Update. During the process to collect traffic counts and analyze INRIX data, TJKM prepared charts comparing 2021 data to current 2023 data to understand the precise change in traffic levels/travel speeds on San Mateo County's CMP network. These are presented below in **Tables 26 through Table 29**.

Travel speeds decreased by an average of 12% in the AM peak period and 16% in the PM peak period between 2021 and 2023.

Volumes from roadway segment 72-hour traffic counts increased by an average of 23% when compared to available data from 2021. However, when comparing 2023 volumes to 2017 volumes, average traffic counts decreased by an average of 12%. Therefore, based on the 72-hour traffic counts, traffic volumes are still slightly below pre-pandemic conditions.

Intersection turning movement count volumes similarly increased by an average of 20% when compared to 2021 data. However, from 2019 to 2021, intersection turning movement count volumes decreased 21% which indicated traffic volumes are similar to pre-pandemic levels.

Note that 10 roadway segments in the CMP network utilize turning movement counts to derive their peak hour volume for V/C calculations and these are presented in a separate table.

Table 26: Freeway Average Speed Comparisons

Segment	Limits	Direction	Free Flow Speed	AM Peak Period			PM Peak Period		
				2023 Avg. Speed	2021 Avg. Speed	% Difference	2023 Avg. Speed	2021 Avg. Speed	% Difference
SR-1	SF County Line to Linda Mar Blvd	NB	55	49	55	-11%	49	54	-9%
		SB	55	53	55	-4%	48	54	-11%
SR-92	I-280 to US-101	EB	60	46	63	-27%	26	59	-56%
		WB	60	48	59	-19%	55	60	-8%
SR-92	US-101 to Alameda County Line	EB	60	65	64	2%	25	56	-55%
		WB	60	37	54	-31%	62	65	-5%
US-101	SF County Line to I-380	NB	65	53	66	-20%	48	66	-27%
		SB	65	57	66	-14%	47	64	-27%
US-101	I-380 to Millbrae Ave	NB	65	66	65	2%	59	63	-6%
		SB	65	59	67	-12%	47	44	7%
US-101	Millbrae Ave to Broadway	NB	65	60	62	-3%	61	61	0%
		SB	65	52	65	-20%	32	52	-38%
US-101	Broadway to Peninsula Ave	NB	65	51	61	-16%	52	64	-19%
		SB	65	52	62	-16%	26	52	-50%
US-101	Peninsula Ave to SR-92	NB	65	35	51	-31%	51	63	-19%
		SB	65	54	65	-17%	42	57	-26%
US-101	SR-92 to Whipple Ave	NB	65	59	63	-6%	27	47	-43%
		SB	65	56	65	-14%	64	62	3%
US-101	Whipple Ave to Santa Clara County Line	NB	65	53	64	-17%	56	65	-14%
		SB	65	40	66	-39%	50	62	-19%
I-280	SF County Line to SR-1 (North)	EB	65	64	69	-7%	59	61	-3%
		WB	65	68	67	1%	66	65	2%
I-280	SR-1 (North) to SR-1 (South)	EB	65	65	68	-4%	53	59	-10%
		WB	65	64	68	-6%	64	67	-4%
I-280	SR-1 (South) to San Bruno Ave	EB	65	66	68	-3%	45	67	-33%
		WB	65	37	67	-45%	65	65	0%
I-280	San Bruno Ave to SR-92	EB	65	69	70	-1%	67	71	-6%
		WB	65	70	70	0%	69	70	-1%
I-280	SR-92 to SR-84	EB	65	70	70	0%	60	71	-15%
		WB	65	67	70	-4%	69	70	-1%
I-280	SR-84 to Santa Clara County Line	EB	65	69	69	0%	41	70	-41%
		WB	65	68	69	-1%	64	69	-7%
I-380	I-280 to US-101	NB	65	51	63	-19%	60	63	-5%
		SB	65	59	60	-2%	42	59	-29%
I-380	US-101 to Airport Access Rd	NB	65	43	46	-7%	42	44	-5%
		SB	65	37	38	-3%	41	39	5%

Table 27: Roadway Segment 72-Hour Volume Comparisons – 2021 to 2023

Route	Roadway Segment	Direction	AM Peak Hour			PM Peak Hour		
			2021 Volume	2023 Volume	% Difference	2021 Volume	2023 Volume	% Difference
SR-1	Linda Mar Blvd to Frenchmans Creek Rd	NB	497	539	8%	534	580	9%
		SB	429	439	2%	611	662	8%
SR-1	Frenchmans Creek Rd to Miramontes Rd	NB	815	870	7%	1239	1322	7%
		SB	1080	1336	24%	1107	1002	-9%
SR-1	Miramontes Rd to Santa Cruz County Line	NB	116	162	40%	230	232	1%
		SB	137	142	4%	262	272	4%
SR-35	San Francisco County Line to Sneath Ln	NB	857	1474	72%	833	1318	58%
		SB	544	950	75%	916	1299	42%
SR-35	Sneath Ln to I-280	NB	463	635	37%	785	1131	44%
		SB	744	1258	69%	451	584	29%
SR-35	I-280 to SR 92	NB	173	236	36%	160	224	40%
		SB	152	186	22%	213	289	36%
SR-35	SR-92 to SR-84	NB	74	135	82%	98	136	39%
		SB	78	113	45%	101	149	48%
SR-35	SR-84 to Santa Clara County Line	NB	100	64	-36%	87	119	37%
		SB	46	139	202%	96	98	2%
SR-82	3 rd Ave to SR-92	NB	1323	1401	6%	1317	1375	4%
		SB	993	1290	30%	1418	1362	-4%
SR-82	SR-92 to Hillsdale Ave	NB	1164	1547	33%	1735	2032	17%
		SB	967	1261	30%	1470	1400	-5%
SR-82	Hillsdale Ave to 42 nd Ave*	NB	625	780	25%	1052	1117	6%
		SB	646	714	11%	872	981	13%
SR-82	SR-84 to Glenwood Ave	NB	1094	1153	5%	1630	1742	7%
		SB	1546	1904	23%	1712	1686	-2%
SR-82	Glenwood Ave to Santa Cruz Avenue	NB	594	742	25%	1139	1339	18%
		SB	853	940	10%	899	914	2%
SR-82	Santa Cruz Ave to Santa Clara County Line	NB	651	797	22%	1028	1200	17%
		SB	769	1033	34%	855	1123	31%
SR-84	SR-1 to Portola Rd	EB	205	34	-83%	156	35	-78%
		WB	108	34	-69%	210	26	-88%
SR-84	Portola Rd to I-280	EB	319	73	-77%	197	94	-52%
		WB	212	107	-50%	178	71	-60%
SR-84	I-280 to Alameda de las Pulgas	EB	1288	1539	19%	1266	1486	17%
		WB	1948	1710	-12%	1630	1635	0%
SR-84	Alameda de las Pulgas to US-101	EB	1423	1433	1%	1457	1407	-3%
		WB	1407	1244	-12%	1555	1277	-18%
SR-84	US-101 to Willow Rd	EB	712	1434	101%	1530	1697	11%

Route	Roadway Segment	Direction	AM Peak Hour			PM Peak Hour		
			2021 Volume	2023 Volume	% Difference	2021 Volume	2023 Volume	% Difference
		WB	1565	2050	31%	909	1514	67%
SR-84	Willow Rd to University Ave	EB	994	1057	6%	2482	1934	-22%
		WB	2169	3374	56%	936	1154	23%
SR-84	University Ave to Alameda County Line	EB	1021	1291	26%	2790	3175	14%
		WB	2831	3721	31%	1163	1273	9%
SR-92	SR-1 to I-280	EB	921	1139	24%	766	741	-3%
		WB	653	612	-6%	1067	1155	8%
SR-109	Kavanaugh Drive to SR-84 (Bayfront Expwy.)	NB	485	600	24%	978	1710	75%
		SB	739	1273	72%	406	392	-3%
SR-114	US101 to SR-84 (Bayfront Expressway)	NB	485	780	61%	1213	1373	13%
		SB	1040	1133	9%	467	891	91%
Mission St	San Francisco County Line to SR-82	NB	233	248	6%	373	385	3%
		SB	263	205	-22%	357	306	-14%

Table 28: Roadway Segment Turning Movement Count Volume Comparisons – 2021 to 2023

Route	Roadway Segment	Direction	AM Peak Hour			PM Peak Period		
			2021 Volume	2023 Volume	% Difference	2021 Volume	2023 Volume	% Difference
SR-82	San Francisco County Line to John Daly Blvd	NB	517	661	28%	836	871	4%
		SB	512	707	38%	788	842	7%
SR-82	John Daly Blvd to Hickey Blvd	NB	369	541	47%	774	813	5%
		SB	448	620	38%	695	728	5%
SR-82	Hickey Blvd to I-380	NB	890	1104	24%	1257	1371	9%
		SB	767	868	13%	1310	1396	7%
SR-82	I-380 to Trousdale Dr	NB	736	859	17%	1147	1112	-3%
		SB	971	1185	22%	1080	1291	20%
SR-82	Trousdale Dr to 3 rd Ave	NB	733	732	0%	828	840	1%
		SB	723	839	16%	751	853	14%
SR-82	42 nd Ave to Holly St	NB	525	806	54%	1006	966	-4%
		SB	642	842	31%	961	959	0%
SR-82	Holly St to Whipple Ave	NB	625	926	48%	1061	1248	18%
		SB	751	947	26%	1139	1142	0%
SR-82	Whipple Ave to SR-84	NB	963	1332	38%	1407	1455	3%
		SB	838	1164	39%	1212	1188	-2%
Geneva Ave	San Francisco County Line to Bayshore Blvd	EB	722	818	13%	496	522	5%
		WB	424	515	21%	848	1003	18%
Bayshore Blvd	San Francisco County Line to Geneva Ave	NB	438	448	2%	926	978	6%
		SB	639	823	29%	524	494	-6%

Note: These roadway segments use TMCs to derive their volumes. It includes all volumes approaching or moving away from the side of the intersection indicated in the 2017 Monitoring Report LOS calculation spreadsheets.

Table 29: Intersection Turning Movement Count Volume Comparisons – 2021 to 2023

ID	Roadway Segment	Peak Period	2021 Peak Hour Volume	2023 Peak Hour Volume	% Difference
1	Bayshore Blvd/Geneva Ave	AM	1762	1967	12%
		PM	2178	2225	2%
2	SR-35/John Daly Blvd	AM	1796	2809	56%
		PM	2264	3110	37%
3	SR-82/John Daly Blvd/Hillside Dr	AM	1622	2205	36%
		PM	2535	2662	5%
4	SR-82/San Bruno Ave	AM	2420	3239	34%
		PM	3617	4172	15%
5	SR-82/Millbrae Ave	AM	3456	4062	18%
		PM	4336	4643	7%
6	SR-82/Broadway	AM	1862	2042	10%
		PM	2012	2099	4%
7	SR-82/Peninsula Ave/Park Rd	AM	1693	1784	5%
		PM	2004	2040	2%
8	SR-82/Ralston Ave	AM	2866	3450	20%
		PM	3884	4091	5%
9	SR-82/Holly St	AM	1969	2934	49%
		PM	3037	3359	11%
10	SR-82/Whipple Ave	AM	2958	3503	18%
		PM	3925	4068	4%
11	University Ave/SR-84	AM	4398	5913	34%
		PM	4861	6421	32%
12	Willow Rd/SR-84	AM	3550	5126	44%
		PM	3853	5100	32%
13	Marsh Rd/SR-84	AM	2695	4318	60%
		PM	3110	4033	30%
14	Middlefield Rd/SR-84	AM	4038	4738	17%
		PM	5024	4840	-4%
15	SR-1/SR-92	AM	1921	2764	44%
		PM	2627	2866	9%
16	SR-92/Main St	AM	1794	2011	12%
		PM	2279	2290	0%

5.2: 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 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, explained in the following sections. Related measurements include average travel time and free flow travel time.

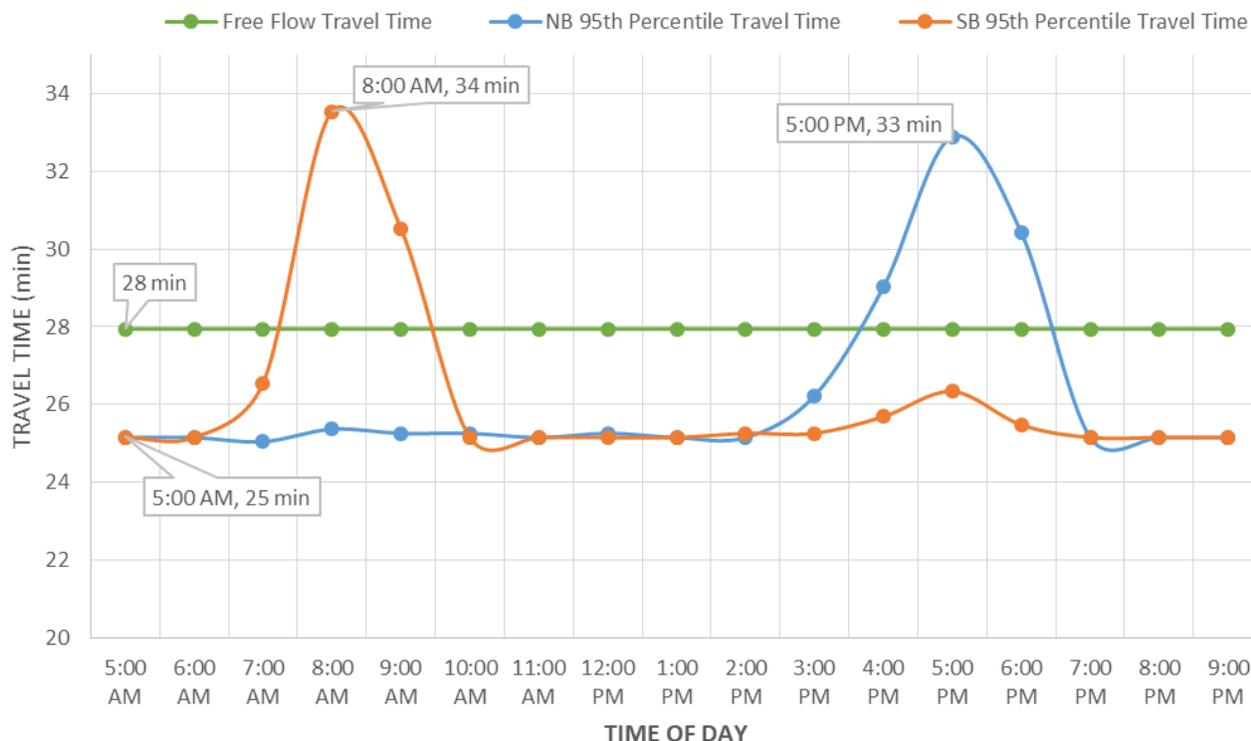
This method, the *90th or 95th percentile travel times*, is perhaps the simplest method to measure travel time reliability. It estimates how bad delay will be on specific routes during the heaviest traffic days. The one or two bad days each month mark the 95th or 90th percentile, respectively. Users 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% means that for a trip that usually takes 20 minutes a traveler should budget an additional eight 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% 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% of the time.

As an added value task, TJKM prepared travel time reliability charts for all freeways in San Mateo County where the data was available. This included I-280, SR-92 (I-280 to Alameda County Line), and US-101. Charts were prepared for the entire freeway from one end of the county to the other (with the exception of SR-92 as noted above). 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 5am-9pm. Planning time index data was collected by TJKM from the Caltrans Performance Measurement System (PeMS) for midweek days during April/May 2023, excluding holidays and any days with adverse weather. Caltrans assumes a free flow speed of 60 miles per hour (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.

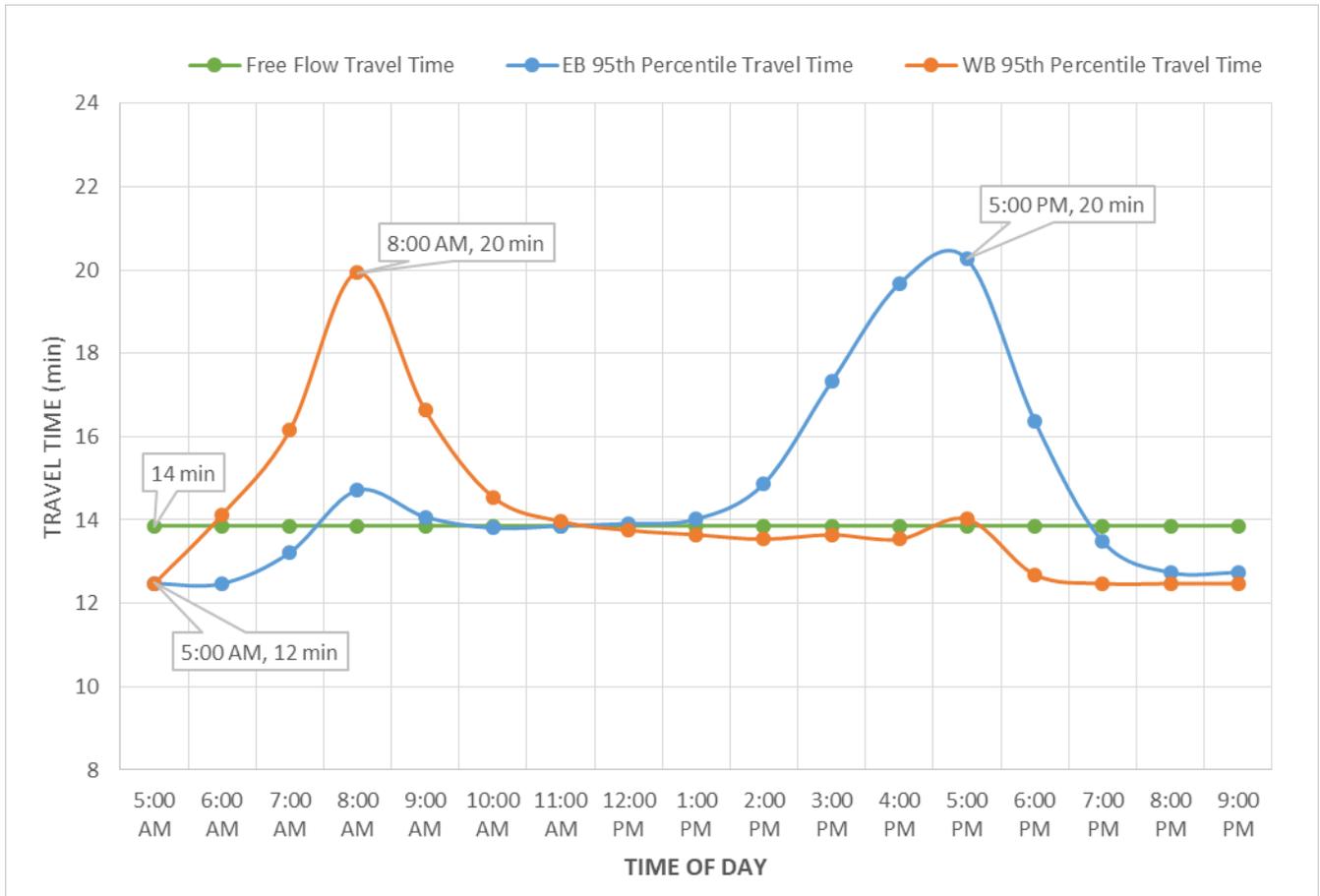
Figure 26: Travel Time Reliability Chart – I-280



On I-280, the southbound direction experienced delays during the AM peak period from approximately 7:00 AM to 10:00 AM and the northbound direction experienced delays during the PM peak period from 3:30 PM to 7:00 PM. The maximum travel time was 34 minutes in the AM peak and 33 minutes in the PM peak, compared to the free flow travel time of 28 minutes assuming a speed of 60 mph. In both directions, travel times reduced below the free flow travel time of 28 minutes, reducing to as low as 25 minutes during non-peak periods. The trends in

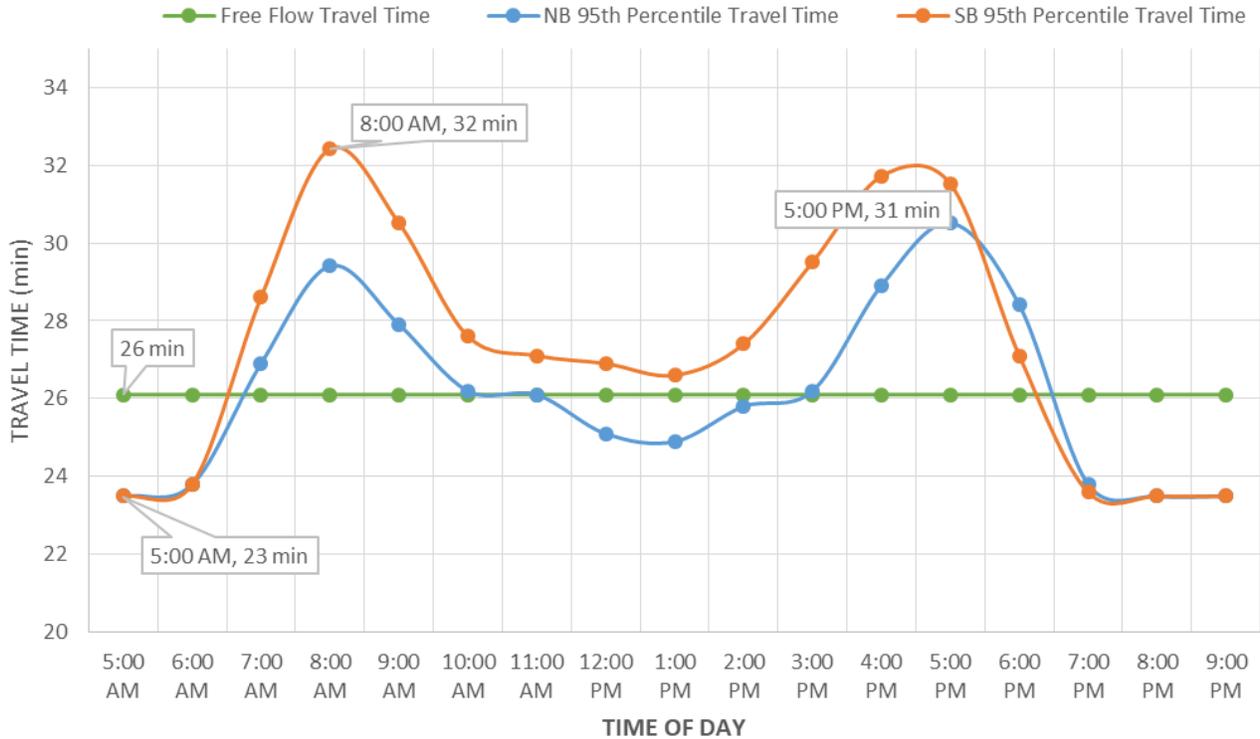
this chart follow the typical commute patterns on I-280, as commuters travel from San Francisco County to Santa Clara County for work in the morning, then the reverse in the afternoon.

Figure 27: Travel Time Reliability Chart – SR-92



On SR-92, westbound travel times are highest in the AM peak period with a maximum travel time of 20 minutes at 8:00 AM. Eastbound travel times are highest in the PM peak period with a maximum travel time of 20 minutes at 5:00 PM. The trends in this chart follow the typical commute patterns on SR-92, as commuters travel from the East Bay to San Mateo County for work in the morning, then the reverse in the afternoon.

Figure 28: Travel Time Reliability Chart – US-101



On US-101, southbound travel times increased in both the AM and PM peak period, reaching as high as 32 minutes near 8:00 AM and 4:30 PM. Northbound travel times also increased both in the AM and the PM peak period, reaching 29 minutes at 8:30 AM and 31 minutes at 5:30 PM. The northbound direction reduced below the free flow travel time of 26 minutes in off-peak hours. The southbound direction gradually reduced to just above the free flow travel time between the AM and PM peak periods, and then reduced below that after 7:00 pm. This trend is typical for commute patters on US-101, as commuters travel in both directions in this vicinity.

CHAPTER 6: NEXT STEPS

6.1: 2023 CMP Conformance

As discussed earlier, no roadway segments or intersections were found to be outside the established LOS standards after interregional reductions. The C/CAG Board approved the Countywide Congestion Relief Plan (CRP), which is a countywide deficiency plan to address these and future deficiencies. This Plan will relieve all San Mateo County jurisdictions - 20 cities/towns and the County - from having to develop and implement individual deficiency plans for current LOS changes and any that may be detected in future years. No actions or corrective measures are required and all jurisdictions are considered in conformance.



Pedestrian approaching El Camino Real (SR-82) in Colma

6.2: CMP Update

The next step in the CMP process is to complete the 2023 CMP Update. TJKM is preparing the document on behalf of C/CAG. This Monitoring Report will be included as an appendix to the CMP Report.

APPENDIX G: STATUS OF CAPITAL IMPROVEMENT PROJECTS

STATUS OF CAPITAL IMPROVEMENT PROJECTS - DRAFT

Program Year	Program	Type	Jurisdiction	Project Description	Amount	Funding Obligation Pending	Funding Fully Obligated	Under Construction	Completed
2011/12	CMAQ		Burlingame	Burlingame Ave. and Broadway Distric	\$ 301,000				X
2011/12	STIP	Highway	Caltrans	Aux lane landscaping #700B - 2-yr plant establishmen	\$ 33,000				X
2011/12	TDA Art 3	Bike Ped	County of San Mateo	Crystal Springs Regional Trail South of Highway 92	\$ 194,549				X
2011/12	CMAQ		Daly City	Citywide Accessibility	\$ 420,000				X
2011/12	TDA Art 3	Bike Ped	Half Moon Bay	Highway 1 Trail Extension - Seymour to Wavecrest Road	\$ 250,000				X
2011/12	CMAQ		Half Moon Bay	Hwy 1 Bicycle Pedestrian Trail	\$ 420,000				X
2011/12	TDA Art 3	Bike Ped	Menlo Park	Alpine Road Bike Lane Improvement	\$ 78,000				X
2011/12	STP	LSR	Menlo Park	2010/11 Resurfacing	\$ 385,000				X
2011/12	CMAQ	Bicycle	Redwood City	Skyway/Shoreline Bike Route (PE	\$ 38,000				X
2011/12	TDA Art 3	Bike Ped	Redwood City	Brewster Avenue Bicycle Improvement	\$ 107,640				X
2011/12	CMAQ	Bicycle	Redwood City	Skyway/Shoreline Bike Route	\$ 218,000				X
2011/12	CMAQ		Redwood City	Bair Island Bay Trail Improvemen	\$ 337,000				X
2011/12	CMAQ		San Bruno	Transit Corridor Pedestrian	\$ 265,000				X
2011/12	CMAQ		San Bruno	Street Median and Grand	\$ 654,000				X
2011/12	STP	LSR	San Carlos	Pavement Rehab Program	\$ 319,000				X
2011/12	CMAQ		San Carlos	East Side Community Transi	\$ 1,795,304				X
2011/12	TDA Art 3	Bike Ped	San Mateo	Downtown Bicycle Parking	\$ 98,783				X
2011/12	CMAQ		San Mateo	El Camino Real Phase 1 Improvemen	\$ 203,000				X
2011/12	TDA Art 3	Bike Ped	San Mateo	Bay to Transit Trail - Phase 1	\$ 312,000				X
2011/12	CMAQ	Bicycle	San Mateo	Delaware Street Bike Lane	\$ 545,000				X
2011/12	CMAQ		San Mateo County	CSRT South of Dam Conversion	\$ 300,000				X
2011/12	STP		San Mateo County	Resurfacing of Pescadero Creek Roac	\$ 985,011				X
2011/12	STIP	Highway	SMCTA	US 101/Willow Interchange Reconstruction	\$ 4,500,000				X
2011/12	STIP	Highway	SMCTA/Pacifica	Hwy 1 San Pedro Creek Bridge Replacemen	\$ 3,000,000				X
2011/12	TDA Art 3	Bike Ped	South San Francisco	Pedestrian Crossing Improvements at El Camino H.S	\$ 98,000				X
2011/12	CMAQ		South San Francisco	Regional Gap	\$ 261,000				X
2012/13	STIP	Highway	C/CAG	San Mateo County Smart Corridor - Segment .	\$ 1,977,000				X
2012/13	TDA Art 3	Bike Ped	Redwood City	Bike Route Sign/Detectors/Racks	\$ 42,792				X
2013/14	TDA Art 3	Bike Ped	Burlingame	Ped/Bike Bridge Connection	\$ 136,000				X
2013/14	CMAQ	Bike Ped	Caltrans	Reconstruct U.S. 101/Broadway interchange - Bike/ Ped components	\$ 3,613,000				X
2013/14	Regional SR2S	SR2S	C/CAG	San Mateo County Safe Routes to School Program	\$ 1,905,000				X
2013/14	CMAQ	Bike Ped	Pacifica	Replace San Pedro Creek Bridge over Route 1 - Bike/ Ped components	\$ 1,141,000				X
2013/14	CMAQ	TLC	San Carlos	San Carlos PDA Connectivity Project	\$ 125,000				X
2013/14	CMAQ	TLC	San Carlos	El Camino Real Lighting and Landscaping (Grand Boulevard Initiative)	\$ 182,000				X
2013/14	STIP	Highway	SMCTA	US 101/ Broadway Interchange	\$ 23,218,000				X
2014/15	STP	LSR	Atherton	Atherton/Fair Oaks/Middlefield Maintenance project	\$ 285,000				X
2014/15	STP	LSR	Belmont	2014/15 Belmont Pavement Reconstruction Project	\$ 534,000				X
2014/15	TDA Art 3	Bike Ped	Belmont	Comprehensive Bicycle and Pedestrian Plan	\$ 37,500				X
2014/15	CMAQ	Bike Ped	Burlingame	Carolan Avenue Complete Streets Improvement Project	\$ 986,000				X
2014/15	TDA Art 3	Bike Ped	City of San Mateo	Pedestrian and Bicycle Infrastructure Upgrade	\$ 200,000				X
2014/15	CMAQ	Bike Ped	County of San Mateo	Semicircular Road Pedestrian and Bicycle Access Improvement Project, North Fair Oaks Area	\$ 320,000				X
2014/15	STP	LSR	Daly City	Callan Boulevard and King Drive Resurfacing	\$ 560,000				X
2014/15	TDA Art 3	Bike Ped	Daly City	Geneva Ave. Bike and Ped Improvement	\$ 375,000				X
2014/15	TDA Art 3	Bike Ped	East Palo Alto	Bike/Ped Access to Services	\$ 108,820				X
2014/15	STP	LSR	Menlo Park	2014-2015 Resurfacing of Federal Aid Routes	\$ 427,000				X
2014/15	CMAQ	Bike Ped	Menlo Park	El Camino Real, Valaparaíso Avenue, Glenwood Avenue, and Middlefield Road Bike/Ped Safety	\$ 797,000				X
2014/15	TDA Art 3	Bike Ped	Menlo Park	Citywide Bicycle and Pedestrian Enhancement	\$ 347,860				X
2014/15	STP	LSR	Millbrae	2014 Millbrae Street Repair Project	\$ 445,000				X
2014/15	TDA Art 3	Bike Ped	Millbrae	Bicycle and Pedestrian Transportation Plan	\$ 62,500				X
2014/15	STP	LSR	Pacifica	FY 2014-15 Linda Mar Boulevard Pavement Rehabilitation	\$ 431,000				X
2014/15	CMAQ	TLC	Pacifica	Palmetto Avenue Streetscape	\$ 1,000,000				X
2014/15	TDA Art 3	Bike Ped	Pacifica	Warning Lights Crosswalk	\$ 140,000				X
2014/15	STP	LSR	Portola Valley	2014/2015 Town of Portola Valley Resurfacing Project	\$ 224,000				X
2014/15	STP	LSR	Redwood City	2014/2015 Town of Portola Valley Resurfacing Project	\$ 548,000				X
2014/15	CMAQ	Bike Ped	Redwood City	Middlefield Road Streetscape Project	\$ 1,752,000				X
2014/15	TDA Art 3	Bike Ped	Redwood City	Safe Routes to School Improvement	\$ 46,220				X
2014/15	CMAQ	TLC	San Bruno	Transit Corridor Pedestrian Connectivity Improvement - Huntington Landscaping Improvement	\$ 735,000				X
2014/15	TDA Art 3	Bike Ped	San Bruno	Bicycle and Pedestrian Master Plan	\$ 100,000				X

STATUS OF CAPITAL IMPROVEMENT PROJECTS - DRAFT

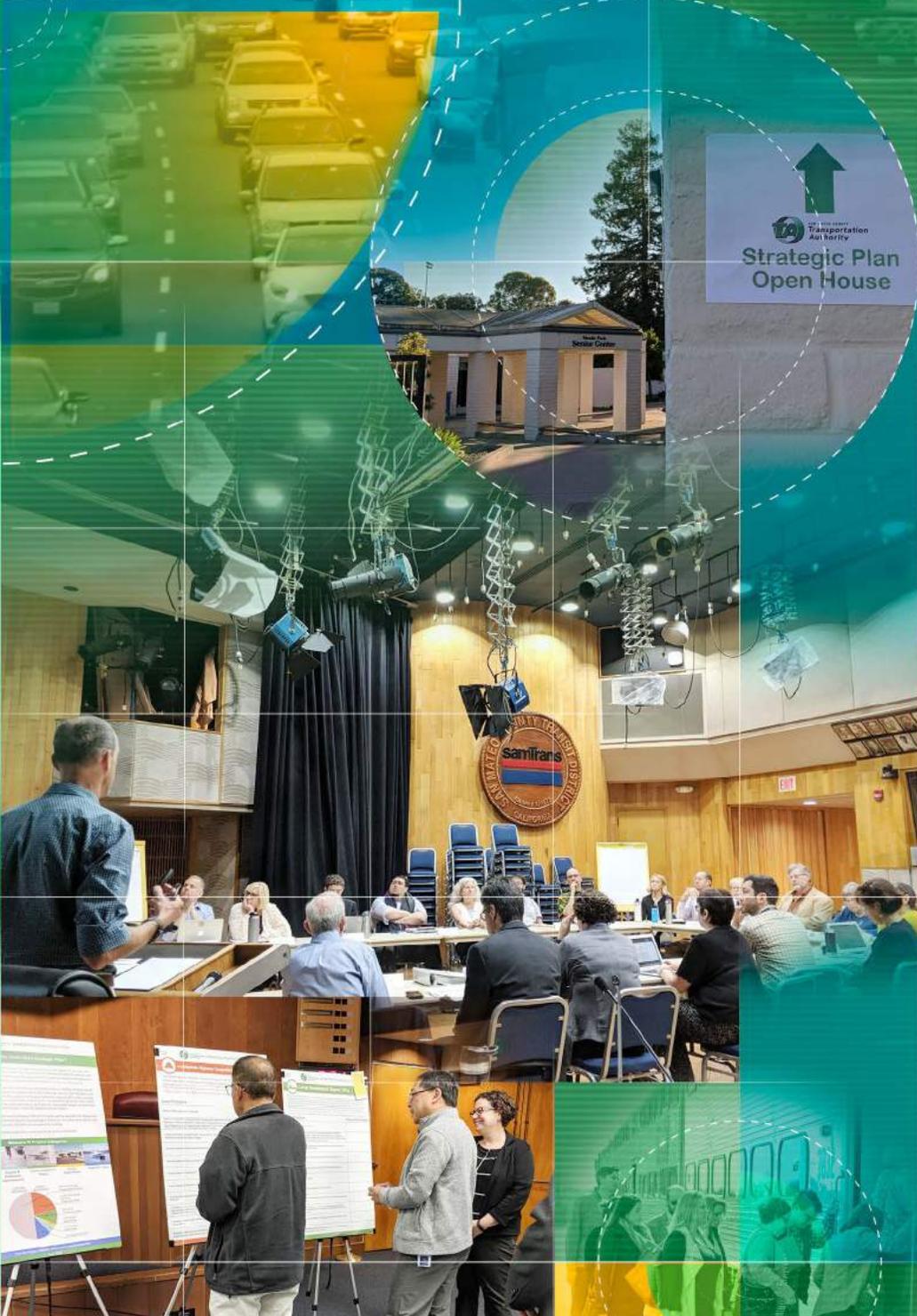
Program Year	Program	Type	Jurisdiction	Project Description	Amount	Funding Obligation Pending	Funding Fully Obligated	Under Construction	Completed
2014/15	STP	LSR	San Carlos	Crestview Drive Pavement Rehabilitation-Phase 2	\$ 412,000				✗
2014/15	CMAQ	TLC	San Carlos	San Carlos PDA Connectivity Project	\$ 725,000				✗
2014/15	TDA Art 3	Bike Ped	San Carlos	N-S Bikeway Sign and Detector	\$ 83,500				✗ X
2014/15	STP	LSR	San Mateo	Street Rehabilitation in Priority Development Areas (PDAs)	\$ 270,000				✗
2014/15	CMAQ	TLC	San Mateo	North Central Pedestrian Infrastructure Improvements	\$ 1,000,000				✗
2014/15	TDA Art 3	Bike Ped	San Mateo	Bay to Transil Trail - Phase I	\$ 312,000				✗
2014/15	CMAQ	TLC	South San Francisco	South San Francisco Grand Boulevard Project	\$ 150,000				✗
2014/15	TDA Art 3	Bike Ped	South San Francisco	Pedestrian Crossing Improvements	\$ 98,000				✗ X
2015/16	CMAQ	TLC	Belmont	Belmont Avenue Pedestrian Route Improvements	\$ 250,000				✗
2015/16	CMAQ	Bike Ped	Belmont	Old County Road Bike and Pedestrian Improvement Project	\$ 270,000				✗
2015/16	CMAQ	TLC	Daly City	John Daly Boulevard Streetscape Improvement	\$ 1,000,000				✗
2015/16	CMAQ	TLC	East Palo Alto	Bay Rd. Improvement Phase II and III	\$ 1,000,000				✗
2015/16	CMAQ	TLC	San Mateo	Citywide Crosswalk Improvement Project	\$ 368,000				✗
2015/16	CMAQ	Bike Ped	South San Francisco	SSF Citywide Sidewalk Gap Closure Project	\$ 357,000				✗
2015/16	CMAQ	TLC	South San Francisco	South San Francisco Grand Boulevard Project	\$ 850,000				✗
2016/17	TDA Art 3	Bike Ped	Atherton	Middlefield and Oak Grove Complete Street Improvements	\$ 124,200				✗ X
2016/17	STIP	Highway	C/CAG	Phase 2 (ENV) at SR 92/US 101 Interchange Vicinity	\$ 5,000,000				✗
2016/17	STIP	Highway	C/CAG	US 101 High Occupancy/Express Lane Project	\$ 9,399,000				✗
2016/17	TDA Art 3	Bike Ped	Daly City	Westmoor Ave to Guadalupe Parkway Bike and Ped Improvements	\$ 154,750				✗ X
2016/17	TDA Art 3	Bike Ped	San Carlos	Hwy 101 Ped/Bike Overcrossing	\$ 400,000				✗
2016/17	STIP	Highway	San Mateo	Phase 1 - SR 92 Improvement at SR 92/US El Camino Real Interchange	\$ 5,000,000				✗
2016/17	TDA Art 3	Bike Ped	San Mateo	San Mateo Dr. Ped and Bike Improvement	\$ 400,000				✗
2016/17	TDA Art 3	Bike Ped	San Mateo County	Bicycle Routes and Rules	\$ 21,050				✗
2016/17	STIP	Highway	SMCTA	US 101 Willow Interchange Reconstruction	\$ 19,552,000				✗
2016/17	TDA Art 3	Bike Ped	South San Francisco	Linden Ave Complete Streets Safety Project	\$ 400,000				✗ X
2017/18	STIP	Highway	C/CAG	Countywide ITS Project	\$ 4,298,000				✗
2018/19	STIP	Highway	C/CAG	US 101 Managed Lane Project from Santa Clara County Line to I-380	\$ 33500000*			✗	✗

*Amount programmed in 2018 STIP

APPENDIX H: MEASURE A PROGRAM STRATEGIC PLAN

Strategic Plan 2020-2024

 **Strategic Plan
Open House**



**SAN MATEO COUNTY
Transportation
Authority**



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From the **Executive Director**



San Mateo County residents demonstrate a consistent willingness to invest in critical transportation infrastructure projects and programs that enhance mobility and improve the quality of life for all of our communities.

This support has been evident since the original approval of dedicated transportation investment when the San Mateo County Transportation Authority (TA) was formed in 1988 with the passage of Measure A, which was then reauthorized in 2004. Most recently, in 2018, San Mateo County voters passed Measure W, a half-cent sales tax estimated to generate roughly \$91 million per year. Together, with the existing Measure A half-cent sales tax, we can continue to invest in our future and move people faster, more efficiently, and help address congestion throughout the County.

The purpose of the TA's 2020-2024 Strategic Plan is to provide the policy framework and guidance for implementing both the ongoing Measure A Transportation Programs and the TA administered portion of the new Measure W Congestion Relief Plan. The TA is charting new territory by finding common ground between Measures A and W and developing one Strategic Plan that honors the spirit and mandates of both measures. Measure W is guided by Core Principles while Measure A's foundation is its Vision and Goals. Through extensive public outreach, leveraging the knowledge and diverse experiences of Stakeholder and Technical Advisors and with significant input from members of a TA Board Ad Hoc Committee, staff, expert consultants, and the general public, the needs of both measures can be met through the programs and processes laid out in the following pages.

Congestion relief will take many forms over the next several decades from increasing person throughput on our highways by building express lanes, improving safety and local mobility with more rail-road grade separations, maintaining and expanding first last mile connections to mainline transit service by overcoming barriers to walking and bicycling and improving local shuttle service, and supporting and expanding high quality regional transit to better connect the County to the greater Bay Area region.

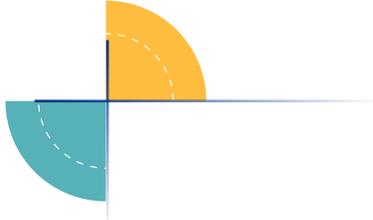
This Strategic Plan takes a modern approach that focuses on moving the most people possible, minimizing the traffic impacts of regional growth, and investing in all modes of travel. It serves as the roadmap for the next five years to provide a more balanced functioning transportation system that improves connections between people and places, lays the foundation to promote smart growth, supports economic development, provides an array of choices and promotes geographic and social equity.

We hope you find this Strategic Plan helpful in understanding what the TA does and how Measures A and W funding will be assessed for allocation over the next five years.

A handwritten signature in blue ink, appearing to read 'Jim Hartnett'. The signature is fluid and cursive, with a long horizontal stroke at the end.

Jim Hartnett
Executive Director

The remaining 50% of Measure W is administered by the San Mateo County Transit District (SamTrans).



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Section 1

Introduction and Background

The San Mateo County Transportation Authority (TA) Strategic Plan, for the years 2020-2024, represents an important milestone in the use of voter-approved funds to implement transportation projects and programs in San Mateo County. It is a five-year plan that identifies the policies, procedures, and methods for administering the expenditure of funds generated by Measure A and 50 percent of funds generated by Measure W. It is the initial strategic plan providing guidance for all of Measure W program categories except for County Public Transportation Systems, which will be administered by the San Mateo County Transit District (SamTrans).

In 1988, San Mateo County voters approved Measure A, a 20-year half-cent sales tax to fund and leverage other funding sources for transportation projects and programs in San Mateo County. The approval of Measure A created the San Mateo County Transportation Authority (TA) to manage and administer the new sales tax revenue. The TA is governed by a seven-member Board of Directors tasked with the administration of the Transportation Expenditure Plan (TEP). The Board of Directors sets the overall policy direction for the TA and is comprised of: two Board members appointed by the Board of Supervisors; four Board members appointed by the City Selection Committee to represent North County, Central County, South County, and Cities at Large; and one Board member appointed by SamTrans. A 15-member Citizens Advisory Committee, appointed by the Board, serves as a liaison between the public and the Board of Directors. The Measure A TEP lists projects and programs, as identified by the cities, local agencies, and citizens of San Mateo County, and includes funding for multiple modes to help meet the County's transportation needs.

San Mateo County is one of 25 "self-help" counties in California that chose to tax itself in order to help address the County's transportation needs. The TA has thus been able to accelerate the completion of major projects by bridging funding gaps and leveraging other fund sources. The 1988 Sales Tax Measure expired on December 31, 2008. In 2004, San Mateo County voters reauthorized the Measure A

half-cent sales tax and the adoption of a new TEP for an additional 25 years (2009-2033).

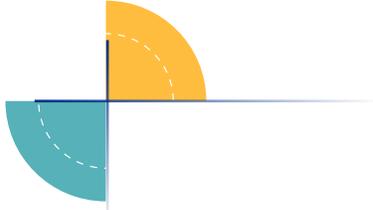
Building off the success of Measure A, while trying to keep up with the pace of change in the region, San Mateo County voters approved Measure W in November 2018, which was the culmination of efforts supported by an extensive outreach process to better understand and meet the County's mobility needs. Measure W provides an additional half-cent transportation sales tax for 30 years, which supplements Measure A sales tax revenue in support of countywide transportation improvements.

The Measure A TEP requires the TA to develop and adopt a Strategic Plan and that it be updated at least once every five years. The Measure W TEP, otherwise known as the San Mateo County Congestion Relief Plan, also requires the TA to prepare a Strategic Plan with broad-based public outreach.

The purpose of the Plan is to provide policy guidance for the implementation of Measure A and Measure W transportation sales tax programs that the TA is tasked with administering. This Plan provides:

- A description and the results of the robust public communication and outreach effort that was conducted during its preparation
- The policy framework for program implementation, including:
 - Evaluation criteria/prioritization for project selection
 - Processes to initiate projects
 - Options for how the TA can become more proactive with project development and implementation
 - Initiatives to support additional project and program implementation efforts, which are further outlined in **Section 8**

It is essential to emphasize that this plan is a living document that will continue to evolve as the TA implements the Measure A and Measure W programs.



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Section 2

Measure A and W Programs Overview

The 2009-2033 Measure A Program began on January 1, 2009 and continues to generate sales tax revenues in San Mateo County for transportation facilities, services, and programs. The 2019-2049 Measure W Program was approved on November 6, 2018 with the collection of revenue beginning July 1, 2019. The following section discusses the expenditure goals and guidelines for the two transportation funding programs.

2.1 Measure A (2009-2033)

Goals

The Measure A Transportation Expenditure Plan (TEP) aims to:

- Reduce commute corridor congestion
- Make regional connections
- Enhance safety
- Meet local mobility needs

Key Strategies

The Measure A TEP vision has also set forth several key strategies:

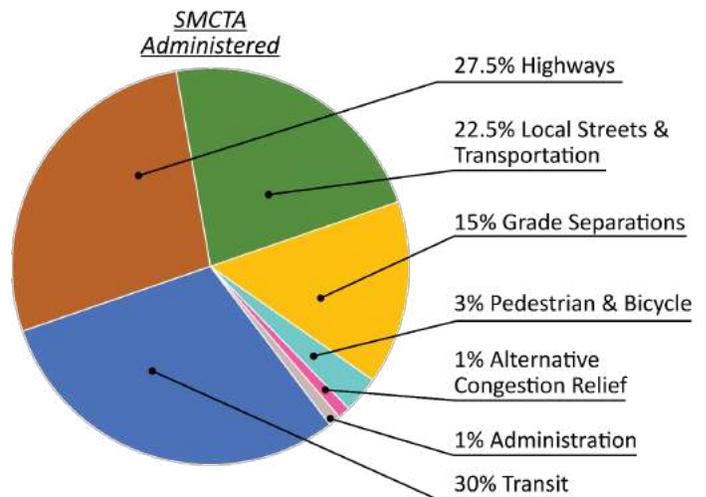
- Target key congested corridors for highway and transit improvements
- Continue to improve connections with regional transportation facilities
- Enhance safety in all aspects of the transportation system
- Meet local mobility needs, especially those of seniors and people with disabilities
- Meet the cities' and County's unique local transportation needs
- Leverage local, state, and federal funds
- Encourage transportation projects that support transit-oriented development

Program Category Details

The Measure A expenditure plan sets the specific

program categories and the mandated percentage split of the sales tax revenues to each of the six primary program categories: Transit, Highways, Local Streets/Transportation, Grade Separations, Pedestrian and Bicycle, and Alternative Congestion Relief Programs. The percentage share for each of the program categories is illustrated in **Figure 2-1** below. In addition, one percent of Measure A funds is set aside for administration purposes.

Figure 2-1: 2004 Measure A TEP Program Categories



The TEP outlines restrictions in the use of Measure A funds with the purpose of targeting funding to transportation projects in San Mateo County and maximizing the leveraging of other funding sources:

- Measure A funds may *not* be used to supplant existing funds and resources on projects
- Measure A funds may be used *only* for:
 - Transportation programs and projects as allowed in the TEP
 - Projects within San Mateo County, with the exception of system-wide Caltrain improvements and other projects that minimally extend into adjacent counties

The TEP further provides that "listed" projects are to be included in each Strategic Plan. A listed project is

a capital project in which the TA has programmed Measure A funding from the Highway, Grade Separations, and Pedestrian and Bicycle program categories. The TA can deprogram funding for a project, and thus remove a listed project from the Strategic Plan if requested by the project sponsor or if a sponsor fails to meet its obligations under the terms and conditions of the funding agreement for the project. An inventory of listed projects is contained in **Appendix A**. Note, going forward, the listed projects in Appendix A will be updated as needed and included in each subsequent Strategic Plan during the life of Measure A. The inventory of listed projects is not intended to be a comprehensive list of projects selected for funding from all the Measure A programs, nor an inventory of all projects eligible for Measure A funds in the future.

A description and purpose of each Measure A Program category is outlined in **Table 2-1**. Projected revenue for Measure A, in addition to Measure W, is included in **Table 4-1**.

Table 2-1: Measure A Program Category Details

Program Category	Description	Purpose
Transit		
<i>Caltrain (16%)</i>	Existing commuter rail system providing train service in San Francisco, San Mateo and Santa Clara counties	Upgrade and expand Caltrain system-wide services San Mateo County specific improvements; up to one half of funds may be used to support operations
<i>Local Shuttles (4%)</i>	Transit services provided with vehicles that are typically larger than vans and smaller than buses	Meet local mobility needs and provide access to regional transit
<i>Accessible Services (4%)</i>	Targeted transportation services for people that have special mobility needs	Provide paratransit and other transportation services to eligible seniors and people with disabilities
<i>Ferry (2%)</i>	Transit service provided by vessels on waterways	Establish ferry services in San Mateo County
<i>Dumbarton Corridor (2%)</i>	A key corridor connecting the East Bay with the Peninsula identified for future commuter rail service	Construct stations and rail enhancements in East Palo Alto, Menlo Park and Redwood City
<i>BART (2%)</i>	Existing heavy rail system providing train services in San Francisco, San Mateo, Alameda and Contra Costa counties	Maintain and operate BART extension in San Mateo County
Highways		
<i>Key Congested Areas (17.3%)</i>	Highways in San Mateo County	Reduce congestion and improve safety on highways
<i>Supplemental Roadways (10.2%)</i>	Local, collector, arterial, state route roadways in San Mateo County	Reduce congestion and improve safety on roadways
Local Streets / Transportation (22.5%)	Transportation services, roadways owned and maintained by the cities and County of San Mateo	Improve and maintain local transportation facilities and services
Grade Separations (15%)	Eliminate at-grade railroad crossings	Improve safety and relieve local traffic congestion
Pedestrian and Bicycle (3%)	Pedestrians and bicycle facilities	Encourage walking and bicycling
Alternative Congestion Relief Programs (1%)	Commute alternatives and Intelligent Transportation Systems	Efficient use of transportation network and reduce reliance on automobiles

Note: Up to 1 percent of Measure A revenues may be used for TA staff salaries and benefits

Accomplishments over the Past Five Years

Over the past five years of the Measure A program, a number of accomplishments were achieved, as described below.

Processes and Plans

- Continued the established Call for Projects (CFP) process for several of the competitive program categories, including two rounds each of Highway, Shuttle and Pedestrian/Bicycle CFPs, and one Grade Separation CFP, programming over \$199 million to projects throughout the County
- Developed an unconstrained 10-Year Highway Capital Improvement Program (CIP) (FY 2016-2025) to better understand the magnitude of the Highway Program shortfall
- Developed a Congestion and Safety Performance Assessment of the State Highway System in San Mateo County in conjunction with the City/County Association of Governments of San Mateo County (C/CAG) to identify key hot spots in the highway network
- Provided funding support and actively participated in the SamTrans Mobility Management Plan Community Services Strategy to provide policy recommendations to improve performance of the jointly administered TA-C/CAG Local Shuttle Program that provides critical first/last mile connections to regional transit and improves local mobility

Key Projects and Programs Funded

Measure A has funded a number of key projects and programs throughout the County to meet the goals of the 2004 TEP. Following are key projects funded during the past five years:

Transit

- Caltrain upgrades and improvements, such as:
 - Peninsula Corridor Electrification Project (PCEP) - electrification of the Caltrain Corridor and purchase of electric multiple unit (EMU) trains – currently under construction
 - South San Francisco Caltrain Station Improvements Project - replacement of the existing station to meet current safety standards with improved access – currently under construction
 - San Mateo Bridges Project - replacement of four 100-plus-year-old railroad bridges in the City of San Mateo – completed in 2016
- **Shuttles:** The TA helps fund a robust shuttle system to provide critical first- and last-mile access to regional transit and meet local mobility needs
- **Ferry:** A financial feasibility study and cost/benefit analysis is underway to determine the viability of a new public ferry terminal with the operation of new public ferry service in Redwood City
- **Paratransit:** Approximately \$3.5 million is provided annually in support of the Paratransit Program, meeting the transportation needs of those with special mobility requirements

Highways

- SR 1 San Pedro Creek Bridge Replacement Project (Pacifica) – completed in 2016
- US 101/Broadway Interchange Reconstruction Project - reconstruction of one of the oldest interchanges in San Mateo County – completed in 2017
- SR 92 / SR 82 (El Camino Real) Interchange Improvements - conversion from a full to partial cloverleaf interchange. Backups and queuing on SR 92 have been reduced with wider on- and off-ramps – completed in 2018

- US 101 / Willow Interchange Improvements - conversion from full to partial cloverleaf interchange and replacement of the existing bridge structure with a wider one. Operational deficiencies caused by short weave movements between on-and off-ramps, and backups and upstream queuing on US 101 have been reduced. Cycle tracks for bicyclists included - completed in September 2019
- San Mateo US 101 Express Lanes, I-380 to terminus of Santa Clara County Express Lanes - creation of express lanes for use by HOV3+ (high-occupancy vehicles with three or more occupants), motorcycles and transit for free and other vehicles for a toll. Existing HOV lanes will be converted into express lanes south of Whipple Avenue (under construction) and new express lanes will be added from Whipple to I-380 (final design)

Grade Separations

- 25th Avenue Grade Separation - grade separation of the existing Caltrain crossing of 25th Avenue in San Mateo that includes the relocation and reconstruction of the Hillsdale Caltrain Station and extension of 28th and 31st Avenues underneath below - currently under construction
- Broadway Grade Separation - preliminary engineering and environmental work is ongoing for a grade separation of the existing Caltrain crossing of Broadway in Burlingame
- Ravenswood Avenue, South Linden Avenue/Scott Street and the Whipple Avenue Grade Separation Projects - planning work is underway to study potential grade separations of existing Caltrain crossings in the cities of Menlo Park, South San Francisco, San Bruno, and Redwood City

Pedestrian/Bicycle

- US 101 / Holly Street Pedestrian and Bicycle Overcrossing: new pedestrian/bicycle bridge to be implemented in conjunction with US 101 / Holly Street Interchange Improvements in San Carlos - construction pending
- US 101 Pedestrian and Bicycle Overcrossing south of University Avenue - new pedestrian/bicycle bridge in East Palo Alto approximately 1/3 of a mile south of the University Avenue Interchange - completed May 2019
- John Daly Boulevard Streetscape Improvements - new six- to seven-foot-wide bicycle lanes on John Daly Boulevard, widened pedestrian refuge islands,

installation of pedestrian scale lighting on widened sidewalks, and installation of stamped asphalt crosswalks in Daly City - construction complete May 2019

Alternative Congestion Relief (ACR)

- Ongoing support for Commute.org's annual Transportation Demand Management (TDM) work programs

2.2 Measure W (2019-2049)

In 2018, when San Mateo County voters passed Measure W, they gave the County the ability to generate additional resources from a new half-cent sales tax to implement transportation improvements as identified in the San Mateo County Congestion Relief Plan.

The Congestion Relief Plan sets the program categories and percentage split of the sales tax revenues that are to be implemented primarily with guidance, as applicable, from the eleven Measure W Core Principles.

Measure W Core Principles

Through a robust public outreach process, the following Core Principles were developed to help guide the allocation of Measure W funds:

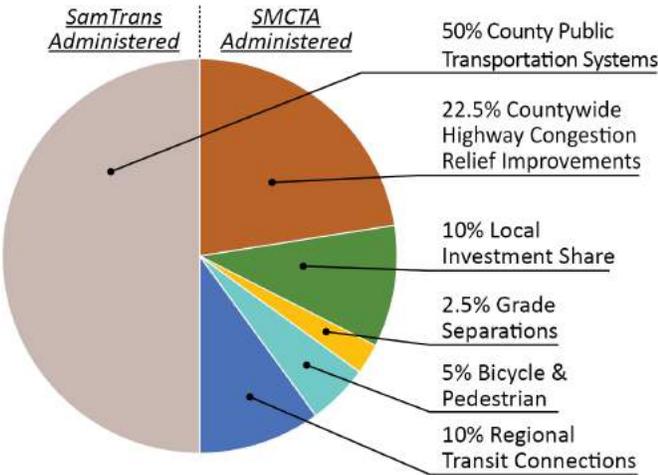
- Relieve traffic congestion countywide
- Invest in a financially sustainable public transportation system that increases ridership, embraces innovation, creates more transportation choices, improves travel experience, and provides quality, affordable transit options for youth, seniors, people with disabilities, and people with lower incomes
- Implement environmentally-friendly transportation solutions and projects that incorporate green stormwater infrastructure and plan for climate change
- Promote economic vitality, economic development, and the creation of quality jobs
- Maximize opportunities to leverage investment and services from public and private partners
- Enhance safety and public health
- Invest in repair and maintenance of existing and future infrastructure

- Facilitate the reduction of vehicle miles traveled, travel times, and greenhouse gas emissions
- Incorporate the inclusion and implementation of complete street policies and other strategies that encourage safe accommodation of all people using the roads, regardless of mode of travel
- Incentivize transit, bicycle, pedestrian, carpooling, and other shared-ride options over driving alone
- Maximize potential traffic reduction potential associated with the creation of housing in high-quality transit corridors

Program Category Details

The TA administers 50 percent of the Measure W sales tax proceeds, while the remaining 50 percent are administered by SamTrans. The TA is responsible for administering the following four categories: Countywide Highway Congestion Improvements, Local Safety, Pothole and Congestion Relief Improvements, Bicycle and Pedestrian Improvements, and Regional Transit Connections. The Local Safety, Pothole, and Congestion Relief Improvements category is comprised of two sub-components, the Local Investment Share and Grade Separations. SamTrans is responsible for the County Public Transportation Systems category. **Figure 2-2** shows the percentage of the Measure W funds that are to be apportioned to each of the program categories.

Figure 2-2: Measure W Congestion Relief Plan Program Categories



Note: Local Investment Share and Grade Separations funds come from the Local Safety, Pothole & Congestion Relief Improvements Program category, which totals to 12.5% of Measure W funds.

Table 2-2 provides a description and purpose of each Measure W Program Category. Projected revenue for Measure A, in addition to Measure W is included in Table 4-1.

Table 2-2: Measure W Program Category Details

Program Category	Description	Purpose
Countywide Highway Congestion Improvements (22.5%)	Focus on improvements to state highways and interchanges	Provide congestion relief, reduce travel times, increase person throughput improve operations, safety and access and deployment of advanced technologies and communications on highway facilities in San Mateo County
Local Safety, Pothole & Congestion Relief Improvements - Local Investment Share (10%)	Local transportation programs and services; funds must be used for pavement rehabilitation if a city or the County has a Pavement Condition Index (PCI) Score less than 70	Investment in local transportation priorities including deployment of advanced technologies and communications on roads, paving streets and repairing potholes, and promoting alternative transportation
Local Safety, Pothole & Congestion Relief Improvements - Grade Separations (2.5%)	Separation of roadways crossing rail corridors	Separation of roadways crossing rail corridors
Bicycle and Pedestrian Improvements (5%)	Bicycle and pedestrian programs and projects that incentivize mode shift to active transportation	Reduce traffic congestion by safely connecting communities and neighborhoods with schools, transit and employment centers, fill gaps in the existing bicycle/pedestrian network, safely cross barriers and make walking and bicycling safer and more convenient
Regional Transit Connections (10%)	Services designed to improve transit connectivity between the County and the region, including rail, water transit, heavy rail and regional bus service	Reduce congestion and improve transit connectivity between the County and the rest of the region, considering a project's support through public-private partnerships
County Public Transportation Systems (50%)	Funds for public transportation that are administered by SamTrans	Maintain and enhance bus, paratransit, Caltrain and other countywide mobility services

3.1 Preface: Get Us Moving San Mateo County

SamTrans, in conjunction with the San Mateo County Board of Supervisors, led the Get Us Moving San Mateo County (GUM) effort from Winter 2017 through Spring 2018. This large-scale outreach effort was a collaborative program designed to increase community awareness of current transportation conditions, programs, services, and solutions; help identify and prioritize transportation-funding needs in the County; develop an understanding of community opinions about transportation priorities; and inform future transportation revenue opportunities and expenditures.

GUM was a joint effort with local cities, partner agencies, and other stakeholders including regional leaders, transportation professionals, employers of all sizes, non-profit and transit advocacy groups. Outreach resulted in feedback from more than 16,000 San Mateo County residents and reached hundreds-of-thousands more through direct mail, television advertisements, online surveys, social media, town halls and more than 100 presentations to city councils, business and community groups, and more.

The result of the GUM outreach effort was the development of the San Mateo County Congestion Relief Plan, which became Measure W. The SamTrans Board of Directors approved Measure W for the November 2018 ballot with the consent of the San Mateo County Board of Supervisors.

The Strategic Plan development process leveraged the GUM development efforts, utilizing the same Stakeholder Advisory Group (SAG) and Technical Advisory Group (TAG) for continuity.

3.2 Stakeholder/Public Outreach Program

This section delves into the outreach process and the steps taken to develop the Strategic Plan.

Broad-based stakeholder engagement was critical to the creation of this Strategic Plan. Outreach was especially important given that this is the inaugural

development of the policy framework for the implementation of the TA's programs under Measure W, as well as the incorporation of both Measure A and Measure W into one Strategic Plan.

Outreach occurred at multiple points in the process through a variety of engagement techniques to ensure the development of a well-informed Plan that addresses the diverse interests and needs of the County. Throughout the Strategic Plan development process, stakeholders played an integral role providing input on the policy framework and implementation of the measure programs.

One significant task in the Strategic Plan development process was to determine what "as applicable" means for the Measure W Core Principles. Measure W states, "Investment categories identified in the Congestion Relief Plan are to be implemented primarily with guidance from the Core Principles set forth below, as applicable..." The Strategic Plan set out to answer the questions of whether all the Core Principles applied to each funding program category, and at what weight or level of significance. Outreach focused more on Measure W than Measure A because the TA had conducted outreach multiple times in the past on Measure A through previous Strategic Plans.

Public engagement methods included regular meetings with stakeholder and technical advisors, an online survey with over 2,500 responses, and a series of public meetings held throughout the County.

The following describes the public engagement in more detail:

- SAG meetings: the SAG was comprised of representatives that included non-profits, large employers, business groups, transit, and constituent advocacy groups
- TAG meetings: the TAG was comprised of representatives from the cities, County, transit agencies, special districts and the TA's local partner funding partners
- San Mateo County Transportation Authority Board



of Directors, Board Ad Hoc Committee and Citizen's Advisory Committee meetings

- Updates to the County Board of Supervisors, the City and County Association of Governments of San Mateo County (C/CAG) and Commute.org Board of Directors
- Community meetings, pop-up events at local farmers markets, and presentations at organizations around the County
- Virtual Town Hall on the San Mateo County Transit District YouTube
- Online engagement through the TA website dedicated page, http://www.smcta.com/about/Strategic_Plan_2020-2024.html
- Public online survey publicized through SAG and TAG members, a text-blast to 40,000 randomized county residents, e-mail to numerous Community Based Organizations (CBOs), school and senior groups, and press releases and social media publicity. In addition, approximately 4,000 GUM survey takers received notice of the survey.
- The public comment period for the Draft Strategic Plan was open for 30 days. Approximately 4,500 GUM survey and TA Specific Plan survey respondents were notified of the availability of the Draft Strategic Plan for review and comment. A summary of comments received on the TA's website for the Draft Strategic Plan can be found in Appendix H.

Developing the Plan with Broad Stakeholder Input

Stakeholder and Technical Advisory Groups

Between March and September of 2019, there were numerous meetings with the SAG and the TAG. The following are highlights of key activities they participated in, as further described in Section 3.2:

- Comparison of the Measure A and W Program categories, which confirmed direction to provide a common selection process for several competitive program categories
- Completing a survey to determine the applicability of the Measure W Core Principles to each program category
- Recommendations on the project selection process, eligible sponsorship and minimum matching fund requirements

- Input on what the TA's role should be with regard to project delivery and technical assistance
- Development of project evaluation criteria that relate to the Core Principles
- Final review of the weighting of the Core Principles and development of weighted evaluation criteria

Members of the SAG and TAG were generally supportive of the proposed processes for project selection and initiation. Key comments received from members emphasized the importance and need for flexibility; input on project delivery with respect to sponsor implementation and support for the TA to take a more proactive role sponsoring highway projects of countywide significance; concerns regarding limited available funding to deliver large capital projects and the ability to leverage external revenue sources; integration of modern transportation concepts in light of regional and statewide initiatives; and the establishment of metrics to better determine how projects are meeting the Measure A Goals and Vision and the Measure W Core Principles.

Presentations/Open Houses

TA Staff presented material on the Strategic Plan through multiple venues. Staff held four community open house events in the summer of 2019 at the following locations: San Mateo Public Library, Pacifica Community Center, Menlo Park Senior Center, and the South San Francisco Municipal Building. After a presentation by the TA about the Strategic Plan effort, attendees were invited to participate in a dot sticker exercise ranking the top six Core Principles for each of the Measure W funding categories.

In November 2019 staff, conducted an online Virtual Town Hall hosted on the San Mateo County Transit District website where viewers saw a presentation on the Strategic Plan, could ask questions by a chat window and make formal public comments via the TA website. Finally, in both summer and fall of 2019 staff went to multiple organizations to make formal presentations including those representing individuals with disabilities, labor organizations, business groups, environmental groups and others.

The following are organizations that SMCTA staff made informal presentations to during the Strategic Plan development process:

- Menlo Park Chamber of Commerce, Business Issues & Transportation
- Pacifica Climate Committee
- Redwood City - San Mateo County Chamber of Commerce, Transportation & Housing Committee
- SAMCEDA Housing Land Use and Transportation (HLUT)
- San Mateo County Paratransit Coordinating Council
- SamTrans Citizens Advisory Committee (CAC)

Pop-Up Events

The TA set up booths at two pop-up events: the Half Moon Bay Coastside Farmers Market and the Burlingame farmers market (both in June of 2019). Each booth had large-format posters that provided background information on the Strategic Plan and Measure W, and a facilitated dot sticker exercise for ranking Core Principles under each project category. The TA also provided fact sheets on the Strategic Plan, Measure A and Measure W at all community meetings.

Ad Hoc Committee, Citizen Advisory Committee, and Board Meetings

TA staff regularly presented the results of stakeholder and public outreach efforts to the Ad Hoc Committee, the SamTrans CAC, and the TA Board to keep them abreast of the planning effort and to get their buy-in on key components of the Plan development process.

Online Public Survey

To reach a large-scale audience, the TA opened an online survey from June to August of 2019, which received more than 2,500 responses. The survey provided an introduction on the Strategic Plan effort and Measure W, and asked respondents to choose up to six of the most applicable Core Principles for each Measure W Program category. The survey also asked for each respondent's place of residence and employment by city or unincorporated County area and provided an area for open-ended general comments.

General Comments from the Online Public Survey

All survey comments were reviewed and incorporated where appropriate. Some comments that were representative of general themes that emerged from the comments include:

- Prioritize pedestrian safety
- Addressing at-grade train crossings is really important
- Safety, relieving congestion, and repairing potholes should be the overwhelming priority
- Safe connected bike paths
- Support green, environmentally-friendly solutions
- More bikes = fewer cars
- Invest in more transit and more bike infrastructure
- Denser housing near transportation hubs to support more frequent and expanded public transportation service
- Increasing automobile capacity will not improve congestion
- More carpool lanes
- Get people out of their cars on the 101 and onto Caltrain
- Good networked sustainable transportation alternatives to and through San Mateo County
- Improve the pedestrian environment near schools
- and transit hubs
- Please make the roads safer
- Safe streets and more transit service
- Fix the potholes
- Repair streets and highways
- Infrastructure repair is critical
- Bikes, trains and buses
- More transit options
- Stop prioritizing automobiles
- Congestion relief, road maintenance, convenient public transportation
- Traffic reduction is a must
- Coordinate the times of the shuttles, ferries, buses and Bay Area Rapid Transit (BART) better
- Seamless fare integration
- Public transportation needs to be more efficient, run more frequently and connect to other lines at transfer points
- More trains, more often

Figure 3-1 is a word cloud that illustrates the most often used words received from approximately 2,500 general public comments.

Figure 3-1: Public Survey Response Word Cloud



3.3 Plan Development Steps

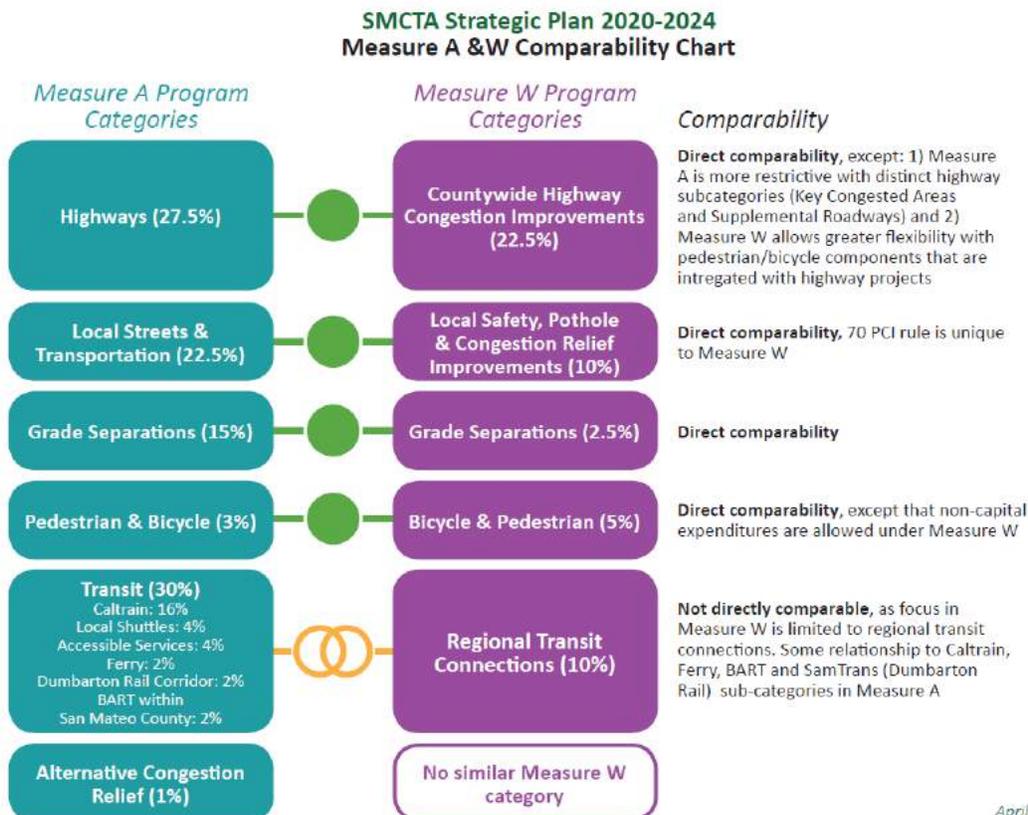
This section provides a description of key activities undertaken as part of the Strategic Plan development process.

Commonalities between Measures A and W

One of the initial outcomes of the stakeholder meetings was to determine whether it made sense to consolidate the project selection process for the common

competitive program categories between the measures. There was general concurrence from the SAG and TAG, as well as the Board Ad Hoc Committee, that there was sufficient commonality in Measures A and W to support having a common selection process for the comparable competitive programs. Figure 3-2 illustrates the comparability between the program categories from both measures.

Figure 3-2: Measure A & W Comparability Chart



April 2019

Project Framework Tables

Policy framework tables were created for the Measure W program categories and the comparable Measure A program categories for project selection, project sponsorship, and minimum matching fund requirements as illustrated in **Table 6-1 and 6-2** in Section 6.1 and minimum matching fund requirements in **Table 7-1** in **Section 7.2**

Initiatives to Improve Project Delivery

The TA also saw an opportunity to be able to improve the project delivery process. The TAG, which was primarily comprised of representatives that are the TEP project sponsors, strongly supported the position that the TA should be proactive in identifying and sponsoring highway projects of countywide significance. The TA recognizes that local agencies often have limited resources and experience as well as competing priorities that can impact their ability to deliver large regional highway projects. Greater benefits may be realized by strategically targeting projects that reduce regional congestion and also improve local mobility. Examples of highway projects of countywide significance include the San Mateo US 101 Express Lanes and the US 101/SR 92 Interchange. The TA will consider setting aside funding for these highway projects of countywide significance, striking a balance with local needs, which will be further addressed as part of the update to the Short Range Highway Plan (2012-2021) with an accompanying Capital Improvement Program (CIP).

The TA also strives to further its role with technical assistance, as resources permit, to advance project delivery. The TA should further explore the following options:

- Provide technical assistance to sponsors, not limited to the highway program,
- Utilize consultant services to offer Complete Streets and other best practice workshops,
- Temporarily offer consultant services to fill sponsor gaps due to staff vacancies on request to keep projects moving, and
- Contract with consultants to obtain grant funds to help sponsors be more competitive with various grants and better leverage Measure A & W funds.

Weighting of Measure W Core Principles

The stakeholder and public outreach process also helped inform the applicability and weighting of the Measure W Core Principles. As described in **Section 3.2** above, the surveys completed by the SAG and TAG, as well as the general public, were designed to determine the relative weight of each of the Core Principles for the TA administered funding categories. Ultimately, each Core Principles received a weighting of High, Medium, or Low for each program category. The final recommended weightings took into account the SAG and TAG survey responses, the general public survey responses, additional comments from the SAG/TAG after they completed their surveys, Measure W language regarding program priorities, Board Ad Hoc member input, as well as project team and consultant recommendations. A summary of the weighting of the Core Principles for each Measure W Program category can be seen in **Table 3-1**, with gold being the highest weighting, green being weighted medium and blue being the lowest weighted. A summary of the weighting of the Core Principles from each group (SAG, TAG and public survey) can be found in **Appendix D. Table 3-2** is the Core Principle key. The weighting of the Core Principles directly influences the assignment of points to the evaluation criteria.

Table 3-1: Measure W Core Principle Weights - All Categories

Countywide Highway Congestion Improvements	Grade Separations	Bicycle & Pedestrian Improvements	Regional Transit Connections	Local Investment Share
P1	P1	P6	P1	P7
P8	P6	P9	P2	P6
P2	P2	P10	P5	P1
P3	P3	P1	P8	P2
P4	P8	P3	P3	P3
P5	P9	P7	P4	P4
P6	P11	P8	P7	P5
P7	P4	P11	P10	P9
P9	P5	P2	P11	P8
P10	P7	P4	P6	P10
P11	P10	P5	P9	P11

Table 3-2: Measure W Core Principles Key

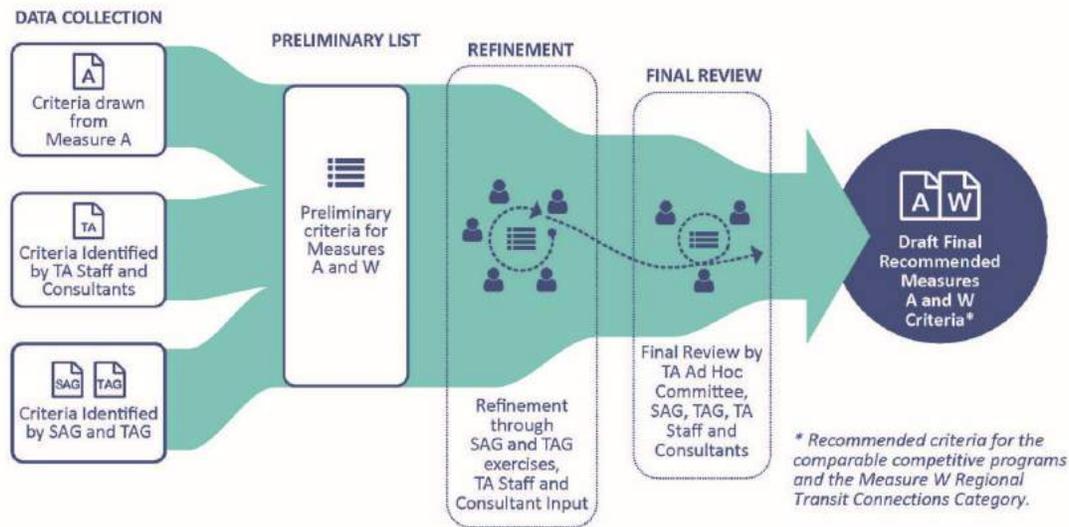
P1	Relieve Traffic Congestion Countywide
P2	Invest in a Financially-sustainable Public Transportation System that Increases Ridership, Embraces Innovation, Creates More Transportation Choices, Improves Travel Experience, and Provides Quality, Affordable Transit Options for Youth, Seniors, People with Disabilities, and People with Lower Incomes
P3	Implement Environmentally-friendly Transportation Solutions, Green Stormwater Infrastructure/Plan for Climate Change
P4	Promote Economic Vitality, Economic Development & Creation of Quality Jobs
P5	Maximize Opportunities to Leverage Investment from Public/Private Sources
P6	Enhance Safety & Public Health
P7	Invest in Repair & Maintain Existing & Future Infrastructure
P8	Facilitate the Reduction of Vehicle Miles Traveled, Travel Times and Greenhouse Gas Emissions
P9	Incorporate the Inclusion and Implementation of Complete Streets Policies and Other Strategies that Encourage Safe Accommodation of All People Using the Roads, Regardless of Mode of Travel
P10	Incentivize Transit, Bicycle, Pedestrian, Carpooling and Shared Ride Options over Driving Alone
P11	Maximize Traffic Reduction Potential Associated with the Creation of New Housing Opportunities in High-Quality Transit Corridors

Development of Evaluation Criteria

The Strategic Plan contains evaluation criteria for the comparable competitive Highway, Bicycle/Pedestrian, and Grade Separation Program categories, and the Measure W Regional Transit Connections Program category. The comparable competitive programs are those where project sponsors compete for funding and the program category requirements between Measures A and W are similar. Significant input went into the evaluation criteria development process. As part of the SAG and TAG meetings, staff shared existing project evaluation criteria used for the Measure A programs and added a few suggestions for each of the 11 Core Principles with respect to each of the comparable competitive funding categories and the Measure W Regional Transit Connections Program category organized by Core Principle. Working with that initial set of criteria, SAG and TAG members generated hundreds of evaluation criteria sorted by Core Principle for each of the programs, which can be found in **Appendix D**. The proposed evaluation criteria were brought back to the SAG and TAG for further refinement and consolidation through facilitated breakout sessions. Board Ad Hoc members, staff and consultant also contributed significant input into this process, which is illustrated below in **Figure 3-3**.

Figure 3-3: Criteria Development Process

The recommended draft criteria for evaluating projects for Measures A and W funding applications were developed and refined through an iterative process with a Stakeholder Advisory Group (SAG), a Technical Advisory Group (TAG), input from Transportation Authority (TA) Board Ad Hoc members, consultants, and TA staff.



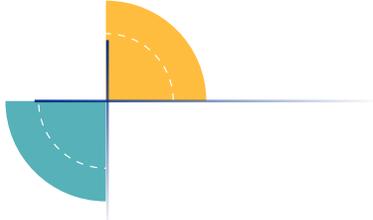
Criteria and Principles Weighting Process

The final draft evaluation criteria developed with SAG and TAG input, were grouped into the following thematic areas: Need, Effectiveness, Sustainability, Readiness, and Funding Leverage. The evaluation criteria were assigned numeric values based on the weighting of the relevant Core Principles. The point values range from one to three points based on the weighting of the relevant Core Principle (High – three points, Medium – two points, and Low – one point). The cumulative score for each evaluation criterion was tallied for each of the 11 Core Principles and accounted for 75 percent of the total available score.

Evaluation criteria under the thematic areas of Readiness and Funding Leverage are not fully addressed by the Measure W Core Principle ranking process and were given their own point score (Readiness at 15 percent and Funding Leverage at 10 percent), based on the established past practices under Measure A. These criteria have been in use for many funding cycles, have worked well and have been carried forward for use in this Plan. To simplify the process, the points associated with all the evaluation criteria have been calibrated to a 100-point scale. The final evaluation criteria and their significance with respect to each of the Core Principles can be found in **Appendix E**.

The scope of work for large capital projects often is not finalized and projected performance data often is not available prior to being environmentally cleared (for purposes of CEQA/NEPA). Several alternatives may be under consideration prior to that point in time. Under the existing Measure A Highway Program, a greater emphasis is placed on the evaluation criteria under the thematic area of **Need** for projects that have yet to be environmentally cleared and a greater emphasis is placed on the evaluation criteria under the thematic area of **Effectiveness** for projects that have been environmentally cleared. This has worked well and is also recommended to be carried forward and used for the Measure W Highways, Grade Separations, and Regional Transit Connections Program categories.

The point system illustrated in **Appendix E** for the Highway, Grade Separation, Bicycle and Pedestrian, and Regional Transit Connections program categories is for projects that have received environmental clearance. It is recommended that the maximum number of points that can be obtained for the evaluation criteria under the thematic group of **Need** be increased with a corresponding decrease in the maximum number of points that can be obtained for the evaluation criteria under the thematic group of **Effectiveness** for projects that have yet to be environmentally cleared.



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This section provides a backdrop of existing demographic and travel trends within San Mateo County, a look at how peer agencies fund transportation projects in relation to the TA's funding practices, and a financial look-ahead for the funding of projects in San Mateo County.

4.1 Demographics and Travel Data

The TA conducted an analysis of demographic data to better understand current and future population and employment growth patterns and travel trends. This includes current and future mode share and trip growth, as projected changes could influence program policies.

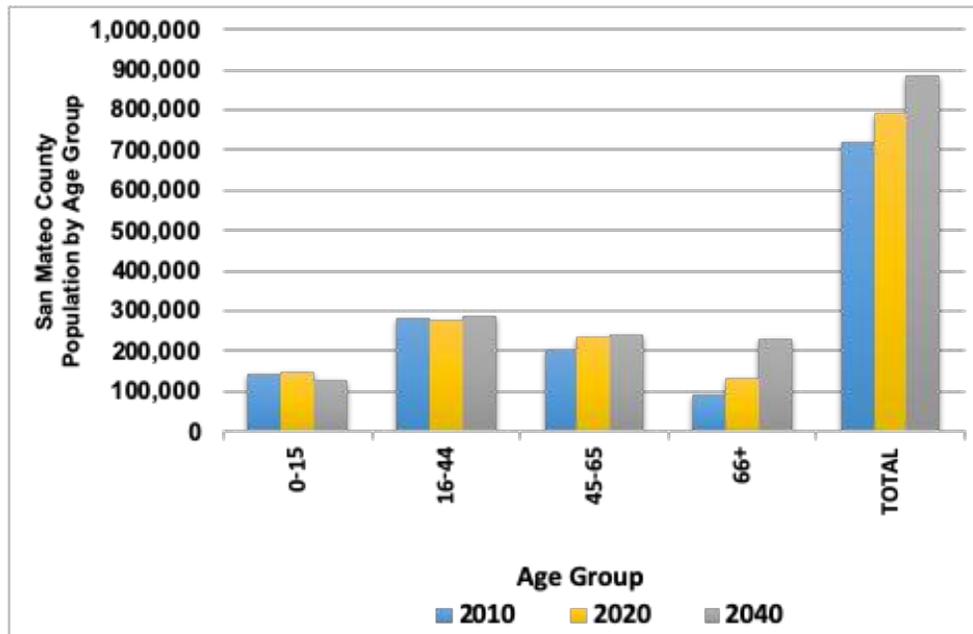
Demographic Trends

According to the State of California Department of Finance, during the last national census in 2010, San Mateo County had 718,454 residents and 331,931 jobs. Between 2010 and 2040, San Mateo County is projected to increase in population by 25 percent with employment increasing by 34 percent.

Population by Age Group

The growth rate for most age groups is not projected to change significantly from 2010 to 2040, with the exception of seniors age 65 and older. The senior population is expected to increase dramatically, from approximately 90,000 to nearly 229,000. This change indicates that there will be growing pressure on transit and accessible services to meet the needs of senior County residents in the next 20 years. **Figure 4-1** illustrates age cohort data derived from the California Department of Finance's Population and Projections database, showing the total number of people by age group.

Figure 4-1: San Mateo County Population Change within Age Groups, 2010-2040



Source: State of California, Department of Finance, Population Data and Projections

Change in Population by Geography

Using the C/CAG Travel Demand Model (2017), it is possible to examine population growth by Traffic Analysis Zones (TAZs) from the calibrated base year of that model (2010) out into the future (2040). Population is largely concentrated along the BART and Caltrain corridors as illustrated in **Figure 4-2** below, which is consistent with the smart growth strategy of encouraging a mode shift from single-occupancy vehicle (SOV) trips to an increase in transit ridership. Between 2020 and 2040, the population of San Mateo County is projected to increase by 91,927 to nearly 900,000 people.

Figure 4-2: Change in Population from 2010 to 2040 for San Mateo County by TAZ



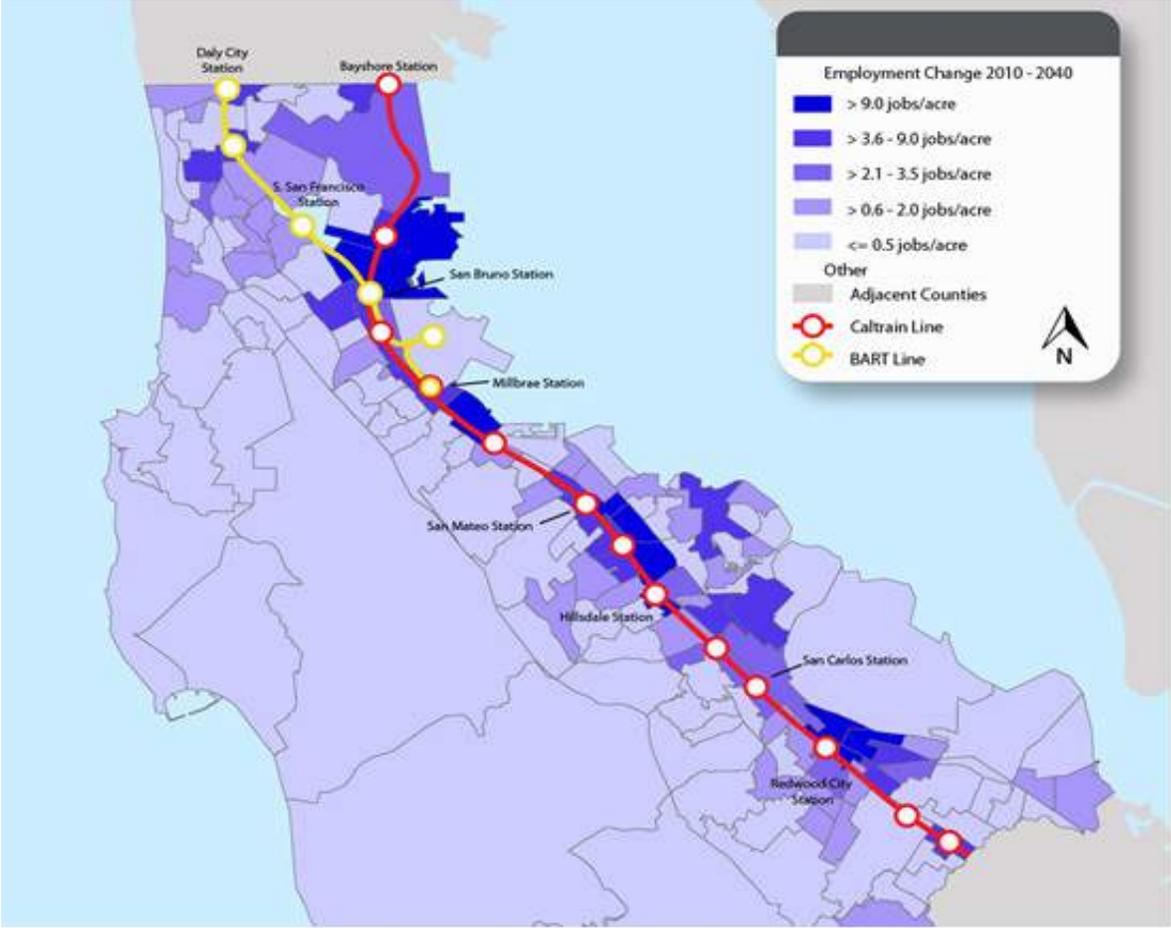
Source: C/CAG Travel Demand Model (2017) CDM Smith

Change in Employment by Geography

Figure 4-3 illustrates the total change in employment growth from 2010 to 2040 by TAZ. Areas with high employment growth are in close proximity to BART and Caltrain stations, which as previously noted, can help encourage mode shift from SOV trips to an increase in transit ridership. A comparison of **Figure 4-2** (population change by geography) and **Figure 4-3** (employment change by geography) shows that several areas around Caltrain stations are projected to have a significant increase in both employment and population.

Population and employment growth projections are derived from the C/CAG Travel Demand Model (2017) which uses data from the U.S. Census (2010) and from by the Association of Bay Area Governments (ABAG), combined with estimates from individual cities, in Planned Development Areas (PDAs) near station areas and anticipated transit-oriented development (TOD). The projected population and employment growth patterns support continued investment in access to Caltrain and BART.

Figure 4-3: Change in Employment from 2010 to 2040 for San Mateo County by TAZ

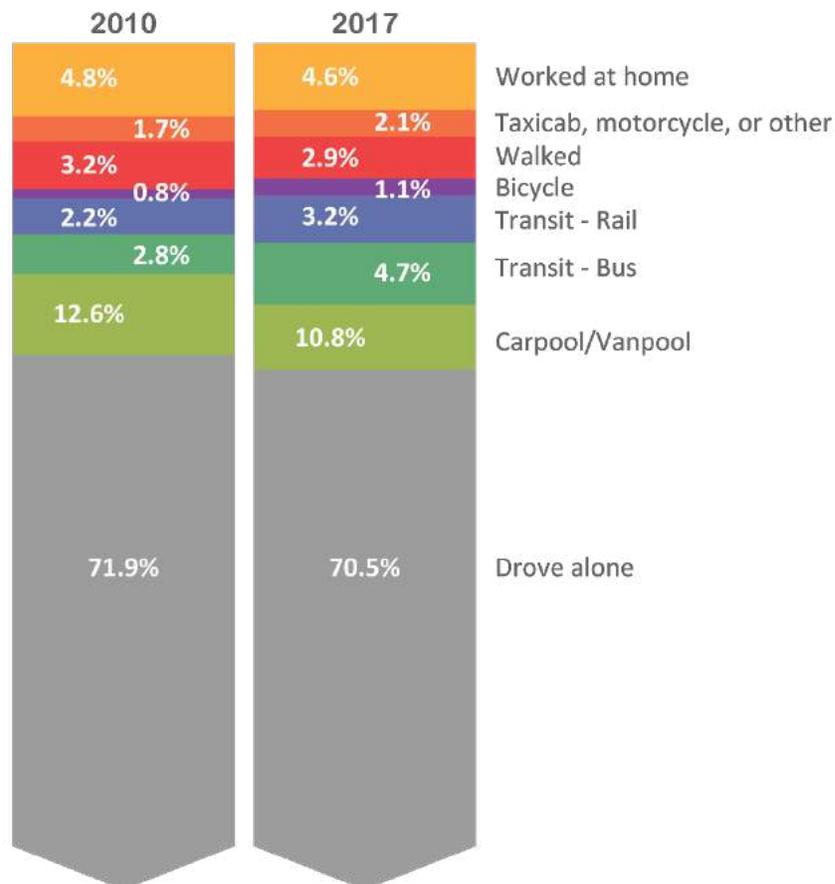


Source: C/CAG Transportation Model with updates from South San Francisco & Brisbane (2017) CDM Smith

Travel Trends

A comparison of the mode share data from the American Community Survey for the years 2010 and 2017 for San Mateo County residents shows that transit mode share (for rail and bus combined) increased from 5 percent in 2010 to 7.9 percent in 2017. Walking mode share decreased from 3.2 percent in 2010 to 2.9 percent in 2017, and bicycle mode share increased from 0.8 percent to 1.1 percent over the same time period. **Figure 4-4** summarizes 2010 and 2017 mode share data for Means of Transportation for Commute to San Mateo County Workplaces in San Mateo County, from the American Community Survey (ACS). Driving alone continues to be the largest mode overall, dominating the mode share with 70.5 percent of 294,388 workers choosing to make solo trips by car, truck, or van. However, the percent of total travel in the drive-alone mode declined slightly during the seven-year period.

Figure 4-4: Means of Transportation for Commute to San Mateo County Workplaces

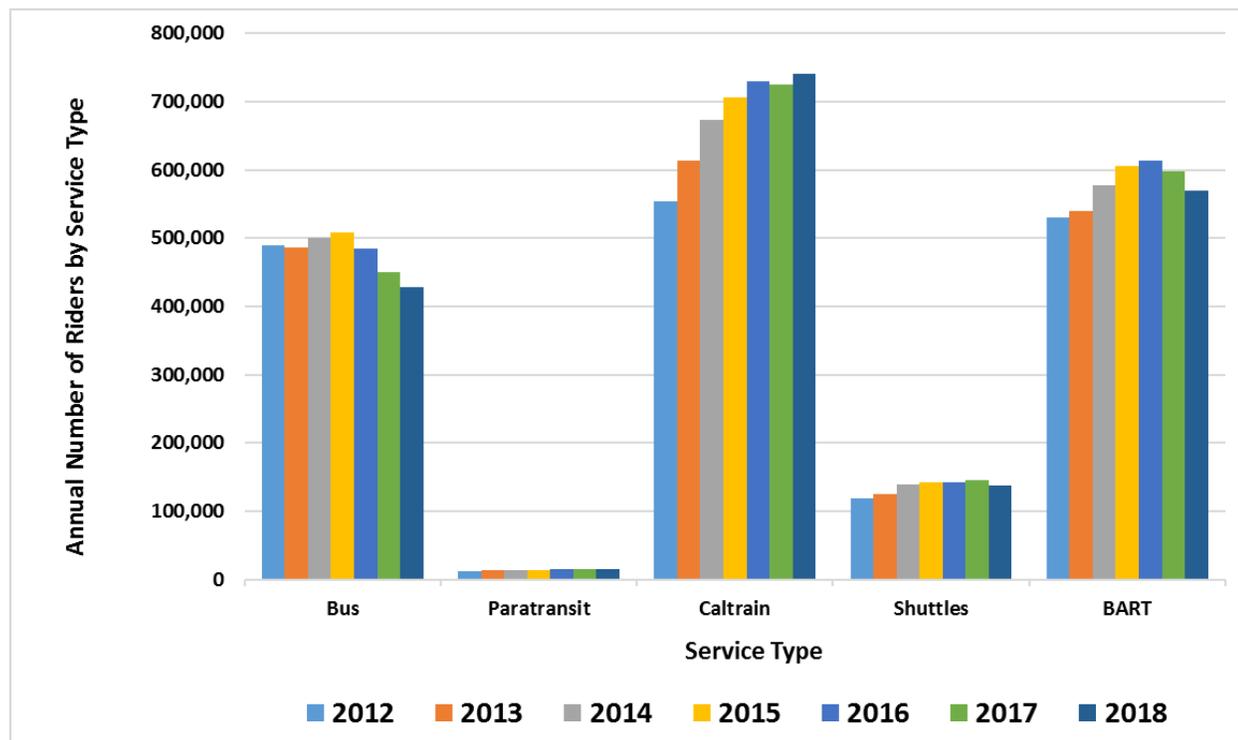


Source: U.S. Census Bureau, American Community Survey (ACS)

Transit Ridership

Figure 4-5 shows the average year-to-date transit ridership data for the years 2012 through 2018, which includes counts for SamTrans bus, paratransit, Caltrain, shuttles, and the BART extension without the Daly City stop; obtained from the San Mateo County Open Data Portal. The data shows that Caltrain has seen significant growth while public bus service and BART have seen some declines in recent years. SamTrans has undertaken an initiative to launch new express bus service to help improve mobility on the County's congested highway corridors and is preparing a Comprehensive Operational Analysis (COA) to analyze each route in the system in the light of changing travel patterns and mobility needs. The goals of the COA include improved customer experience, growing new and more frequent ridership, and improving SamTrans' efficiency and effectiveness as a mobility provider. BART is in the process of acquiring new rolling stock to replace its aging fleet. Shuttles also play a vital transportation role by providing first-/last-mile connections for Caltrain and BART riders.

Figure 4-5: Transit Ridership Growth by Transit Service Type 2012-2018



Source: San Mateo County Open Data Portal - Transit Year-to-Date Ridership

Growth in Travel

According to the San Mateo County Travel Demand Model developed by C/CAG, all work-related trips in San Mateo County are expected to grow by nearly 30 percent from 755,511 trips in 2015 to 981,787 trips in 2040. This number includes people commuting from San Mateo County to other counties, people commuting from other counties into San Mateo County, people commuting through San Mateo County, and people commuting within San Mateo County. Figures 4-6 through 4-8 display the base year (2015) and future (2040) work travel patterns for work trips within San Mateo County, work trips to and from adjacent counties, and work trips to and from counties adjacent to San Mateo County. While there is a significant increase in the number of trips that will be generated, the change in the distribution of those trips is not projected to significantly change, with the exception being trips through San Mateo County. Although this represents a very small share of all the trips, there is over a 30 percent increase in the projected number of trips passing through the County, with a majority headed to the south.

Figure 4-6: Trips to Work by San Mateo County Residents

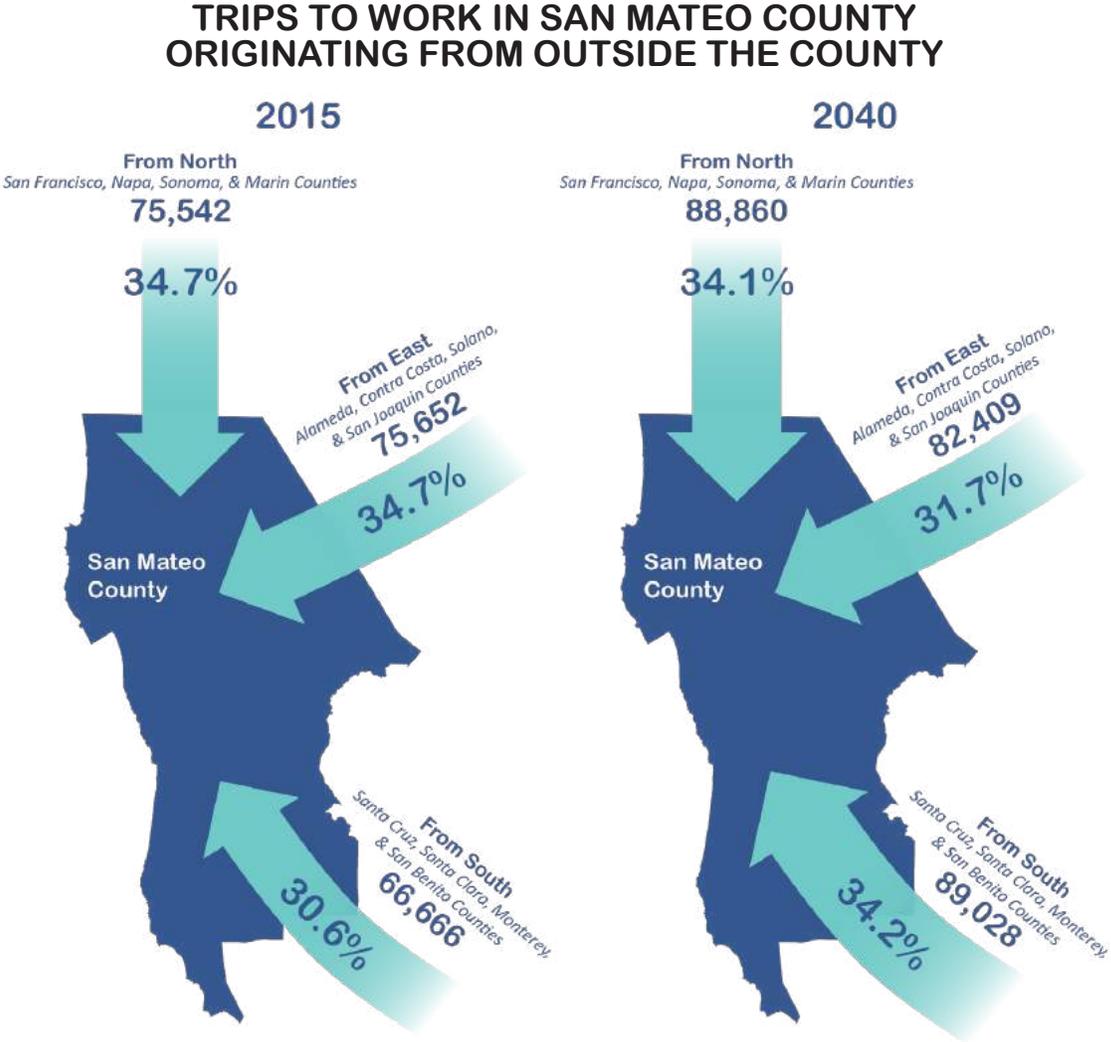
TRIPS TO WORK BY SAN MATEO COUNTY RESIDENTS



Trips to Work by San Mateo County Residents	2015	2040	Increase in Trips	Percent Change
Within San Mateo County	307,957	364,483	+ 56,526	+ 18.4 %
To North	117,859	155,235	+ 37,376	+ 31.7 %
To East	22,937	28,946	+ 6,009	+ 26.2 %
To South	82,989	94,900	+ 11,911	+ 14.4 %
Total Trips	531,742	643,564	+ 111,822	+ 21.03 %

Source: C/CAG Travel Demand Model (2017)

Figure 4-7: Trips to Work in San Mateo County Originating Outside the County

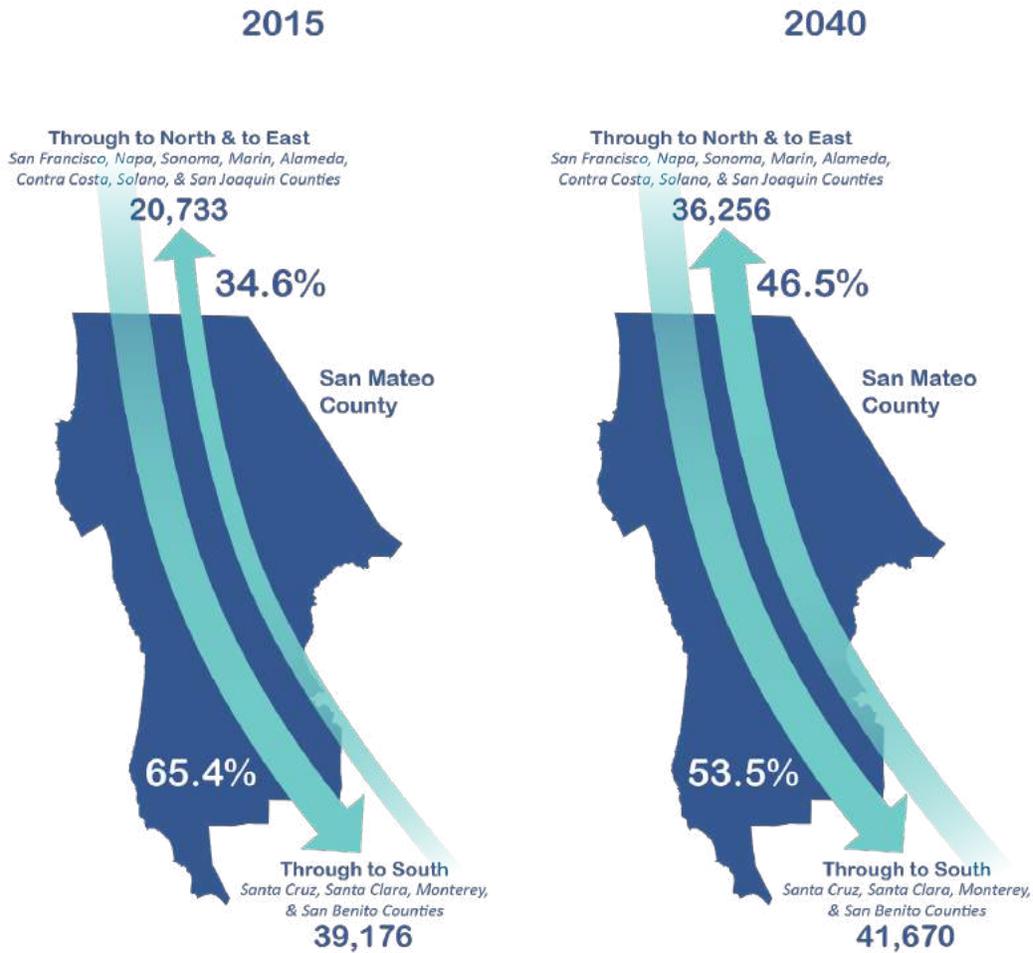


Trips to Work in San Mateo County Originating from Outside the County	2015	2040	Increase in Trips	Percent Change
From North	75,542	88,860	+ 13,318	+17.6 %
From East	75,652	82,409	+ 6,757	+ 8.9 %
From South	66,666	89,028	+ 22,362	+ 33.5 %
Total Trips	217,860	260,297	+ 42,437	+ 19.5 %

Source: C/CAG Travel Demand Model (2017)

Figure 4-8: Trips to Work through San Mateo County

TRIPS TO WORK THROUGH SAN MATEO COUNTY



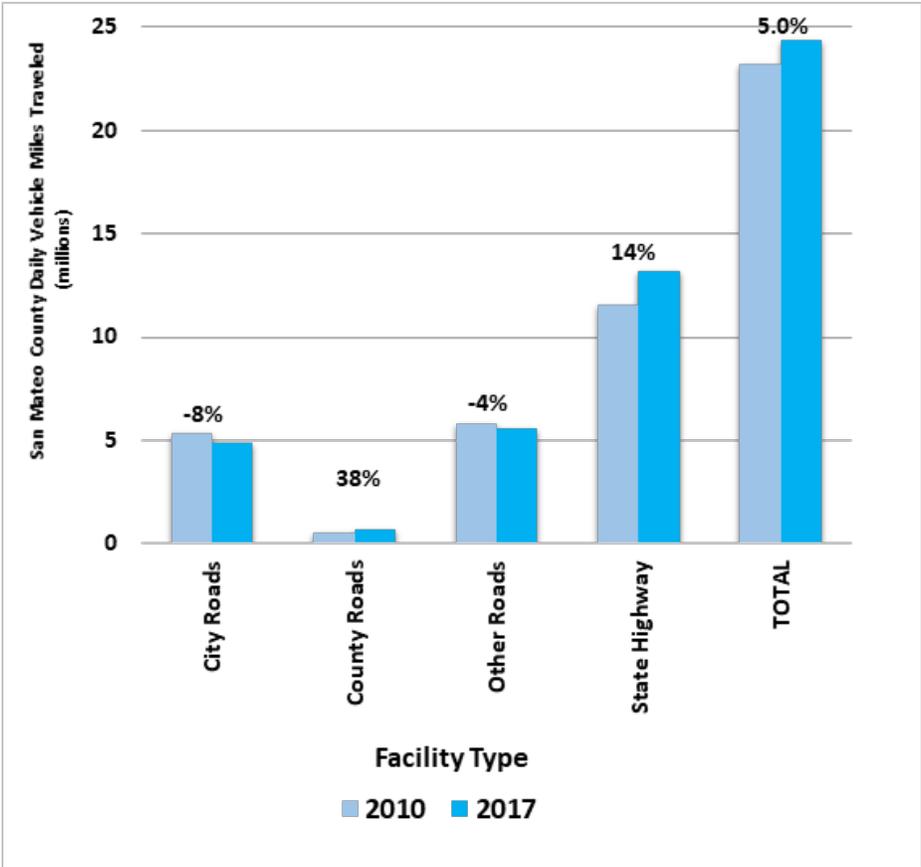
Trips to Work through San Mateo County	2015	2040	Increase in Trips	Percent Change
Through to North & to East	20,733	36,256	+ 15,523	+ 74.9 %
Through to South	39,176	41,670	+ 2,494	+ 6.4 %
Total Trips	59,909	77,926	+ 18,017	+ 30.1 %

Source: C/CAG Travel Demand Model (2017)

Vehicle Miles Traveled in San Mateo County

Daily Vehicle Miles Traveled (VMT) on roadways in San Mateo County were collected from Caltrans' Highway Monitoring System/California Public Road Data (PRD) for the years 2010 and 2017. **Figure 4-9** shows the change in VMT between 2010 and 2017 on roadways within cities in San Mateo County, roadways in the County of San Mateo, other roadways and State of California maintained facilities. There is expected to be an increase of 5% in total VMT within San Mateo County between 2010 and 2017, growing to nearly 25 million daily VMT in 2017. The increase in Caltrans-maintained roads usage compared to all other roadways within San Mateo County suggests an increase in longer distance trips; these trends of increased traffic on Caltrans-maintained roadways are also illustrated in **Figure 4-6** through **Figure 4-8** showing the increase in intercounty travel.

Figure 4-9: Daily Vehicle Miles Traveled in San Mateo County by Road Type



Source: Caltrans Highway Performance Monitoring System / California Public Road Data (PRD)



Emerging Mobility Services

Since the release of the 2014-2019 Strategic Plan, there has been significant growth in new emerging mobility services within the region. Micromobility services such as bike share programs, which have been trending toward dockless e-bike (electric assist) systems, and scooter share programs have become widely adopted in dense urban areas where they are being used for short trips and first-/last-mile connections to and from transit. However, they have struggled to gain traction in suburban San Mateo County, and it is not clear what actual impacts these services will have on overall mode share in the future.

Over the last five years, there has also been a rise in ride-hailing companies such as Uber and Lyft operating rideshare programs and Get Around and Zipcar providing car share services.

These emerging mobility services provide opportunities to reduce SOV trips to access transit and major activity centers. Micromobility services can benefit from the build-out of bikeway networks and encourage greater usage of those facilities. Ride-hailing and car share have the potential to reduce individual auto ownership and make transportation choices more equitable for those who cannot afford a vehicle or are unable to drive themselves.

These relatively new services also present some challenges. There are storage concerns with dockless bike share and scooter share systems, with potential conflicts arising from the blocking of sidewalks and the devices not being used and stored properly. Ride-hailing services have been shown to increase VMT and can compete with transit. However, the potential to reduce VMT and provide better first-/last-mile connections to and from transit may offset the downside of these mobility services.

Autonomous Vehicles

Autonomous vehicle (AV) pilots are currently being tested in locations across the nation and abroad. While mainstream use of AVs is likely well beyond the timeframe of this Plan, they bring their own set of opportunities and challenges, with great potential to impact and alter the built environment within the coming decades. AVs could enable narrower rights of way and travel lanes; influence the form, location, and amount of parking; impact the mobility of pedestrians and bicyclists; and provide opportunities

for redevelopment on excess parking lots and rights of way. Their impact could be similar to that of ride-hailing companies today with regard to increased VMT; however, AVs also have the potential to reduce auto ownership in urban areas through shared on-demand mobility.

Summary of Findings

The review of demographic and travel trends revealed the following findings:

- High growth in the number of seniors (residents age 65 and older) will put increased pressure on the provision of transit and other senior-centric projects and programs.
- The majority of the population and employment growth in the County will occur along the already congested north/south Highway 101 and Caltrain corridors. Providing multimodal solutions with focus on sustainable practices will be critical.
- The use of transit and bicycle modes have increased since 2010, and although the mode share has decreased for SOV trips it continues to be by far the largest share. This suggests a balanced approach to transportation investment will be needed.
- VMT analysis of roadways in San Mateo County and the growth in travel demand in the County, shows that more strain will be put on an already constrained network of Caltrans-maintained facilities (as shown in **Figures 4-5** through **4-8**). Future transportation projects will need to emphasize person throughput to mitigate traffic congestion.
- There is an increase in the number and type of rapidly evolving new emerging mobility services (from bike share to autonomous vehicles), which bring opportunities that can be transformative in the reduction of SOV trips and challenges as well, potentially being disruptive without proper policy guidance in place.

4.2 Related Plan Linkages and Ongoing Planning Efforts

There are a number of recently completed or on-going transportation planning efforts in San Mateo County that were examined during the development of the Strategic Plan to help inform the tasks in the Plan development process, including the

development of evaluation criteria and the project selection process. Many of these plans were initiated to address some of the same issues that were identified under the Measure W Get Us Moving San Mateo County process in 2018 (e.g. countywide congestion relief) and they were developed to help define the future transportation network in the county.

Plan Bay Area 2040 (2017):

Plan Bay Area 2040 is a state-mandated, integrated long-range transportation and land use plan. As required by Senate Bill 375, all metropolitan regions in California must complete a Sustainable Communities Strategy (SCS) as part of a Regional Transportation Plan. In the Bay Area, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) are jointly responsible for developing and adopting a SCS that integrates transportation, land use and housing to meet greenhouse gas reduction targets set by the California Air Resources Board (CARB).

As part of Plan Bay Area 2040, MTC and ABAG conducted extensive outreach to both regional stakeholders and the general public. After receiving feedback from stakeholders and the public, MTC and the ABAG Executive Board established seven goals and 13 performance targets to measure Plan Bay Area 2040's effectiveness in addressing the major challenges facing the region.

Many of the goals and targets are in-line with the existing Measure A goals, the new Measure W Core Principles and the criteria that were born out of the outreach efforts conducted for the Strategic Plan. These include but are not limited to the following

- Goal: Climate Protection
 - Target: Reduce per-capita CO₂ emissions
- Goal: Transportation System Effectiveness
 - Target: Increase non-auto mode share
 - Target: Reduce vehicle operating and maintenance costs due to pavement conditions
 - Reduce per-rider transit delay due to aged infrastructure
- Goal: Economic Vitality
 - Increase share of jobs accessible in congested conditions

San Mateo Countywide Transportation Plan 2040 (2017):

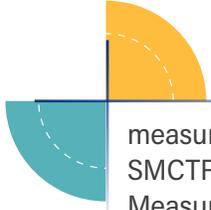
The San Mateo Countywide Transportation Plan for 2040 (SMCTP 2040), prepared by the City and County Association of Governments of San Mateo County (C/CAG), was conceived by San Mateo County leaders as a way to provide the county with a long-range, comprehensive transportation planning document that sets forth a coordinated planning framework and establishes a systematic transportation planning process for identifying and resolving transportation issues. SMCTP 2040 is intended to articulate clear transportation planning objectives and policies and to promote consistency and compatibility among all transportation plans and programs within the county.

SMCTP 2040 created a central vision statement, and then identified 11 categories where more specific vision statements, goals and objectives could be developed to provide a framework for decision making to help guide countywide transportation investment for the next two decades. The following eight categories have ties to the goals that were developed for Measure A and Measure W's core principles: Land Use & Transportation, Roadway System, Bicycles, Pedestrians, Public Transportation, Transportation System Management and Intelligent Transportation System (ITS), Transportation Demand Management (TDM), and Modal Connectivity.

San Mateo Countywide Transportation Plan 2040 Follow Up Action Plan (2018):

The San Mateo Countywide Transportation Plan 2040 (SMCTP 2040) Follow-Up Action Plan process was initiated by a list of next steps developed to ensure the SMCTP 2040 would be implemented appropriately. The SMCTP 2040 Follow-Up Working Group was formed to guide the development of the Follow-Up Action Plan. The Follow-Up Action Plan is a living document intended to guide C/CAG staff, its member agencies, and stakeholders to implement the SMCTP 2040. The Follow-Up Action Plan Priorities are the primary keys to ensuring the vision, goals, and objectives of the SMCTP 2040 are met.

As part of the SMCTP 2040 Follow-Up Action Plan, a Performance Measures Matrix was developed that identifies whether the objectives that are tied to the categories that were developed in the SMCTP 2040 apply to the long- short- or near-term, which mode they apply to and what the specific performance



measure or target is for that category. Just like in the SMCTP 2040, there are categories in the Performance Measures Matrix that have ties to the goals that were developed for Measure A and Measure W's Core Principles; those include: Land Use, Roadway System, Bicycles, Pedestrians, Public Transportation, Transportation System Management and ITS, TDM, and Modal Connectivity.

Caltrain Business Plan (2020):

This plan is a comprehensive effort currently being undertaken by the Peninsula Corridor Joint Powers Board (JPB) to develop a long-term service vision for Caltrain. Through a substantial planning process, the Business Plan has addressed the future potential of Caltrain rail service over the next 20-30 years by assessing the benefits, impacts, and costs of different long-term service scenarios. In October 2018, the JPB adopted a long-term service vision; it calls for a minimum of eight trains per direction per hour during the commute hours (up from the current five), as well as increased off-peak and weekend services by 2040. This increased frequency, paired with longer trains, is anticipated to massively expand capacity to nearly 180,000 riders per day (up from the current 63,000) by 2040. In spring 2020, the JPB is anticipated to adopt the full Caltrain Business Plan, which will provide additional information about the long-term service vision, build the case for investment, and outline an implementation plan.

Caltrain has 14 stations in San Mateo County and 30 at-grade crossings of streets, all of which could be candidates for grade separation-related improvements. Although the Caltrain Business Plan does not provide recommendations regarding the priority of at-grade crossings to be grade separated, the JPB will embark on a study that prioritizes grade separations on the Caltrain Corridor after its completion. This subsequent work effort will have a direct influence on the competitive Measure W Grade Separation Program.

Dumbarton Transportation Corridor Study (2017):

The 2017 Dumbarton Transportation Corridor Study (DTCS), prepared by the San Mateo County Transit District (District), is a feasibility study that evaluated potential multimodal transportation improvements within the Dumbarton Corridor in the South San Francisco Bay Area. The Dumbarton Corridor is a critical connector between residential

neighborhoods in the East Bay and job centers on the San Francisco Peninsula. The Study recommended a re-established rail corridor and expanded bus service across the Dumbarton Highway Bridge (SR 84). The DTCS considered a variety of short and long term improvements that were evaluated against a set of performance criteria established under key project goals. There are parallels that can be drawn from the goals and criteria in the DTCS and the Measure A Goals, Measure W Core Principles and the evaluation criteria that have been developed in this Strategic Plan. Key goals listed in the DTCS include: enhancing mobility, with an emphasis on capacity and throughput; cost effectiveness; consideration of environmental impacts, financial risk and safety; and protecting local communities from adverse impacts, considering low income and minorities.

Alternatives developed as part of the DTCS, and a subsequent work effort currently underway to further explore options to enhance mobility options along the Dumbarton Rail Corridor, may be eligible to compete for funding in the Measure A and W Highway Program category and the Measure W Regional Transit Connections Program category.

US-101 Express Bus Feasibility Study (2018):

The SamTrans US-101 Express Bus Feasibility Study explored the role express buses can play in providing mobility options on US-101 and adjacent roadways like I-280 that strengthen connectivity to jobs and housing hubs throughout the region. Together with other improvements and TDM initiatives, the implementation of viable, time-competitive public transit options on US-101 has the potential to help meet the region's future transportation demands. The study examined the financial and operational feasibility of a network of long-distance express buses operating on US-101 through San Mateo County, potentially integrated with managed lanes that provide access to high-occupancy vehicles. The study recommended up to six routes implemented over three phases that were in alignment with the study goals that included: provide mobility options for regional trips, increase transit market share, develop cost effective service, transportation equity, enhance access to jobs and population centers, and support sustainable land use and transportation policies. These goals are also consistent with the evaluation criteria developed in the Measure W Regional Transit Connections Program category.

SamTrans launched its new express bus route, the FCX from Foster City to San Francisco, in August 2019. The agency is exploring launching additional routes, which may be eligible for funding in the Measure W Regional Transit Connections Program category, over the coming years.

US-101 Mobility Action Plan (Ongoing):

US-101 is a key component of the transportation network connecting communities in San Francisco, the Peninsula, and the South Bay. US-101 is one of the most economically important corridors in California, as well as a near neighbor to more than 640,000 residents. The MAP is a multi-county effort to develop programs and policies intended to maximize the benefits of planned infrastructure projects and address disproportionate impacts on low-income and/or highway adjacent communities. The outcome of the MAP will include a comprehensive set of near-term, policy and transportation demand management (TDM) concepts, with a focus on equity, that have the potential to maximize the benefits of planned infrastructure projects. TDM programs may include transit subsidies, carpool programs, improved bicycle connections, and other incentives or disincentives, seek to reduce travel demand of single-occupancy vehicles or to redistribute this demand to off-peak travel times.

Goals and performance metrics have been proposed to evaluate proposed MAP TDM strategies that include: reliability, in terms of peak travel time consistency, percent of time Express Lanes operate at 45 miles per hour or greater, on-time performance for transit and perceived travel time reliability; prioritizing high capacity mobility, considering person throughput, vehicle occupancy and transit ridership on parallel corridors; and fostering healthy and sustainable communities, factoring collisions, bicycle and pedestrian mode share, asthma rates and traffic density. The MAP Goals are consistent with the Measure A Goals, Measure W Core Principles and are oriented toward similar outcomes as the evaluation criteria developed for many of the competitive comparable programs in the TA Strategic Plan. The MAP will serve as a point of input in the subsequent Strategic Plan initiative to prepare an Alternative Congestion Relief/TDM Plan that will provide further direction for the allocation of funding in the Measure A Alternative Congestion Relief Program Category and the Measure W TDM subcategory

of the Countywide Highway Congestion Relief Improvements Program category.

4.3 Best Practices in Funding from Peer Agencies

To gain a better understanding of best practices in transportation funding programs, the TA conducted interviews with eight peer agencies with an extensive history of administering funding programs:

- Alameda County Transportation Commission (Alameda CTC)
- San Francisco County Transportation Authority (SFCTA)
- Santa Clara County Valley Transportation Authority (VTA)
- Transportation Authority of Marin (TAM)
- Metropolitan Transportation Commission (MTC)
- San Diego Association of Governments (SANDAG)
- Puget Sound Regional Council (PSRC)
- Seattle Department of Transportation (SDOT)

The interviews took place in the Spring of 2019, most of them over the phone, with a staff member from each respective agency. The following section describes the key takeaways from the interviews.

Funding Sources

The peer agencies were found to use a variety of funding sources for competitive transportation projects in their respective areas. Most of the agencies interviewed funded programs through a local half-cent sales tax measure that goes toward funding various capital, operational, and planning-related transportation projects. Some of the other agencies (e.g., PSRC) work as a pass-through agency for federal monies through the Federal Highway Administration and the Federal Transit Administration. MTC distributes funds to agencies throughout the nine-county Bay Area region that are derived from a variety of sources, including Regional Measures 2 and 3 (RM2 and RM3), which collect tolls from the region's bridges. Peer agencies found that opportunities to leverage external funds are maximized when agency goals and strategies were aligned; much like the TA's Measure A Vision and Goals and Measure W Core Principles align with peer agencies in the region (C/CAG and MTC).



Transparency

One of the major takeaways from the interviews was the importance of transparency in the project selection process. Agencies noted that they have seen the most success when they identify or prioritize projects early on (e.g., in an Expenditure Plan or through Visioning and Principles), which limits the need for competitive selection. By limiting the competitive selection process though, these agencies find themselves in a less flexible situation should a new transformative project come up after the Expenditure Plan has been finalized. When competitive selections are needed, the peer agencies said that developing appropriate evaluation criteria is key, using a collaborative effort with the respective boards and sponsors to develop detailed scoring matrices so the results of the process can be easily understood and supported.

The peer agencies also made note of the importance of informing their Boards and the public about the uncertainties that are involved in the process, such as when revenue does not meet the projections and what that may mean for the projects in a region. They also pointed out that having flexibility built into the programs may help sponsors better deliver more projects, with a set of both committed and uncommitted funds in each project category. However, if there is too much flexibility, without funding commitments, then agencies run the risk of not being able to finish the projects they have started to fund.

Equity

Equity was another topic raised by the peer agencies, both geographic and socioeconomic. Urban areas tend to receive more funding than rural areas, but by dividing local infrastructure funds (local streets and roads) by formula, each agency that is funded gets more discretion on how the funds will be spent. To address the socioeconomic inequities in funding, some agencies set aside additional points for projects that happen within specifically designated areas, such as Communities-of-Concern as is the practice of both SANDAG and MTC. Additionally, competitive projects can be assigned more points through specific equity criteria.

This Strategic Plan incorporates issues of equity using a variety of methods. Distribution of the Measure A Local Streets and Transportation and the Measure W

Local Investment Share program categories are by formula throughout the County, ensuring a relative equitable distribution of funding based on population and road miles. As noted in **Section 6.3**, the TA should take into consideration geographic and social equity to try and achieve an equitable distribution of investments.

Technical Assistance

Finally, the peer agencies provide different levels of technical assistance for local agencies that apply for funding. Similar to the TA, many of the peer agencies provided debriefs for agencies whose projects are not selected.

The TA currently provides technical assistance to highway program sponsors on a request basis and will consider expanding technical assistance efforts as noted in **Section 6.1**.

Key Takeaways

The key takeaways from the peer review process include:

- Most peer agencies make long-term commitments per their Expenditure Plans and lead the implementation of those plans
- The agencies have competitive calls for some programs but not to the extent of the TA, which leaves those agencies with somewhat less flexibility for project implementation
- Opportunities to leverage external funds are maximized when peer agency goals and strategies are aligned
- The TA's goals and principles align well with those in other regional transportation plans such as C/ CAG's Countywide Transportation Plan and MTC's Plan Bay Area

4.4 A Financial Look-ahead

Table 4-1 shows projected annual revenue on an annual basis through the 2020-2024 five-year timeframe of this Strategic Plan, and collected funding yet to be committed to projects, with projected new revenue from January 2019 through December 2033 (15 years) for Measure A program categories. It also shows projected revenue from July 2019 through June 2049 (30 years) for the Measure W program categories that the TA is tasked with administering.

Table 4-1: Funds Available Comparison between Measure A and Measure W Program Categories (in 2019 dollars)

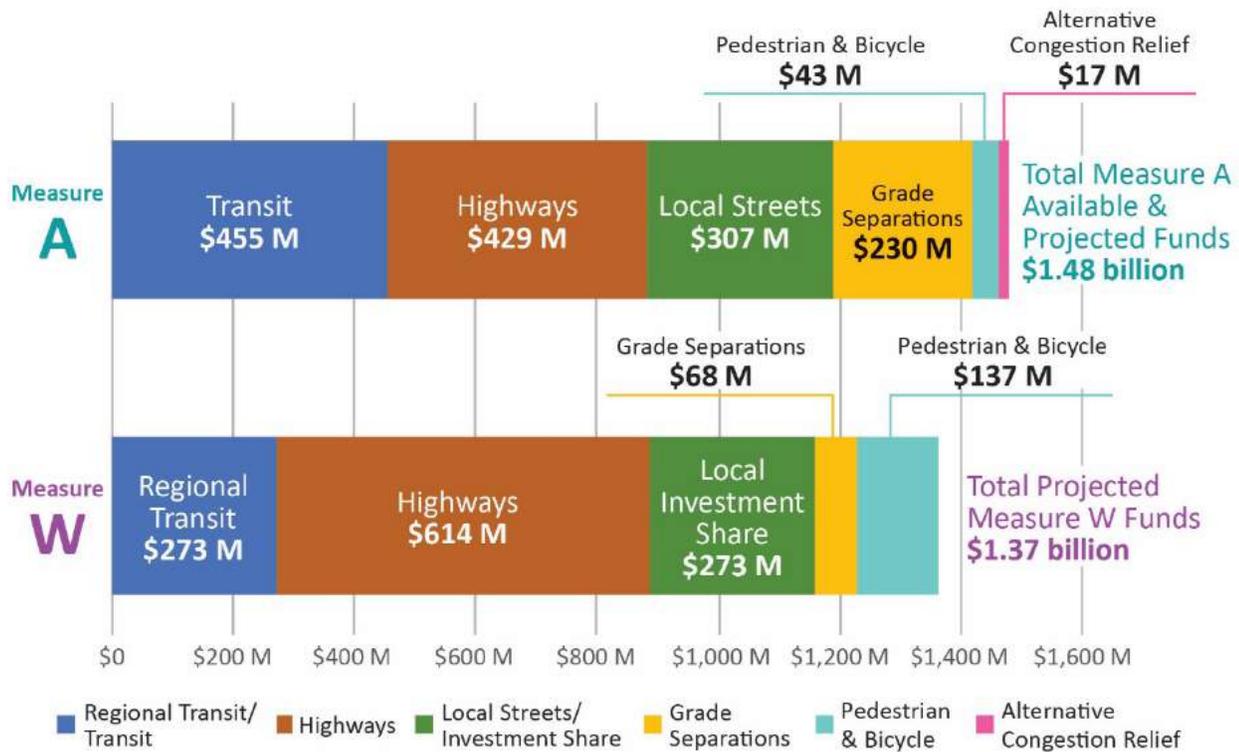
Projected Funding Estimated to be Available for the Measure A and W Program Categories (in 2019 dollars)						
Measure A			Measure W			Measure A & W Comparable Category Total Projections
Program Categories	Projected Total Remaining Measure A Funding ¹		Program Categories	Projected Measure W Funding ²		
	Annual	2020-2024		Remaining 15 years	Annual	
				30 year Measure timeframe		
Transit: (30%), see subcategories below	\$27,300,000	\$136,500,000	\$455,343,000	No comparable Measure W category		
Caltrain: 16%	\$14,560,000	\$72,800,000	\$249,448,000			
Local Shuttles: 4%	\$3,640,000	\$18,200,000	\$49,262,000			
Accessible Services: 4%	\$3,640,000	\$18,200,000	\$53,156,000			
Ferry: 2%	\$1,820,000	\$9,100,000	\$33,820,000			
Dumbarton Rail Corridor: 2%	\$1,820,000	\$9,100,000	\$42,357,000			
BART w/in San Mateo County: 2%	\$1,820,000	\$9,100,000	\$27,300,000			
No comparable Measure A category				Regional Transit Connections (10%)	\$9,100,000	\$273,000,000
Highways: 27.5%	\$25,025,000	\$125,125,000	\$428,810,000	Countywide Highway Congestion - 22.5%	\$20,475,000	\$614,250,000
Local Streets & Transportation: 22.5%	\$20,475,000	\$102,375,000	\$307,125,000	Local Safety, Pothole & Congestion Relief - 10%	\$9,100,000	\$273,000,000
Grade Separations: 15%	\$13,650,000	\$68,250,000	\$230,365,000	Grade Separations - 2.5%	\$2,275,000	\$68,250,000
Pedestrian & Bicycle: 3%	\$2,730,000	\$13,650,000	\$42,591,000	Bicycle & Pedestrian - 5%	\$4,550,000	\$136,500,000
Alternative Congestion Relief: 1%	\$910,000	\$4,550,000	\$16,670,000	No comparable Measure W category	\$0	\$0
Projected Total Funds Available:	\$90,090,000	\$450,450,000	\$1,480,904,000		\$45,500,000	\$1,365,000,000

Notes:

1) Projected Total Remaining Measure A Funding includes collected revenue yet to be committed to projects as of CY 2018 and revenue projected to be collected (\$91M annually) from CY 2019 through CY 2033.

2) Projected Measure W Funding assumes \$91M annually collected from July 2019 through June 2049.

Figure 4-10: Total Available and Projected Measure A Funds and TA-Administered Measure W Funds for Programs and Projects



Measure A and Measure W Financial Outlook (Projected Revenue versus Needs)

While Measure W brings a significant infusion of funding to support transportation programs and projects, additional resources will be needed to leverage TA-administered programs to bridge the funding gap and meet projected needs. Leveraging Measure A and W funding with other local, state, and federal funds and private sector contributions and partnerships is essential to maximize the delivery of transportation programs and projects. **Figure 4-10** displays projected available funding through the remaining life of Measure A and W based on a wish list of needs prepared as part of the GUM process.

Figure 4-11 below illustrates the current projected shortfall for the comparable Measure A and W competitive program categories and the Measure W Regional Transit Connections Program category based on order of magnitude project cost estimates prepared by local jurisdictions as part of the GUM needs analysis. The projected needs represent a snapshot in time and do not reflect funding commitments. Projected revenue depicted in this graphic is based on the Measures A and W estimates as shown in **Table 4-1**.

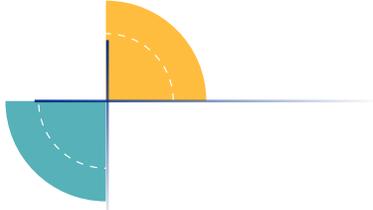
Figure 4-11: Projected Revenue versus Funding Needs



Notes:

1) Projected Revenue for the life of Measure A and Measure W as noted in Table 4-1

2) Unfunded Needs based on order of magnitude cost estimates from Get Us Moving (GUM) Project Needs less projected revenue



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The Strategic Plan development process and stakeholder and public outreach efforts helped determine that the TA's current processes for project selection and project initiation and implementation generally work well. Project sponsors appreciate the flexibility of the program's project delivery. The primary challenge in developing the Plan was the stakeholders' desire to blend the project selection processes for the comparable competitive Measure A and Measure W programs into a single common process. It was also clear, from a legal standpoint and from the viewpoint of the stakeholders, that the common selection processes would need to fully comply with the distinct legislated differences between the comparable competitive programs and respect the 11 Core Principles of Measure W while addressing the Vision, Goals, and supporting objectives of Measure A.

Other program-wide and category specific challenges and opportunities were also identified, which are discussed in more detail in the following sections.

5.1 Measure A and Measure W Program-wide Challenges/Opportunities and Recommendations

The Strategic Plan development process identified three main program-wide challenges/opportunities which are presented in the following section along with recommendations to address those challenges/opportunities:

Challenge/Opportunity 1 - Project Selection

There is a fair amount of commonality between the two measures, especially for these comparable competitive programs: the Measure A Highways Program category and Measure W Countywide Highway Congestion Improvements Program category, the Measure A Pedestrian and Bicycle program category and Measure W Bicycle and Pedestrian Improvements Program category, and the Measure A Grade Separations program category and the grade separation portion of the Measure W Local Safety, Pothole & Congestion Relief Improvements Program category. The opportunity

exists, for purposes of efficiency, to consider shared project selection processes for the common competitive programs. Despite the similarities, there are differences between the measures that funding allocation decisions must respect.

The Measure W Core Principles build upon and expand the Measure A Goals and Vision with modern concepts that take a broader view of the integral relationship between transportation and quality of life, as well as themes that were not as prevalent during the reauthorization of Measure A. Concepts within the Measure W Core Principles, such as public health, planning for climate change, and performance-based metrics to encourage a reduction in SOV trips were not specified in the Measure A Expenditure Plan.

In turn, the Measure W Core Principles either do not address or assign the same level of significance to project readiness and funding leverage, which have been part of the Measure A competitive selection processes. Project readiness is not specifically identified in the Measure A Expenditure Plan, yet it is prevalent in the selection processes that the TA has developed for the administration of Measure A as a matter of good business practice to prioritize projects that are the most ready for implementation. While both measures promote the leveraging of external funding sources, the outcome of the process used in this Strategic Plan development process to weight the Core Principles and assign point values to evaluation criteria, as explained in **Section 3.3**, did not fully capture the importance of leveraging constrained TA resources.

Another key difference between the two measures is that the Measure W Congestion Relief Plan generally provides a greater degree of flexibility than the Measure A Expenditure Plan. For example, Measure A explicitly identifies eligible sponsors, while the determination of eligible Measure W sponsors will be established through the development of the TA Strategic Plan. **Table 5-1** illustrates a few key legislated differences between the measures that must be respected for the comparable competitive highway and pedestrian and bicycle programs.

Table 5-1: Key Legislated Differences between the Measures for the Comparable Competitive Programs

Measure A	Measure W
Highways	Countywide Highway Congestion Improvements
Per the Expenditure Plan, there are two distinct funding components for capital projects: <ul style="list-style-type: none"> Key Congested Areas (63% of Highway program funds) – 11 different identified projects within 5 geographic highway corridors Supplemental Roadways (37% of highway program funds) – A partial list of candidate projects critical for congestion reduction is provided but additional projects may also be submitted for consideration 	No stated distinction between capital funding components in the Congestion Relief
Funding for TDM is not an eligible activity	TDM on the highway system is an eligible activity
Pedestrian and bicycle facilities may be included as part of highway projects but must be part of the same roadway structure. Separate pedestrian/bicycle overcrossings are not eligible	Separate bicycle and pedestrian overcrossings that are part of a highway interchange project are eligible project components
Pedestrian & Bicycle	Bicycle & Pedestrian
Funding for capital facilities only	Funding not limited to capital facilities and can include city/area-wide pedestrian/bicycle master plans, and promotion of active transportation, including safe routes to school education and encouragement programs

For purposes of efficiency and to maximize the mutually beneficial qualities of both programs, it is desirable to incorporate project selection considerations of the Measure A and Measure W comparable competitive program categories into a single project selection process that addresses Measure A's Goals and Vision, the best business practices that are still applicable today, and the Measure W Core Principles.

Recommendation: A common selection process should be employed for the competitive comparable Highway and the Pedestrian/Bicycle Program categories.

An initial key step for this Plan has been to engage the TA's stakeholder groups in exercises, and in-person discussions to develop a basis for the development of a consolidated project evaluation and rating processes for the comparable competitive programs. The common selection process for the competitive comparable program categories will need to respect the Core Principles of Measure W, the Goals and Vision of Measure A, and the legislated differences between the measures.

Challenge/Opportunity 2 – Project Delivery and Technical Assistance

Project delivery and coordination may be impacted by sponsor resources, expertise and funding. Through input obtained during the Plan development process, the TAG members, which primarily consist of the TA's existing Measure A sponsors, mentioned that they have limited resources and technical expertise delivering large regional highway projects that generate congestion well beyond individual city boundaries. Significant benefits may be realized targeting projects that reduce regional congestion, which can also improve mobility on local roads and the quality of life in the surrounding neighborhoods and communities.

TAG members expressed strong support for the TA to expand its role by:

- Becoming a proactive sponsor and technical lead in the delivery of highway projects of countywide significance that can significantly relieve congestion.

- Expanding its role as provider of technical assistance, as resources permit to aid in the delivery of local sponsor projects.

Recommendation: To further improve project delivery, the TA should:

- Be proactive in identifying and sponsoring highway projects of countywide significance, while striking a balance with local needs. These projects and the amount of funding to be set aside for them should be addressed as part of the Short Range Highway Plan (SRHP) Update and the accompanying Capital Improvement Program (CIP) to fully assess current highway program needs.
- Consider expanding its role as resources permit, recognizing its own contract capacity, to help its sponsors advance project delivery. This can include any of the following actions:
 - Offer technical assistance to sponsors, not limited to the highway program, through its on-call bench of consultants;
 - Utilize consultant services to offer Complete Streets and other best practice workshops;
 - Temporarily offer consultant services on request, when informed by sponsors of staff vacancies, to keep projects moving and minimize delay;
 - Contracting with consultants to help sponsors obtain grant funds from external sources to better leverage Measure A and Measure W funds in addition to funding from their own local sources.

Challenge/Opportunity 3 – Assessment of Performance-based Evaluation Criteria for the Comparable Competitive Program Categories and the Measure W Regional Transit Connections Program Category

When reviewing competing projects within a given funding category, it is often difficult to make a judgment as to which projects are the most deserving of funding and which projects should not receive funding. There is a need to provide for a more definitive, and when feasible, quantitative assessment of how a project may fare with regard to meeting evaluation criteria. However, there is also the reality that many project sponsors, particularly if a project is in the early stages of development, may not be able to provide the information needed to support the meaningful use of quantitative criteria. For

example, the Measure W Core Principle, “Facilitate the reduction of vehicle miles traveled (VMT), travel times and greenhouse gas emissions” is a specific performance-oriented Principle, which lends itself to quantitative analysis. However, it is unlikely at the initial conceptualization of a project that the project sponsor will have access to the data needed to calculate these metrics. The type of quantitative information needed typically becomes available when a project has reached the completion of the environmental phase of work.

There was a significant effort involving TA staff and SAG/TAG members in the Plan development process to identify evaluation criteria to be used in the project selection process for the comparable competitive funding categories and the Measure W Regional Transit Connections category. Many of these criteria are performance based and ideally would be the subject of a quantitative analysis. The lack of available support data may result in the need to provide more of a qualitative assessment for some of these criteria

There also is a need to assess how well the TA is meeting the Measure A Goals and Vision and Measure W Core Principles with the projects and programs that it is funding. This provides some of the justification for Initiative #10 in **Section 8**.

Recommendation: When quantitative information is not available, sponsors should provide a qualitative response to address performance-based criteria. The project evaluation process should strive to provide methods to use data sources that are readily available to allow a simplified initial assessment of performance for the quantifiable performance criteria. Projects that have reached the environmental phase should be subject to a more rigorous qualitative evaluation of performance. The process established under the Measure A Highway Program that provides greater weight on evaluation criteria under the thematic area of **Need** for projects that have yet to be environmentally and less weight for **Effectiveness** should be continued for large capital programs that go through a Call for Projects process, as further outlined in **Section 6.5**.

It is equally important to periodically assess whether the programs and projects that the TA funds are effectively meeting Measure A Goals and Vision and



Measure W Core Principles, as laid out in initiative #10 in **Section 8**. Information obtained from periodically assessing performance can be used to inform future investment decisions.

5.2 Category-specific Challenges/ Opportunities and Recommendations

The Strategic Plan development process also identified several category specific challenges/ opportunities which are presented in the following section, along with recommendations to address the identifies challenges/opportunities:

Challenge/Opportunity 1 - Countywide Highway Congestion Improvements

There is a shortfall of projected Measure A and W funds to meet Highway Program needs as identified through the process described in **Section 4.4**. There is a need to balance the delivery of projects already in the funding pipeline with new projects to be selected for funding.

The Short Range Highway Plan 2011-2021 (SRHP) was the inaugural New Measure A document that provided guidance for making funding decisions within the Measure A Highway Program category. The TA at its September 2017 Board of Directors meeting recognized the funding shortfall that was known at that time and adopted policy revisions to the Highway Program project selection process that resulted in focusing the remaining Measure A Highway Program category funds on completing projects that have received previous funding allocations. The TA established a list of Highway Program Pipeline Projects in 2015, and, as part of Highway Program policy revisions approved in 2017, shifted the focus of the Call for Projects process to complete the Pipeline Projects. Pipeline projects are projects which are top priorities for the agency due to the need to complete work already started. A list of the Highway Pipeline Projects can be found in **Appendix B**. There has been substantial progress made funding many of the Pipeline Projects with roughly half of them being fully funded, including a few that have been completed. A few other projects were rescinded by sponsors and the remaining half are still in need of additional funding. Measure W brings a significant amount of additional funding for highways. With past progress made on many of the Measure A Pipeline Projects, an opportunity exists to

assess current projected needs and develop policy guidance for the expenditure of Measure W Highway Program category funds.

Measure W offers greater flexibility and opportunity in that it can fund Countywide TDM efforts to promote non-SOV trips and greater person throughput on the County's highway system. The Countywide TDM/ Commute Alternatives Program is listed as a sample candidate project within the Measure W Highway Program.

Recommendation: Update the existing SRHP and prepare a new CIP to assist in long-term policy guidance and financial planning for highway projects. The TA developed a Highway CIP based on a recommendation for the previous Strategic Plan Update and it is now appropriate and timely to create a new CIP that will incorporate projected funding from Measure W. A new subcategory for TDM/Commute Alternatives within the Measure W Highway Program should be created. The development of guidelines for this new subcategory should be coordinated with the development of the Alternative Congestion Relief/TDM Plan that is to be prepared for the Measure A Alternative Congestive Relief Program.

Challenge/Opportunity 2 - Bicycle/Pedestrian Program

As shown in **Figure 4-10**, there is a substantial amount of new funding in Measure W projected for bicycle and pedestrian improvements. There is an opportunity to allocate more funding to help advance the delivery of large transformational capital projects, such as pedestrian and bicycle overcrossings, in this program that did not previously exist. Measure W also provides flexibility for funds to be used for non-capital projects such as planning efforts and efforts to incentivize active transportation. The opportunity also exists to fund city/area-wide bicycle and pedestrian master plans and programs that promote and encourage active transportation. There was strong stakeholder support during the Plan development process to establish new funding subcategories for these activities, as funding permits.

Recommendation: The Call for Projects approach, which the TA has been successfully using in the Measure A Pedestrian/Bicycle Program, should also apply to the Measure W project selection. Separate

subcategories should be created for:

- Large capital projects (approximately \$1.0 million or greater)
- Small capital projects (approximately less than \$1.0 million)
- Planning and marketing/promotion
- Safe Routes to Schools (SRTS) projects

The Bicycle and Pedestrian Program Evaluation Criteria in **Appendix E** should be used when determining funding allocations for capital projects from both Measure A and Measure W. The TA should use these criteria for the planning and marketing/promotion subcategory to the extent they are applicable; however, further work is needed to establish the guidelines for how funding will be allocated to projects and programs within this subcategory. The San Mateo County Office of Education (COE) has an existing SRTS discretionary grant program that is open to all public schools. For purposes of efficiency, the use of Measure W SRTS bicycle and pedestrian subcategory funds should be coordinated with the COE for integration within and potential expansion of their SRTS grant program.

Challenge/Opportunity 3 - Regional Transit Connections

This is a new funding category in Measure W and there is no comparable program in Measure A. The intent of this program is to improve transit connectivity between the County and the region with a network of transit options, including commuter and heavy rail, water transit, and regional bus service. This program is unique in that it contains a wide variety of different transportation modes that will be competing for funding. There is a need to develop a comprehensive set of program guidelines that build off of the guidance and evaluation criteria that are contained in **Appendix E** of this Strategic Plan and further assess and analyze projected needs.

Recommendation: The TA should develop a Regional Transit Connections planning study and an accompanying CIP to assist in long-term policy guidance and financial planning.

Challenge/Opportunity 4 - Grade Separations

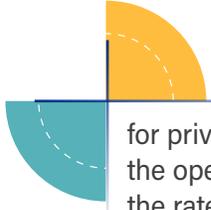
There is insufficient funding projected from the TA's funding programs to fully separate all the existing

at-grade road-rail crossings in the County, let alone the grade separation projects that are currently in the Measure A funding pipeline. The Measure A Grade Separation Pipeline projects that have yet to be fully funded include Linden/Scott in South San Francisco/San Bruno, Broadway in Burlingame, and Ravenswood in Menlo Park. The new funding added by Measure W for grade separations is not sufficient to fund even one project; however, it could be used to supplement Measure A grade separation funds to help implement the three Measure A Grade Separation Pipeline projects that remain. There also is a need, however, to provide funding to start new grade separation projects, given the planned increase in Caltrain service levels outlined in the Caltrain Business Plan. The Peninsula Corridor Joint Power Board (JPB) will be embarking on a study that prioritizes grade separations on the Caltrain Corridor, which can help inform decisions regarding the allocation of funding for new grade separation projects.

Recommendation: Continue with the status quo for the Measure A program selection process – continue funding the Pipeline Projects with a set-aside to start new projects with the Planning phase of work. Measure W funds should be flexible and eligible to supplement funding needs for the existing Measure A Pipeline Projects and provide seed money for new projects using a Call-for-Projects process for planning and/or preliminary engineering/environmental work. The Measure W Call for Projects to begin funding new grade separation projects should take place after the JPB completes its planned study that prioritizes grade separations on the Caltrain Corridor. Minimum matching fund requirements for grade separation projects should be required to better leverage limited TA funding and will need to be substantial to better ensure geographic equity (see **Section 7.2**).

Challenge/Opportunity #5 - Local Shuttles

The Measure A Shuttle Program has been ongoing for many funding cycles through a joint Call for Projects with C/CAG and the process has worked well. Recently the ability to deliver service has become more challenging for the program sponsors. While difficulty in hiring and retaining operators is not new, these problems have become far more acute during the past year due to strong economic growth and increased competition from the private sector



for private bus service. The cost of contracting for the operation of shuttles has increased well beyond the rate of the Consumer Price Index (CPI). Shuttle sponsors have had to voluntarily suspend some shuttles and service reliability on others has declined with an increase in no-shows.

Recommendation: SamTrans will be preparing a shuttle study in FY 2020 to assess the existing local shuttle program and consider more cost-effective approaches to meeting local mobility needs. The TA should consider recommendations made from this study for implementation in future Shuttle Calls for Projects.

Challenge/Opportunity #6 - Alternative Congestion Relief/TDM

There is a relatively small amount of money available to the Measure A Alternative Congestion Relief Program (1 percent) to fund commute alternatives and planning of intelligent transportation systems (ITS). Historically allocations from this funding category have primarily supported Commute.org's ongoing annual TDM work programs. It is important to note though that cities and the County are also eligible sponsors for this program and that a fair amount of funding from this category (approximately \$3 million) remains in a reserve. During the prior Strategic Plan, a recommendation was made to

prepare an Alternative Congestion Relief Plan to help determine potential projects and the basis for initiating and selecting projects to be implemented with these funds.

On a related note, the US 101 Mobility Action Plan that is currently being developed, further described in **Section 4.2**, will be providing a comprehensive set of near-term, policy and TDM concepts that may include transit subsidies, carpool programs, improved bicycle connections, and other incentives or disincentives to reduce travel demand of single-occupancy vehicle trips and/or to shift trip demand to off peak periods along the 101 Corridor. In addition, this Strategic Plan also recommends that a separate TDM subcategory be created within the Measure W Highway Program to be used for TDM/commute alternatives.

Recommendation: A Countywide Alternative Congestion Relief/TDM Plan will be developed, considering recommendations from the US 101 Mobility Action Plan as an input in conjunction, with key external stakeholders. The Countywide Alternative Congestion Relief/TDM Plan will serve as a guide for initiating and selecting projects to be implemented under the Measure A Alternative Congestion Relief Program and the Measure A Highway TDM subcategory.

Section 6

Programming and Allocation Guidelines

Based on the steps taken to develop the Strategic Plan outlined in **Section 3** and the recommendations in **Section 5**, the following guidelines provide a policy framework to inform the programming and funding allocation process for each of the programs or categories over the Strategic Plan horizon. This section discusses five basic elements of the process:

- The participants and their respective responsibilities
- The project selection approach for each program
- Guidelines for agreement-based programs
- Guidelines for plan-based programs
- Guidelines for Call for Projects-based programs

6.1 Program Participants

The designated participants in the Measures A and W programs are the project initiator, the project sponsors, the project manager/operator, and the TA. **Table 6-1** defines the general roles/responsibilities of each of the participants.

Table 6-1: Participants and Responsibilities

Participant	Eligibility	Roles and Responsibilities
Project Initiator	Any person or entity	Recommend Project to Project Sponsor
Project Sponsor	Measure A: identified in Expenditure Plan for each program category Measure W: as determined through the Strategic Plan development process	<ul style="list-style-type: none"> • Submit funding request to the TA • Solidify funding plan • Coordinate with the TA to identify appropriate implementing agency • Submit monitoring reports • Sign funding agreements
Project Manager/Operator	As identified by the Project Sponsor in coordination with TA	<ul style="list-style-type: none"> • Plan project • Engineer project • Construct project • Operate services • Sign funding agreements when applicable
Transportation Authority	Identified in the Measure A Expenditure Plan and the Measure W Congestion Relief Plan as the manager/administrator of the Measure A and Measure W programs	<ul style="list-style-type: none"> • Evaluate and prioritize projects • Coordinate with sponsor to determine implementation lead • Program and allocate funds • Monitor projects / programs • Sign funding agreements

Any party or entity may recommend or initiate a project by submitting it to an eligible sponsor. The Measure A Expenditure Plan defines the project sponsors for each of the program categories. Eligible project sponsors are shown in **Table 6-2**. Measure W does not identify project sponsors, they are determined through the Plan development process. The sponsors have the ability to designate a project manager/operator.

The TA is the agency designated under Measure A and 50 percent of Measure W to administer the sales tax funds, and it has the overall responsibility for the Measure A Programs and the portion of the Measure W Program it is tasked with administering. In limited circumstances, pending Board approval, the TA may also become a sponsor of highway projects of countywide significance (see **Section 3.2** for further information).

Table 6-2: Project Sponsors

Eligible Measure A and Measure W Sponsors			
Measure A		Measure W	
Program Categories	Eligible Sponsors ¹	Program Categories	Eligible Project Sponsors ¹
Transit: (30%), see subcategories below		No comparable category in Measure W	
Caltrain: 16%	SamTrans/JPB		
Local Shuttles: 4%	SamTrans		
Accessible Services: 4%	SamTrans		
Ferry: 2%	SSF & Redwood City		
Dumbarton Rail Corridor: 2%	SamTrans		
BART w/in San Mateo County: 2%	BART		
No comparable category in Measure A		Regional Transit Connections (10%)	Public transit agencies (e.g. Peninsula Corridor Joint Powers Board/Caltrain, SamTrans, BART) or public agencies that operate ferries or build ferry terminals (e.g. WETA or host city)
Highways: 27.5%	Caltrans, cities & County, C/CAG, TA ² for regional serving projects	Countywide Highway Congestion Improvements- 22.5%	Caltrans, cities & County, C/CAG, TA for regional serving projects & Express Lane JPA, and Commute.org (for Countywide TDM)
Local Streets & Transportation: 22.5%	Cities & County	Local Safety, Pothole & Congestion Relief Improvements (Local Investment Share) - 10%	Cities & County
Grade Separations: 15%	SamTrans, JPB, cities & County	Local Safety, Pothole & Congestion Relief Improvements (Grade Separations) - 2.5%	SamTrans, JPB, cities & County
Pedestrian & Bicycle: 3%	Cities & County	Bicycle & Pedestrian - 5%	Cities, County, C/CAG, public transit agencies, Commute.org, public schools and school districts (for SRTS)
Alternative Congestion Relief: 1%	Cities & County	No comparable category in Measure W	

Notes:

- 1.) Eligible Sponsors as defined by the voter-approved Transportation Expenditure Plan for Measure A and by this Strategic Plan for Measure W or by subsequent amendments per Board action for both measures.
- 2.) The TA currently is an eligible sponsor for the San Mateo County US 101 Express Lanes Project and a sponsor for the US 101 / SR 92 Interchange Projects.

6.2 Project Selection Approach

The TA Strategic Plans have historically contained a section that outlines the project selection approach for the program categories it administers. **Table 6-3** shows the specific approach used for each program category or subcategory that has been updated as part of this Plan development process. The programs where project initiators or sponsors submit projects for competitive consideration are governed by a Call for Projects or on a first-served, ready-to-go basis.

Under the Call for Projects approach, project sponsors can elect to submit projects that are then reviewed

and evaluated against specific selection criteria. Other program categories are governed by plans that are specifically prepared to identify and prioritize projects on a regional or countywide basis, or by agreements that are either specified in the Measure A Expenditure Plan or developed by the TA consistent with the provisions of the Measure A Expenditure Plan and the Measure W Congestion Relief Plan.

Table 6-3: Project Selection Approach

Agreement-Based		
Measure A	Measure W	
Accessible Services	Local Safety, Pothole & Congestion Relief (Local Investment Share)	
BART		
Dumbarton Rail Corridor		
Ferry		
Local Streets & Transportation		
Plan-Based		
Measure A	Measure W	
Alternative Congestion Relief	No comparable category	
Caltrain		
Competitive		
Measure A	Measure W	Project Selection Approach ¹
Highways: 27.5%	Countywide Highway Congestion Improvements ¹ : 22.5%	Measure A: Continue Call for Projects with focus on Pipeline projects (Appendix B), small set-aside for Planning and Pre-Environmental work for new projects Measure W: Update existing Short Range Highway Plan with a new Highway CIP to inform selection process, new Countywide TDM subcategory (~4% of highway program)
Grade Separations: 15%	Local Safety Pothole & Congestion Relief Improvements (Grade Separations): 10%	Measure A: Continue funding Pipeline projects, small set-aside for Planning to start new projects on an as-needed basis Measure W: For Pipeline projects on an as- needed basis or to start new projects on a Call for Projects basis
Pedestrian and Bicycle: 3%	Bicycle and Pedestrian ¹ : 5%	Continue Call for Projects, new subcategories: <ul style="list-style-type: none"> • Capital - Large & Small (~95%) • Planning/Promotion (~2.5%) • Safe Routes to School (~2.5%)
N/A	Regional Transit Connections ² : 10%	Prepare Regional Transit Plan with a Transit CIP to inform selection process
Local Shuttle Operations	N/A	Continue joint Call for Projects process with C/CAG

Notes:

- 1.) Funding for the Measure W Countywide Highway Congestion Improvements TDM subcategory and the Measure W Bicycle and Pedestrian subcategories for capital, planning/promotion and safe routes to school (SRTS) is to remain available within the individual designated subcategory if not fully subscribed during a funding cycle and will remain available within the respective subcategory for future funding cycles.
- 2.) Promotion and marketing is an eligible activity as part of a proposal for new or enhanced transit service in the Regional Transit Connections category



6.3 Agreement-based

These programs and projects are not subject to a competitive project selection process governed by the TA. They include the following program categories or subcategories:

- Measure A
 - Transit : Accessible Services
 - Transit: BART within San Mateo County
 - Transit: Ferry
 - Transit: Dumbarton Rail Corridor
 - Local Streets and Transportation
- Measure W
 - Local Safety, Pothole & Congestion Relief (Local Investment Share)

Measure A

Transit: Accessible Services

For the Transit: Accessible Services program, four percent of funding is committed to the continuation and expansion of paratransit services operated by SamTrans as Redi-Wheels and RediCoast. The TEP allows for other supplemental services to be funded within this program. To date, these services have not yet been identified by SamTrans. If such services are identified in the future, they will be considered for funding in this category. Four percent of Measure A sales tax revenues will be allocated to SamTrans on an annual basis.

Transit: BART

For the Transit: BART within the San Mateo County program – as outlined in an agreement with BART, SamTrans, and the TA – two percent of Measure A sales tax revenues will be allocated to BART on an annual basis.

Transit: Ferry

The TA is committed to providing two percent of Measure A funding for ferry services, with the Cities of South San Francisco and Redwood City as the designated sponsors. The City of South San Francisco started operating ferry service in 2012, while there is currently a planning and feasibility study underway in Redwood City to determine the terminal location and service area.

Transit: Dumbarton Rail Corridor

The TA is committed to providing two percent of

Measure A funding to the Dumbarton Rail Corridor, with SamTrans designated as project sponsor. Completion of the environmental document for this project is on hold pending the identification of a funding plan.

Local Streets and Transportation Program

For the Local Streets and Transportation Program, the TA is committed to providing 22.5 percent of Measure A funding to the County and its cities for local transportation facility maintenance and improvement. The specific amount for each entity is determined based on the formula of 50 percent by population and 50 percent by road mileage within each jurisdiction. The TA will update the road miles and population figures annually based on California Department of Transportation and Department of Finance data.

Measure W

Local Safety, Pothole & Congestion Relief Improvements (Local Investment Share)

Ten percent of the Measure W tax proceeds will be disbursed to each of the cities and the County using the same formula as the Measure A Local Streets and Transportation Program. Funds may be used for the following transportation investments, which include but are not limited to:

- Implementing advanced technologies and communications on the roadway system
- Improving local streets and roads by paving streets and repairing potholes
- Promoting alternative modes of transportation, which may include funding shuttles or sponsoring carpools, bicycling, and pedestrian programs
- Planning and implementing traffic operations and safety projects, including signal coordination, bicycle/pedestrian safety projects, and separation of roadways crossing the Caltrain rail corridor

If a city or the County has a Pavement Condition Index (PCI) score of less than 70, it must use tax proceeds under this Category exclusively for projects that will increase their score until it reaches 70 or greater.

Programming, Allocation and Monitoring Process

The programming and allocations process for the agreement-based programs includes the following steps:

- Staff Recommendation - Prior to the beginning of each fiscal year (July 1-June 30), the TA will estimate the amount of projected revenues available for the programs and projects. Based on these estimates, TA staff will make a programming and allocation recommendation to the Board.
- TA Board Consideration - The Board will consider the recommendations as part of the annual TA budgeting process. Board approval will allow staff to allocate the money and complete the annual funding commitment.
- Funding Agreements - Funds from the agreement-based programs are distributed based on the conditions in the funding recipients' respective funding agreements. The funding agreement outlines the understanding between the funding recipient and the TA regarding the amount of funding, purpose of the funds, payment terms, any applicable reporting requirements, and other relevant obligations. BART and recipients of Measure A Local Streets and Transportation Program funding currently receive funds directly from the County Controller. The cities and County will receive funds directly from the TA for Measure W Local Safety, Pothole & Congestion Relief (Local Investment Share) project.
- Monitoring Report Submittals – Project sponsors receiving funding from the Measure A Dumbarton Rail Corridor and Ferry Program categories will be required to submit monitoring reports to inform on the status of project scope, schedule, budget, project performance and effectiveness. Project sponsors from the Measure A Local Streets and Transportation Program category and the Measure W Local Investment Share component of the Local Safety, Pothole and Congestion Relief Improvements Program category are required to submit annual reports to inform the TA of projects funded. Local Investment Share funding sponsors are also required to report on how funded projects met one or more of the Measure W Core Principles and how they considered their Complete Streets policies in the use of the funds.

6.4 Plan-based

The plan-based approach requires the development of a plan for a specific category, which will include a comprehensive list of capital and/or operating projects that need to be implemented to meet the goals of that category. The TA and the project sponsor

will use the Plan to aggressively leverage external funding to implement the entire program. Measure A program categories or subcategories include:

- Alternative Congestion Relief Programs
- Transit: Caltrain

Measure A

Alternative Congestion Relief

The TA, in conjunction with its external stakeholders, will be preparing an Alternative Congestion Relief Plan that will serve as a basis for project evaluation and the selection process.

Transit: Caltrain

Caltrain is designated as the recipient in this category. At least 50 percent of the annual funding allocation from Measure A can be designated for capital projects and no more than 50 percent can be used for operations. The allocation of project funding will be based on the Caltrain Short Range Transit Plan (SRTP), which the JPB is required to prepare in order to receive federal and state funding. The SRTP and the annual Caltrain budgeting process will provide the basis for determining funding allocations needed for Caltrain.

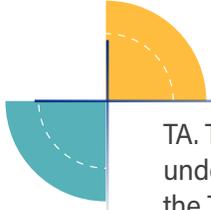
Measure W

There are no Plan-based programs under Measure W.

Programming, Allocation and Monitoring Process

The programming and allocations processes for plan-based programs and projects are as follows:

- Staff Recommendation - Prior to the beginning of each fiscal year (July 1 – June 30), the eligible project sponsors within these categories will submit funding requests to the TA, and the TA will consider such requests within the projected revenues available for these programs. TA staff will make a programming and allocation recommendation to the Board.
- TA Board Consideration - The Board will consider the recommendations as part of the annual TA budgeting process. Board approval will allow staff to allocate the money and complete the funding commitment.
- Funding Agreements - Prior to receiving any disbursements of funds, the receiving entity will need to execute a funding agreement with the



TA. The standard funding agreement outlines the understanding between the funding recipient and the TA regarding the amount of funding, purpose of the funds, payment terms, any applicable reporting requirements, and other obligations connected to the receipt of funding.

- Monitoring Report Submittals – In order to track progress and ensure appropriate and efficient use of funds, sponsors are required to submit monitoring reports to inform on the status of project scope, schedule, budget, project performance and effectiveness.

6.5 Competitive

Competitive programs are those in which new projects proposed within each program category will compete for funding. The competitive programs include:

- Measure A
 - Transit – Shuttles
 - Highways
 - Pedestrian and Bicycle Facilities
 - Grade Separations
- Measure W
 - Countywide Highway Congestion Improvements
 - Pedestrian and Bicycle Facilities
 - Grade Separations
 - Regional Transit Connections

Measure A

Transit: Shuttles

SamTrans is the TEP-designated sponsor for the Local Shuttle Program but has historically permitted other public agencies to apply by obtaining a Letter of Concurrence stating that the proposed shuttle route does not duplicate SamTrans fixed-route or other public shuttle service. Potential enhancements to the evaluation and project selection process, which currently is on a Call for Projects basis held jointly with C/CAG, will be made after SamTrans completes a shuttle study in FY 2020. The Study will assess program delivery and performance and other potential cost-effective approaches to meeting local mobility needs.

Highways

The Highway Program category consists of two

components:

- Key Congested Areas (KCA) – Specific projects that are defined in the Measure A TEP.
- Supplemental Roadway Projects (SR) – A partial list of candidate projects that are defined in the Measure A TEP. Sponsors may put forward other projects through the project selection process.

The Call for Projects process will continue with a focus on the Measure A Highway Pipeline projects as identified in **Appendix B**. As part of subsequent initiatives, the SRHP (2012-2021) will be updated and a new Highway CIP will be prepared to better inform the project selection process for the use of Measure W Countywide Highway Congestion Improvements Program category funding.

Pedestrian and Bicycle

A partial list of Measure A candidate projects is identified in the TEP. The existing capital Call for Projects selection process will continue. Per strong support from the Plan TAG, there will be separate subcategories for small and large capital projects as funding permits. This plan envisions that a single funding Call for Projects will be held for the Measure A and W capital pedestrian and bicycle program.

Grade Separations

The Measure A Grade Separations Program category will continue with the focus on funding Pipeline Projects with a set-aside to start new projects. The project selection process is on a first-come, first-served, ready-to-go basis.

Measure W

Countywide Highway Congestion Improvements

Tax proceeds will be invested in highway projects throughout the County designed to: provide congestion relief; reduce travel times; increase person throughput; improve highway and interchange operations, safety, and access; and deploy advanced technologies and communications on the highways. The focus of this program is on highways and highway interchanges, although projects that alleviate congestion on connecting arterial streets that impact the highway system are also eligible. An update to the existing SRHP and an accompanying CIP will be prepared to better inform the competitive selection process for this program. Per strong support from the SAG, a separate TDM

subcategory is being created for this program to encourage non-SOV trips and off peak trip demand. A Countywide Alternative Congestion Relief/TDM Plan will be prepared that will serve as a guide for initiating and selecting projects for the competitive TDM subcategory.

Grade Separations

Measure W Tax proceeds can be invested to supplement the existing Measure A Pipeline projects on an as-needed basis or to start new projects on a Call for Projects basis. Future Calls for Projects are anticipated to occur after Caltrain completes a study that will prioritize Caltrain grade separations.

Bicycle & Pedestrian Improvements

Priority will be given to projects that are designed to help reduce traffic congestion by safely connecting communities and neighborhoods with schools, transit, and employment centers; fill gaps in the existing bicycle and pedestrian network; safely cross barriers such as major roads, rail corridors, and highways; improve existing facilities to make them safer and more accessible for cyclists and pedestrians; and make walking or biking a safer and more convenient option.

Per strong support from the TAG, and as sufficient funding permits, there will be three separate subcategories: 1) large and small capital projects, 2) city- and area-wide planning/promotion and marketing, and 3) SRTS projects.

Allocations for these subcategories will go through a Call for Projects process. The project selection process for the SRTS subcategory will be coordinated with the COE.

Regional Transit Connections

Tax proceeds will be invested in infrastructure and services that are designed to improve transit connectivity between the County and the nine-county Bay Area region. Investments from this category will be prioritized based on a project's ability to reduce congestion and enhance mobility options by connecting the County to the rest of the region, and a project's support through public-private partnerships. This program is somewhat unique in that it can fund a variety of different transit modes. A Regional Transit Connections planning study and an accompanying Transit CIP will be prepared to better inform the competitive selection process for this

program. It is important to note that promotion and marketing is an eligible activity as part of a proposal for new or enhanced service in this category to help support and establish a successful ridership base. The planning study will incorporate guidance for how this may be applied.

Call for Projects Process

The process for programming and allocating funding from the competitive programs that are not on a first-come, first-serve, ready-to-go-basis consists of the TA issuing a Call for Projects, followed by project evaluation and prioritization.

- **Call for Projects:** The TA will issue a Call for Projects by program requesting project sponsor(s) to submit projects for funding consideration. The frequency of the Call for Projects will differ by program. The specific funding cycles for the programs are to be determined based on funding availability, program need, program readiness and for Measure W funding, after the noted initiatives from the section above are completed, to better inform the selection process. When scheduling a Call for Projects funding cycle, the TA shall consider the timing of the request in relationship to the timing of other federal, state, and regional funding programs in order to maximize the opportunities for obtaining funds from these sources.
- **Project Evaluation and Prioritization:** The TA assembles Project Review committees to evaluate project applications and proposals. The review is based on criteria outlined in the Call for Projects. The five general categories of criteria that are considered for project evaluation and selection: Need, Effectiveness, Sustainability, Readiness, and Funding Leverage are discussed below and are also listed in **Appendix E**. Evaluation criteria under the thematic areas of Readiness and Funding Leverage are either not addressed (Readiness) or deserve greater emphasis (Funding Leverage) than the Measure W focus as described in **Section 3.2**. A more detailed listing of evaluation criteria for the competitive funding categories is contained in **Appendix E**. The criteria for each of the competitive funding programs may be modified, subject to Board approval, to retain flexibility and account for new policy directives, initiatives, and legislation that further promotes TEP goals.

- **Readiness:** As an initial step, the TA assesses readiness. Did the sponsor submit a complete and coherent proposal? Is the proposed scope ready to proceed and how shovel-ready is it? Readiness also measures the level of public and stakeholder support and viability of the project to be funded. Key indicators include the quality of the planning process that occurred to define the project, level of community engagement/ stakeholder and public support, schedule and project status, and availability of resources to implement the project. Where program guidelines dictate, did the sponsor coordinate with the TA to identify the entity best suited to carry out project implementation?
- **Need:** From the onset, the TA must establish the need for a project to consider it for funding before reviewing it for policy consistency. Is the project consistent with the goals of the Measure A TEP or either or both of the Congestion Relief Plan and the Countywide Transportation Plan? Does it support the policies of the sponsoring city's General Plan, Specific Plans, and other relevant planning and programming documents? What and how critical is the mobility and/or safety issue that is to be addressed? How does this project contribute to a larger public goal?
- **Effectiveness:-** The TA will use effectiveness criteria to evaluate the performance merits of the project. If the TA invests in a major highway improvement, how much congestion will be relieved and what is the level of person throughput? If it invests in a grade separation, how much does it improve safety and reduce local traffic congestion? If the TA invests in a pedestrian/bicycle bridge, how many pedestrians and bicyclists are going to use it? If it invests in a new shuttle service, how many new riders are going to use it? If it funds a new regional transit service, what is the projected ridership? How cost effective and seamless will it be with other connecting services? Effectiveness criteria will help measure benefits against the cost of building and implementing a project.
- **Sustainability:** The TA will assess the impact a project may have on promoting practices that maintain and/or improve the environment and quality of life for all on a long-term basis. What is the project's impact on the immediate ecosystem as well as the greater environment?

Can the impacts be mitigated? Does the project support transit-oriented development? Are land use and transportation decisions linked together to achieve efficient transportation options? For capital projects, are materials being used that promote long life cycles and reduce maintenance costs? Where applicable, what is the marketing plan to promote the service? The TA will consider sustainability principles and practices in the planning, implementation, and operation of projects.

- **Funding Leverage:** The TA will measure the level of financial commitment to a project. Has the sponsor committed matching funds to the project, and if so, how much? Does the match include any contribution from the private sector?

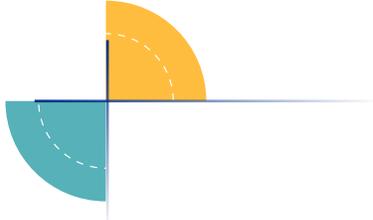
Geographic and Social Equity

The Measure A and Measure W programs are countywide efforts that should take into consideration a relative equitable distribution of investments to help ensure all areas of the County, and all socio-economic groups within it, receive a proportionate share of the transportation benefits and that no area is disproportionately adversely impacted.

- **Staff Recommendation:** Staff develops project funding recommendations for Board consideration, which is based on the review of the Project Review Committees when projects go through a Call for Projects process. Recommendations are clearly anchored to the program-specific project evaluation and prioritization criteria.
- **TA Board Approval:** The TA Board takes action on the programming of Measure A and Measure W funding. This ensures commitment to the project. Either concurrent with the programming or in a separate action, the Board will allocate funding as part of the TA's annual budget approval process. This action ensures timely availability of funds.
- **Funding Agreements:** Prior to receiving any disbursements of funds, the recipient is required to execute a funding agreement, or in the case of multiple sponsors or implementing public agencies, recipients enter into a memorandum of understanding with the TA. The standard funding agreement outlines the understanding between the funding recipient and the TA regarding the amount of funding, purpose of the funds, payment terms, reporting requirements and other obligations

connected to the receipt of funding. Memoranda of understanding (MOUs) also define the roles and responsibilities of the sponsors and implementing public agencies.

- **Monitoring Report Submittals:** Project Sponsors will be required to submit monitoring reports to track progress and ensure appropriate and efficient use of Measure A and Measure W funds.
 - Capital Projects - Project Sponsors will be required to submit monitoring reports during the planning, design development, and construction of capital projects. The content of the reports will be focused on project scope, schedule, and budget. Post-construction, the TA will monitor the use and effectiveness of the projects as part of performance metrics that will be used to confirm that plan goals are being met. This information will also be used to inform future investment decisions.
 - Operating Projects - Project Sponsors will be required to submit performance reports for operating projects. Sample performance measures include service effectiveness, service quality, and customer satisfaction. This monitoring program will assist the TA in justifying the continued funding for approved operating projects. If performance measures indicate less than acceptable performance, the TA will work with the Project Sponsor to set up a mitigation program and achieve improvements as a condition of continued funding from the Measure A Program.



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In addition to defining the process for funding allocation and programming, the TA is charged with responsibly managing the Measure A and the TA-administered portion of the Measure W transportation sales tax revenues. The TA is actively involved with leveraging funds to achieve the goals of the 2004 Measure A Expenditure Plan while adhering to Measure W Core Principles. The TA will focus on programming and allocating funds to projects as money becomes available and maximizing matching funds to increase the total investment in County transportation infrastructure and services. The TA will treat requests for the advancement of funds as exceptions to the rule; project sponsors must justify requests with compelling reasons that offset the impact of financing fees and/or timing of funds to other projects.

7.1 Measure A and Measure W Funding

The TA will develop CIPs for the Highways and Regional Transit Connections Program categories to better assess the magnitude of potential expenditure needs with respect to the flow of measure revenues and the potential availability of matching funds. The CIPs will provide further details on an order of magnitude basis and will be prepared in conjunction with planning studies as noted in **Section 5.1** that will further assess how the TA will conduct the competitive processes for these categories. The TA will determine the timing of the funding cycles for these categories by considering the collection of sales tax revenues, the timing of project needs, and other external funding opportunities. The TA will fine-tune the CIPs on an ongoing basis by identifying prioritized projects and continually monitoring local and countywide short- and long-term needs and program readiness.

7.2 Matching Funds

Navigating through the network of external funding and securing matching funds is complicated. A representative summary of existing federal, state, and local funding programs that can be leveraged with Measure A and Measure W funding is contained in **Appendix G**, although these programs are subject to change. Regional funds are treated as local funds. As resources permit, the TA will work with project sponsors to maximize the amount of matching funds secured for each project. **Table 7-1** shows the minimum matching fund requirements for the comparable program categories and the Measure W Regional Transit Connections Program category and the Measure A Transit Program, Local Shuttles component.

Table 7-1: Minimum Matching Fund Requirements for Measure A and W Categories

Measure A Category	Minimum Fund Matching	Measure W Category	Minimum Funding Match
Highways	10%	Countywide Highway Congestion	Capital: 10% Countywide TDM: 10%
Local Streets & Transportation Share	None	Local Safety, Pothole & Congestion Relief Improvements (Local Investment Share)	None
Grade Separations	Pre-construction: 10% Construction: 50%	Local Safety, Pothole & Congestion Relief Improvements (Grade Separations)	Pre-construction: 10% Construction: 50%
Pedestrian & Bicycle	10%	Bicycle & Pedestrian	Capital: 10% Planning/promotion and start-up operations: 50% SRTS: None
No comparable category	N/A	Regional Transit Connections	Capital: 10% Operations and promotion: 50%
Transit - Local Shuttles component	Operations and promotion: 25%, (see footnote for exception)	No comparable category	N/A

Notes:

A minimum 50 percent match is required for shuttles in operation for at least two years that miss the established operating cost/passenger benchmark by 50 percent or more.

Federal

On December 4, 2015, President Obama signed the Fixing America’s Surface Transportation (FAST) Act into law, which replaced the former Moving Ahead for Progress in the 21st Century (MAP-21). The FAST Act authorized \$305 billion over FY 2016 through 2020. This transportation legislation focuses on safety and continued efforts to streamline delivery of projects funded under the established federally managed programs.

Highlighted in **Appendix G** are numerous federal sources of funding available for transportation projects under the FAST Act. The majority of the sources are allocated following a competitive process. **Appendix G** also identifies the purpose and administrator for each funding source.

State

In 2017, the California Road Repair and Accountability Act was signed into law (SB1). This act modified how California’s transportation system was funded by way of increasing or indexing the fuel excise tax and a vehicle registration fee adjustment, which will raise approximately \$5.24 billion over 10 years. As part of SB1, the state has set up the Solutions for Congested Corridors Program (SCCP), which provides funding to achieve a balanced set of transportation, environmental, and community access improvements to reduce congestion throughout the state. **Appendix G** highlights key state sources of funding for transportation projects and planning studies. Funding under the State Highway Operation and Protection Program, the Transportation Development Act, and State Transit Assistance Funds is allocated by formula. Other state funding programs are competitive such as the Local Partnership

Program (LPP), which provides funding to local and regional agencies to improve aging Infrastructure, road conditions, active transportation, and health and safety benefits. **Appendix G** identifies the purpose and administrator for each state funding source.

Local

Appendix G highlights key local/regional sources of funding: Measure A and Measure W County transportation sales tax revenues, gasoline tax subventions, regional bridge tolls, vehicle license fees, developer impact fees, and the Transportation Fund for Clean Air. **Appendix G** also identifies the purpose and administrator for each funding source.

Potential New Funding Sources

With escalating project costs and limited availability of transportation funding coupled with the need for transportation investments, the TA encourages project sponsors to explore and identify non-traditional sources of funding. Non-traditional sources of funding include innovative financing, establishing new funding sources, and developing public-private partnerships.

Traditional and Innovative Financing

This type of financing includes mechanisms to creatively finance major infrastructure projects by bonding or borrowing against future anticipated revenue streams. This may include Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA, a federal credit program), lease-financing of transit vehicles, and finding ways to use future funding sources as collateral.

Private Sector Contributions

Major Bay Area employers have shown a willingness to invest in transportation infrastructure that addresses the commute problems of their current employees and reduces barriers perceived by prospective new employees. Projects that address regional and subregional transportation deficiencies should be viewed as candidates for private sector participation.

Public-Private Partnerships

Public-Private Partnerships (PPPs) are potential solutions to funding shortfalls for the completion of projects. Generally, it is a partnership between a governmental entity and a private business venture in which the cost of a project may be partially funded

by the private partners. The private partners receive a benefit from the project in which they invest. Many types of PPPs exist and most approaches are tailored to specific projects. The San Mateo County 101 Express Lanes Project is an example of a successful PPP, where approximately 10 percent (over \$50 million) of the capital project cost is being funded from private sector contributions. A reduction in traffic congestion on the US 101 corridor is a key benefit in the ability to retain and attract employees for local businesses.

New Regional/Local Funding Sources

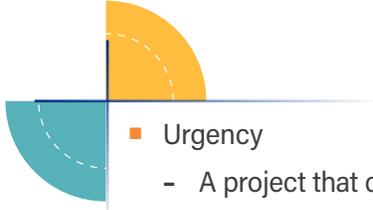
To increase the overall funding pool, it is necessary to generate additional dollars. Funding options could include toll revenue from Express Lane projects, tax assessment districts, and pursuit of a regional transportation tax (e.g., FASTER Bay Area). Some of the potential new sources may require legislative action.

7.3 TA Consideration of Financing Backed by Sales Tax Revenues

Both Measure A and Measure W allow the TA to bond for the purpose of advancing the commencement of or expediting the delivery of transportation programs and projects. The bonding capacity will be backed by future Measure A or Measure W revenues. The TA will weigh the benefits of timely implementation of programs and projects and avoidance of escalating construction costs against the costs of bonding. In recent years, interest rates have been relatively low and the bonding agencies have been particularly receptive to issuing bonds supported by sale tax revenues. However, it will still be important for the TA to weigh the costs of a bond issue and the interest payments that will be required against the costs of deferring or delaying projects until the natural flow of funds is sufficient to move forward.

7.4 Special Circumstances for Advancing Funds

There will be special circumstances when project sponsors need to request Measure A and W funding outside the established funding processes discussed in **Section 5** of this Plan. The TA has the authority to make funds available outside established Call for Projects funding cycles and prior to the collection of revenues. The TA Board will consider the request based on the following criteria:



- Urgency

- A project that calls for immediate construction to address a public safety need
- A project that can realize significant cost savings if it can be constructed in an earlier timeframe
- Loss of funding sources if the project is not constructed within a certain timeframe
- Expected escalation of project development and construction costs outpaces the rate of growth of Measure A and Measure W revenues

- Impact to the Measure A and Measure W Programs

- Potential of the funding advance delaying other projects
- Financial fees associated with advancing funds (the potential saving in implementation costs should be considered)

The TA will determine the method of delivering the advance at the time the request is granted by the Board. The TA should also develop CIPs to determine if advancing funds by either borrowing from other programs or using financing would be an economically and fiscally prudent means of delivering high-priority projects at a lower cost (adjusted for inflation) compared to waiting and implementing projects strictly using a pay-as-you-go approach.

Based on the recommendations that were developed during the preparation of the Strategic Plan, implementation of the Plan will include the key elements summarized in **Table 8-1** below:

Table 8-1: Next Steps

Key Elements of the Strategic Plan Implementation	
1.	Continue with the established Call for Projects processes for the competitive Measure A Shuttle, Highway and Pedestrian and Bicycle programs, and the first-come first-served, as-needed, selection process for the competitive Measure A Grade Separation Program.
2.	Review the Call for Projects timing on an ongoing basis to coincide with other regional, state and federal funding programs for each category.
3.	Update the existing Short Range Highway Plan (SRHP) and prepare an accompanying CIP in coordination with the TA's highway program sponsors to better inform the competitive project selection process for the Measure W Countywide Highway Congestion Improvements program. This will include: <ul style="list-style-type: none"> ■ Identification of highway projects of countywide significance and possibly determining an appropriate level of funding to be set-aside for these projects, if appropriate and desired. ■ A separate new Countywide Transportation Demand Management (TDM) subcategory. The development of guidelines for the TDM subcategory will be informed through the preparation of the Countywide Alternative Congestion Relief/TDM Plan that will influence the project selection process in this subcategory as well as the Measure A Alternative Congestion Relief Program.
4.	Prepare a Regional Transit Connections Planning study and an accompanying CIP in coordination with the TA's regional transit program sponsors to better inform the competitive project selection process for Measure W Regional Transit Connection Program funds.
5.	Initiate a Call for Projects selection process to start planning and environmental work for new grade separation projects, under the Measure W Grade Separation program, after the completion of a grade separation prioritization study by Caltrain.
6.	Revise the existing guidelines for administering the competitive Measure A Pedestrian and Bicycle Program to address the inclusion of Measure W funds for the new subcategories of large and small capital projects, city-/area-wide planning and promotion/marketing activities, and Safe Routes to Schools (SRTS). This includes coordination and administration of funding from the SRTS subcategory with the existing County Office of Education (COE) SRTS Program.
7.	Expand the TA's role with the provision of technical assistance to its sponsors aiding in project delivery, as resources permit, to: <ul style="list-style-type: none"> ■ Provide technical assistance to sponsors, not limited to the Highway Programs. ■ Utilize consultant services to offer Complete Streets and other best practice workshops. ■ Temporarily offer consultant services to sponsors, on request, on an interim basis due to sponsor staff vacancies to keep projects moving, minimizing delay. ■ Contract with consultants to help sponsors better position themselves to obtain grant funds to better leverage the TA's funding sources.
8.	Continue ongoing coordination with key stakeholders responsible for the development of Countywide and regional planning efforts to better inform and continuously improve the Measure A and Measure W project selection processes.
9.	Further explore and consider debt financing or internal borrowing of funds as needed to advance projects <ul style="list-style-type: none"> ■ Funding advances would be backed by future Measure A and/or Measure W receipts. ■ Need to consider financing costs versus future construction cost increases.
10.	Periodically monitor and assess, using evaluation criteria developed as part of this Plan, to determine how well funded programs and projects are meeting the Measure A Vision and Goals and the relative applicability of the Measure W Core Principles, taking into consideration both quantitative and qualitative methodologies.



SAN MATEO COUNTY
**Transportation
Authority**

APPENDIX I: LAND USE GUIDELINES AND COMPLIANCE MONITORING



Transportation Demand Management Policy Implementation Guide

APRIL 2022

FOR **City/County Association of Governments of San Mateo County**

PREPARED BY **Advanced Mobility Group**

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Purpose

The *C/CAG TDM Policy Implementation Guide* is a companion document to the *C/CAG TDM Policy Update Approach* document dated September 9, 2021, which has been adopted as part of the San Mateo County Congestion Management Program (CMP). This guidance document describes the process, as well as agency roles and responsibilities to put the TDM Policy into action.. For more details on the underlying rationale and methodology for the *C/CAG TDM Policy* please refer to the *C/CAG TDM Policy Update Approach* document.

The *Implementation Guide* addresses the following:

1. Determining whether a project meets the average daily traffic (ADT) project review threshold for compliance with the *C/CAG TDM Policy*
2. Developing a Compliant TDM Program
3. Understanding the Monitoring & reporting requirements
4. Local Jurisdiction exemption process
5. Step-by-step TDM Policy implementation process
6. Process flowchart

Project Review Threshold (ADT)

Unless a member jurisdiction has been exempted from the C/CAG TDM Policy according to the process described in this document, any new development project anticipated to generate at least 100 average daily trips (ADT) is subject to the TDM Policy and must therefore complete a TDM Checklist and implement associated measures to mitigate traffic impacts.

The C/CAG TDM Policy includes a tiered approach based on land use type and project size. The land use categories include: Non-Residential (office, industrial, institution), Non-Residential (medical and lodging), Non-Residential (retail), and Residential (multi-family), with distinct thresholds for “small” and “large” projects.

Determining Project ADT

Traditionally, trip generation methods have been most prominently documented in the ITE *Trip Generation Manual*. However, flexibility in choice of ADT calculation method is allowed. These methods may include, but are not limited to, the U.S. Environmental Protection Agency *Smart Growth Mixed-Use Trip Generation Tool* (US EPA MXD), San Diego Association of Governments (SANDAG) *Trip Generation for Smart Growth* guide, and even locally developed methods based on validated trip counts.

Non-Residential land uses will utilize ADT correlated with the project size in square footage, except for Retail, which will rely on ADT correlated with the estimated number of employees. Residential projects will utilize ADT correlated with the number of units as the threshold metric. Regarding Mixed-Use projects featuring multiple land uses on-site, ADT is to be calculated by combining the trip generation of the various uses.

The following table shows an approximate range for project sizes that will likely meet or surpass the 100 ADT threshold:

ADT Thresholds, Correlated with Approximate Project Size Characteristic^{1 2}

	Small Projects	Large Projects
Non-Residential: Office, Industrial, and Institutional	100 – 499 ADT (10,000 – 49,999 sq. ft.)	500+ ADT (50,000+ sq. ft.)
Non-Residential: Medical & Lodging	100 – 499 ADT (10,000 – 49,999 sq. ft.)	500+ ADT (50,000+ sq. ft.)
Non-Residential: Retail	100 – 499 ADT (30-99 employees)	500+ ADT (100+ employees)
Residential: Multi-Family	100 – 499 ADT (20 - 49 units)	500+ ADT (50+ units)

¹ The quantified square footage, employees, and units in this table demonstrate plausible project size relative to the estimated project ADT. The representative project size values are not exact. They are based on documented linear relationships between project size and respective site travel demand. More detail is available in research references cited in Appendix C & D of the companion *Policy Approach* document.

² The TDM Policy only applies to multi-family residential developments only. Single-family home developments are exempted from this TDM Policy

Implementing TDM Measures

All projects subject to the C/CAG TDM Policy shall implement a set of TDM measures identified in one of the following TDM Checklists, based on land use and ADT:

- Large Non-Residential (Office, Industrial, Institutional)
- Small Non-Residential (Office, Industrial, Institutional)
- Large Residential
- Small Residential
- Large Non-Residential (Medical/Lodging)
- Small Non-Residential (Medical/Lodging)
- Large Non-Residential (Retail)
- Small Non-Residential (Retail)

(Note that for Mixed Use projects, the land use type that generates the majority of ADT, as determined in the previous section, will define the TDM checklist that should be utilized, but the combined ADT of all the uses will determine whether the project is defined as “small” or “large”.)

Applicants shall select all “Required” TDM measures and enough “Additional Recommended” measures within the Checklist to meet the minimum targeted trip reduction requirement. For all project types, except two, the minimum trip reduction requirement is 35% below baseline ADT for the project site. Transit-Oriented Development (TOD) projects within 0.5 miles of MTC-defined “high-quality transit” and small multi-family residential projects have a minimum 25% trip reduction.

The TDM Checklist categorizes development projects according to their proximity to “high quality” transit, defined as a transit station or stop featuring maximum 15-minute service frequency (headways) during weekday peak hours between 6-10 a.m. and 3-7 p.m. Some measures will only be required of projects meeting one of the above three geographic criteria. The categories are:

1. **Transit-Oriented Development (TOD)** – project located within 0.5 miles of “high quality” transit.
2. **Transit Proximate** – project located between 0.5 – 3 miles of “high quality” transit.
3. **Non-Transit Proximate** – project located more than 3 miles from “high quality” transit.

Importantly, the distances cited above for each category shall be measured along the traversable pathway between the project site and the nearest stop or station with “high-quality transit”. In other words, this measurement should *not* be “as the crow flies”. The same measurement method shall apply to all project categories.

Completing/Submitting the TDM Checklist

To facilitate implementation of the C/CAG TDM Policy, as well as for future TDM monitoring and data collection, project sponsors will be required to submit a TDM Checklist with their development application to the governing jurisdiction Planning Department, as part of the development review process. At the beginning of the CEQA process, or within 10 days of receipt of an application that meets the ADT threshold, the local jurisdiction will notify C/CAG. Such notice is to include a brief project description (land use type, size, location), and acknowledgement that the project will be subject to these TDM Policy Requirements.

In the course of its review of the development application and accompanying Checklist, the jurisdiction is expected to verify the accuracy and completeness of the applicant’s TDM Checklist submittal. Such

review includes ensuring use of the appropriate Checklist (i.e., Small/Large, Non-Residential/Residential), and verifying that all “Required” measures are included, as well as sufficient additional “Recommended” measures to collectively achieve the target trip reduction percentage for the project type (25% or 35%). If needed, Commute.org will be available to help the local jurisdiction review the applicant’s Checklist and help recommend appropriate TDM Checklist measures.

Once the local jurisdiction has verified the applicant’s Checklist accuracy and completeness, the project proceeds through the jurisdiction’s standard review process. If approved, the project is to be conditioned upon approval of both implementation of the selected measures in the Checklist and on-going monitoring and reporting requirements, as outlined in the following section. Then, at the conclusion of the development review process, the local jurisdiction staff forwards the final approved Checklist to C/CAG.

Monitoring & Reporting

Monitoring and reporting the status of TDM implementation is crucial to meeting local and regional land use and transportation policy goals. To accomplish this, C/CAG will partner with Commute.org to administer the monitoring and reporting process. As discussed below, efforts have been made to minimize, to the extent possible, local jurisdiction involvement in related monitoring and enforcement activities. *(Please refer to the C/CAG TDM Policy Update Approach document for discussion of thresholds that qualify projects for this level of review).*

Periodic Project Tenant Surveying

Upon completion and occupancy (full or partial) of a new development project, Commute.org will solicit survey participation through correspondence with an established point of contact at the project site. Commute.org will distribute standardized surveys to tenants with the intent of recording two particular datasets: 1) information from the tenant regarding the completeness of implementing TDM measures conditioned as part of project approval and 2) information regarding tenant employees’ travel behavior, such as mode and frequency.

Two years after initial occupancy the tenant, property owner or other responsible party will self-certify that the TDM Measures chosen during project approval and included in the entitlement by the jurisdiction, are being implemented. Every two years thereafter for the initial six years, the tenant/property owner will again self-certify that required TDM measures continue to be implemented and will also survey their employees. Thereafter this review will occur triennially until post-occupancy year 20. Large multi-family residential projects are required to participate in TDM self-certification for the first six years of occupancy; after the sixth year of occupancy, no additional reporting is required. No reporting is required for small residential projects.

The TDM self-certification form and surveys will be provided by C/CAG and/or its designee, Commute.org.

Commute.org will prescribe a timeline during which the survey participants may gather requisite data, complete the survey, and return the survey. The survey data will be shared by Commute.org with C/CAG and local jurisdictions and incorporated into a TDM monitoring database to help manage land use impacts on the countywide CMP Network.

Collaborative Process to Remedy to TDM Implementation

Non-compliance/participation

This occurs when there is failure to confirm and/or implement agreed measures or to submit required TDM employee surveys. Resolution will likely require local jurisdiction support and involvement with the project developer or tenant, as compliance is ultimately a condition of the development approval. Consequently, Local jurisdictions shall assist monitoring and reporting efforts by also engaging in follow-up with developers or responsible project tenants that have not implemented TDM measures that were previously required as part of Conditions of Approval during the local development review process. The local jurisdiction may, on a case-by-case basis, invite Commute.org to assist issue resolution.

Trip reduction targets/mode share targets

Achieving trip reduction and mode share targets is intended to be a collaborative, non-punitive process; no fines to the project owner or tenant are proposed as part of this process. If a project reports trip reduction performance that is short of the C/CAG TDM Policy goals, then it is proposed that Commute.org, in collaboration with the project owner or tenant, review the selected Checklist measures for the affected project and determine whether other measures might be more appropriate, in order to achieve the established targets.

On the final page, a flowchart is provided to illustrate the process to implement the C/CAG TDM Checklist.

Determining C/CAG TDM Policy Exemption

As described in the *C/CAG TDM Policy Update Approach* document, a C/CAG member jurisdiction may request exemption from these requirements.

How Exemption Determination is Made

A member jurisdiction that has adopted its own TDM program intended to regulate travel demand impacts at land development projects may consider requesting an exemption from the C/CAG TDM Policy, provided the local jurisdiction can sufficiently prove that their adopted TDM measures meet or exceed trip mitigation impacts required by C/CAG. However, since California Government Code Section 65089 (b) still requires that Level of Service (LOS) standards apply to the countywide CMP Network, the burden of proof is on the local jurisdiction to document how their locally adopted travel demand metric will sufficiently mitigate traffic impacts on the CMP Network.

The local jurisdiction shall submit such a request in writing to C/CAG. The request must clearly document how their jurisdiction's adopted city-wide TDM regulations ensure projected SOV trip reduction percentages meet or exceed 25% for TOD and small residential projects, and 35% for all other project land use types. C/CAG will review the local jurisdiction's request for exemption and, if approved, will issue a confirmation of exemption.

This process for requesting an exemption would address a jurisdiction's overall TDM program or ordinance and would not apply on a project-by-project basis.

Step-by-Step TDM Policy Implementation Process

This section describes each procedural step that needs to be followed by project applicants and the C/CAG member jurisdiction where their project is located, in order to effectively implement the C/CAG TDM Policy.

There are four (4) major procedural steps listed below, followed by more detailed explanation for each step:

1. TDM Policy Determination
2. Predevelopment Review
3. Development Review
4. Monitoring & Reporting

Step 1. TDM Policy Determination

The first action a local jurisdiction must take is to ascertain whether the TDM Policy applies to them or not (i.e., exemption). All C/CAG member jurisdictions are subject to the countywide TDM Policy *unless* they explicitly receive an exemption per the process explained above.

If a local jurisdiction is determined to be exempt by C/CAG, the jurisdiction must still notify C/CAG in writing when a new development project estimated to generate more than 100 ADT is submitted for review. If a local jurisdiction is not exempt it must comply with the C/CAG TDM Policy. For ease of implementation it is recommended that each non-exempt jurisdiction incorporate these requirements either directly or by reference into its municipal code.

Step 2. Predevelopment Review

During predevelopment review, the local jurisdiction should advise prospective project applicants that are likely to meet the policy threshold (100 ADT) of the C/CAG TDM Policy requirements, and to advise of associated online information at <https://ccagtdm.org>, as well as assistance that is available from Commute.org and/or C/CAG staff.

Step 3. Development Review

Upon receipt of a development project application meeting the C/CAG TDM Policy threshold, the jurisdiction, as part of its overall application completeness review, will check the adequacy/completeness of the submitted TDM Checklist. This should include verifying that the applicant has selected the correct Checklist (project size, land use type) and committed to all Required TDM measures as well as any Additional Recommended measures needed to collectively achieve the target trip reduction percentage for the project type (25% or 35%).

Once the local jurisdiction has confirmed the application is complete, the local jurisdiction will notify C/CAG. Such notice is to include a brief project description (land use type, size, location), and acknowledgement that the project will be subject to these TDM Policy Requirements. Alternatively, the local jurisdiction can forward the submitted TDM Checklist. C/CAG will not conduct further development review; it will simply file the notice and/or Checklist for administrative proof of record and future monitoring and reporting purposes.

As part of its approval, the local jurisdiction is to condition project approval (COA) on implementation of all TDM measures selected by the applicant in their submitted Checklist as well as the corresponding monitoring and reporting requirements. Once approved, the final TDM Checklist should be forwarded to C/CAG. Local jurisdictions are also responsible to ensure that any site design related TDM measures (ex. showers and locker facilities, bus pull-outs, etc.) are incorporated into final design plans prior to issuance of building permits.

Step 4. Monitoring & Reporting

This step effectively begins once the new development project is approved by the local jurisdiction. While projects project will have different TDM implementation schedules, it is nonetheless assumed there will be progress toward implementing the TDM measures that have been conditioned with project approval.

Two (2) years after project occupancy, Commute.org will distribute a survey to the appropriate project point of contact, who may be the original project owner, property manager, or on-site tenant(s)/TDM coordinator(s). The survey will consist of a TDM Self-Certification Form (i.e., self-reporting implemented TDM measures) along with brief questionnaire about user travel behavior at the project site.

Commute.org will then collect and analyze these surveys. If there is insufficient progress towards TDM Checklist implementation, Commute.org will work with the appropriate point of contact to develop potential solutions. The local jurisdiction shall also collaborate in this issue resolution, which may include potential enforcement.

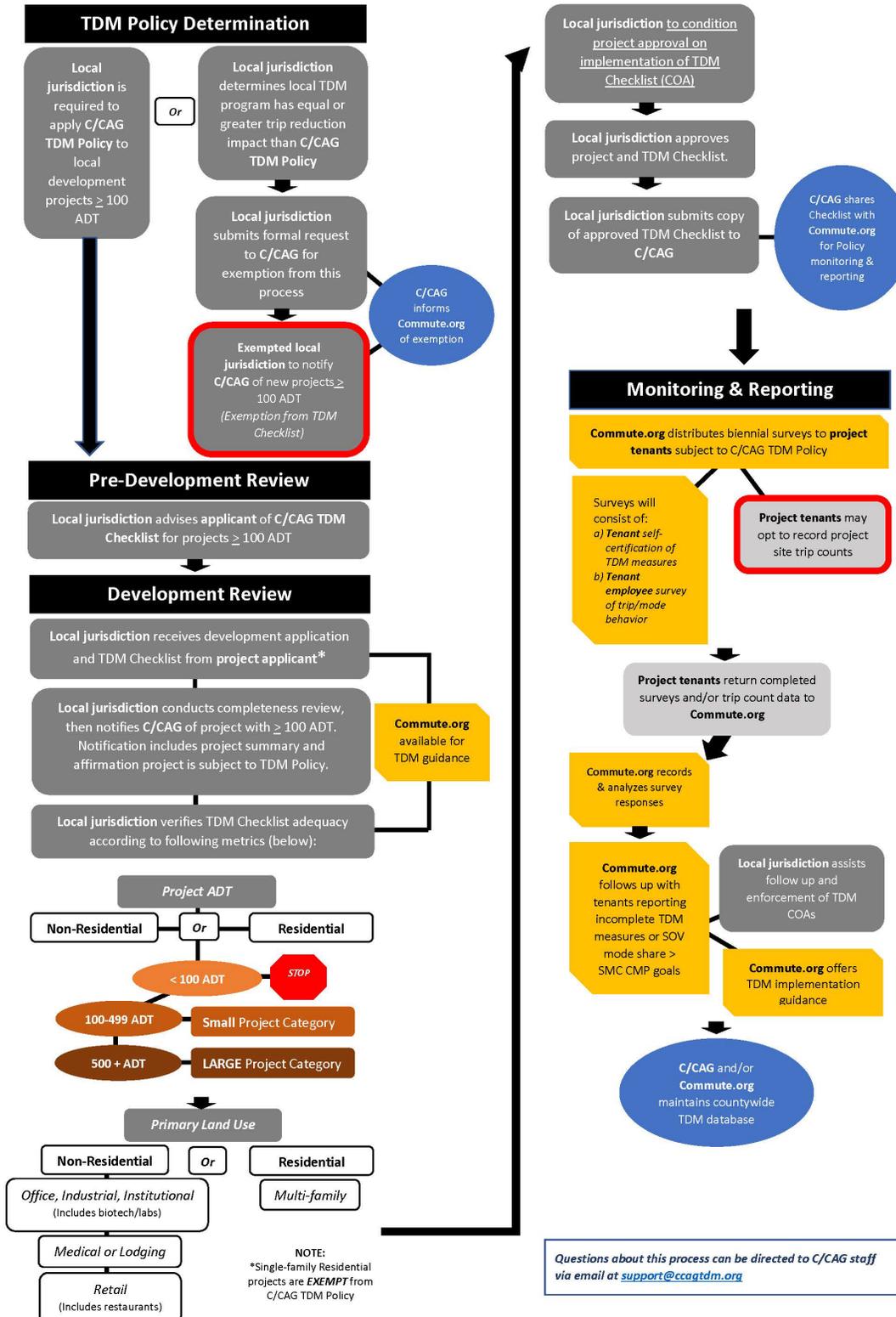
During this fourth and final procedural step, the biennial surveying process will repeat at affected projects for a duration prescribed in the companion *Policy Approach* document.

TDM Policy Process Flowchart

To illustrate the procedural sequence of events described in the previous section, a process flowchart is provided on the next page. As described throughout the *Implementation Guide*, the TDM Policy implementation process is a collaborative one - it relies on frequent data sharing and communication between local jurisdictions, project tenants, C/CAG, and Commute.org.

TDM Policy Process Flowchart

The sequence of events involved in implementing the C/CAG TDM Policy is illustrated below. The process is a collaborative one, which relies on frequent data sharing and communications between local jurisdictions, C/CAG, and Commute.org, the latter of which will assist policy administration at the regional level.



APPENDIX J: RTP PROJECTS

**Attachment 1 - Plan Bay Area 2050 - San Mateo County Financially Constrained Project List
Regionally Significant Projects (04/09/20)**

RTP ID	Project Title	Project Sponsor	Total (YOE\$)	Secured Funding	Amount to be Included in PBA 2050 Target, in millions	Bin	Status	Supports MTC/ABAG's Transportation Strategies
17-06-0017	Route 101/Holly St Interchange Access Improvements	San Carlos	\$36	\$30	\$6	(1) 2021-2035	Design Phase	A,E,M
17-06-0007	US-101 Express Lanes: I-380 to Santa Clara County Line	San Mateo City/County Association of Governments (CCAG)	\$546	\$546	\$0	(1) 2021-2035	In Construction	D,I,J,M
17-06-0010	Improve U.S. 101/Woodside Road interchange	Redwood City	\$210	\$44	\$166	(1) 2021-2035	Design Phase	A,E,M
17-06-0023	Route 1 Improvements in Half Moon Bay	Half Moon Bay	\$19	\$10	\$9	(1) 2021-2035	Design Phase	A,E
17-06-0025	US 101/University Ave. Interchange Improvements	East Palo Alto	\$15	\$15	\$0	(1) 2021-2035	Design Phase	A,M
17-06-0004	Hwy 1 / Manor Drive Overcrossing Improvement	Pacifica	\$25	\$1	\$24	(1) 2021-2035	Planning Phase	A,M
17-06-0008 ¹	Add northbound and southbound modified auxiliary lanes and/ or implementation of managed lanes on U.S. 101 from I-380 to San Francisco County line	San Mateo City/County Association of Governments (CCAG)	\$418	\$7 (\$205 Pending)	\$205	(1) 2021-2035	Planning Phase	D,I,J,M
17-06-0009	Improve operations at U.S. 101 near Route 92 - Phased	San Mateo City/County Association of Governments (CCAG)	\$274	\$6	\$268	(1) 2021-2035	Planning Phase	A,M
17-06-0011	US 101 Produce Avenue Interchange	South San Francisco	\$159	\$13	\$146	(1) 2021-2035	Planning Phase	A,M
17-06-0012	U.S. 101 Interchange at Peninsula Avenue	San Mateo (City)	\$91	\$4	\$86	(1) 2021-2035	Planning Phase	A,M
17-06-0016	Improve access to and from the west side of Dumbarton Bridge on Route 84 connecting to U.S. 101 per Gateway 2020 Study and Dumbarton Corridor Transportation Studies - Phased	San Mateo City/County Association of Governments (CCAG)	\$60		\$60	(2) 2036-2050	Planning and Implementation Phase	A

Footnote: 1 Project budget was revised to reflect the request of \$205M regional funding. Pending final decision by MTC.

**Attachment 1 - Plan Bay Area 2050 - San Mateo County Financially Constrained Project List
Regionally Significant Projects (04/09/20)**

RTP ID	Project Title	Project Sponsor	Total (YOE\$)	Secured Funding	Amount to be Included in PBA 2050 Target, in millions	Bin	Status	Supports MTC/ABAG's Transportation Strategies
17-06-0020	Hwy 1 operational & safety improvements in County Midcoast (acceleration/deceleration lanes; turn lanes; bike lanes; pedestrian crossings; and trails)	San Mateo County	\$9	\$3	\$6	(1) 2021-2035	Planning Phase	A
17-06-0021	Environmental Studies for 101/Candlestick Interchange	Brisbane	\$28	\$2	\$26	(1) 2021-2035	Planning Phase	A,M
17-06-0024	Reconstruct U.S. 101/Sierra Point Parkway interchange (includes extension of Lagoon Way to U.S. 101)	Brisbane	\$21	\$0	\$21	(1) 2021-2035	Planning Phase	A,M
17-06-0029	Add new rolling stock and infrastructure to support SamTrans bus rapid transit along El Camino Real- Phase	San Mateo County Transit District (SamTrans)	\$352	\$4	\$348		Planning Phase	I,J
17-06-0035	I-280 improvements near D Street exit	Daly City	\$1	\$0	\$1	(1) 2021-2035	Planning Phase	A,M
17-06-0037	Widen Millbrae Avenue between Rollins Road and U.S. 101 southbound on-ramp and resurface intersection of Millbrae Avenue and Rollins Road	Millbrae	\$16	\$0	\$16	(1) 2021-2035	Planning Phase	A,M
17-06-0038	Construct a 6-lane arterial from Geneva Avenue/Bayshore Boulevard intersection to U.S. 101/Candlestick Point interchange - Environmental phase	Brisbane	\$19	\$0	\$19	(1) 2021-2035	Planning Phase	A,M
17-06-0040	Extend Blomquist Street over Redwood Creek to East Bayshore and Bair Island Road	Redwood City	\$31	\$4	\$27	(1) 2021-2035	Planning Phase	A
17-06-0030	Environmental Clearance and Design of the Redwood City Ferry Terminal and Service	Redwood City	\$9	\$2	\$7	(1) 2021-2035	Conceptual Phase	J
17-06-0014	Reconstruct U.S. 101/Willow Road interchange	Menlo Park	\$2	\$0	\$2	(1) 2021-2035	In Construction; cost reduced for remaining component	A,M
17-06-0019	State Route 92-82 (El Camino) Interchange Improvement	San Mateo (City)	\$2	\$0	\$2	(1) 2021-2035	Project is completed; cost reduced for remaining component	A,M

**Attachment 1 - Plan Bay Area 2050 - San Mateo County Financially Constrained Project List
Regionally Significant Projects (04/09/20)**

RTP ID	Project Title	Project Sponsor	Total (YOE\$)	Secured Funding	Amount to be Included in PBA 2050 Target, in millions	Bin	Status	Supports MTC/ABAG's Transportation Strategies
17-06-0013	Reconstruct U.S. 101/Broadway interchange*	Burlingame	-	-	-	-	Project is completed	-
17-06-0015	Construct auxiliary lanes (one in each direction) on U.S. 101 from Marsh Road to Embarcadero Road*	Caltrans	-	-	-	-	Project is completed	-
17-06-0018	Improve local access at I-280/I-380 from Sneath Lane to San Bruno Avenue to I-380 – Environmental only*	San Bruno	-	-	-	-	Project will not move forward	-
17-06-0022	Westbound slow vehicle lane on Route 92 between Route 35 and I-280 – Environmental Phase	San Mateo County	-	-	-	-	Project will not move forward	-
17-06-0027	Implement supporting infrastructure and Automated Transit Signal Priority to support SamTrans express rapid bus service along El Camino Real	San Mateo County Transit District (SamTrans)	-	-	-	-	Project is in construction	-
17-06-0034	Construct Route 1 (Calera Parkway) northbound and southbound lanes from Fassler Avenue to Westport Drive in Pacifica*	Pacifica	-	-	-	-	Project will not move forward	-
17-06-0031	Redwood City Street Car Project	Redwood City	-	-	-	-	Project will not move forward	-
17-06-0032	Route 1 San Pedro Creek Bridge Replacement and Creek Widening Project*	Pacifica	-	-	-	-	Project is completed	-
17-06-0033	Widen Route 92 between SR 1 and Pilarcitos Creek alignment, includes widening of travel lanes and shoulders*	Half Moon Bay	-	-	-	-	Project will not move forward	-
17-06-0036	Widen Skyline Boulevard (Route 35) to 4 lane roadway from I-280 to Sneath Lane – Phased*	San Bruno	-	-	-	-	Project will not move forward	-
NEW	Introduce network of regional express bus routes	San Mateo County Transit District (SamTrans)	\$478	\$0	\$478	(1) 2021-2035	Planning Phase	I,J
NEW	Redwood City Transit Center Expansion Project	Redwood City	\$112	\$0	\$112	(1) 2021-2035	Conceptual/Planning Phase	J
NEW	El Camino Real Road Diet	Millbrae	\$82	\$0	\$82	(1) 2021-2035	Planning Phase	E
NEW	Pilot Hovercraft Ferry Service from Foster City	Foster City	\$182	\$0	\$182	(1) 2021-2035	Planning Phase	J

**Attachment 1 - Plan Bay Area 2050 - San Mateo County Financially Constrained Project List
Regionally Significant Projects (04/09/20)**

RTP ID	Project Title	Project Sponsor	Total Estimated Cost from 6/30/2019 Submittal (in 2019\$)	Amount to be Included in PBA 2050 Target, in millions	Bin	Status	Supports MTC/ABAG's Transportation Strategies
NEW²	<i>El Camino Real/Westbound I-380 Ramps Intersection (exit to northbound El Camino Real) Upgrade</i>	<i>San Bruno</i>	\$25	\$25	(1) 2021-2035	Conceptual Phase	A,M
NEW	<i>Eastbound I-380 Freeway Expansion</i>	<i>San Bruno</i>	\$150	\$11	(1) 2021-2035	Conceptual Phase	A
NEW	<i>Interstate 380 Congestion Improvements</i>	<i>San Bruno</i>	\$150	\$11	(1) 2021-2035	Conceptual Phase	A,M
NEW	<i>HSR Millbrae SFO Station</i>	<i>Millbrae</i>	\$251	\$39	(1) 2021-2035	Planning Phase	J
NEW	<i>Millbrae SFO Guideway Improvement</i>	<i>Millbrae</i>	\$502	\$110	(1) 2021-2035	Conceptual Phase	J, K
NEW²	<i>Grand Avenue Off- Ramp Realignment</i>	<i>South San Francisco</i>	\$35	\$35	(1) 2021-2035	Conceptual Phase	A,M
NEW	<i>Railroad Avenue Extension</i>	<i>South San Francisco</i>	\$261	\$30	(2) 2036-2050	Planning Phase	A
NEW²	<i>3rd Avenue/US101 Interchange</i>	<i>San Mateo (City)</i>	\$65	\$65	(1) 2021-2035	Conceptual Phase	A,M
NEW	<i>Local Road Connection from I-380 Terminus/N Access Road to "The East Side" of South San Francisco</i>	<i>South San Francisco</i>	\$128	\$28	(1) 2021-2035	Conceptual Phase	A
NEW	<i>Sierra Point Connection</i>	<i>South San Francisco</i>	\$20	\$17	(2) 2036-2050	Conceptual Phase	A
NEW	<i>Hillsdale Transit Center</i>	<i>San Mateo (City)</i>	\$70	\$1	(1) 2021-2035	Planning Phase	J
NEW²	<i>El Camino Real Complete Streets Improvements</i>	<i>Atherton</i>	\$15	\$15	(1) 2021-2035	Conceptual Phase	E
NEW³	Regional Hovercraft Ferry Network	Foster City	\$2,600	\$1	(1) 2021-2035	Conceptual Phase	J
NEW³	Muni Metro T-Third Extension to South San Francisco	South San Francisco	\$1,800	\$1	(2) 2036-2050	Conceptual Phase	J
NEW³	Caltrain Enhanced Growth	Caltrain	\$1,211	\$250	(1) 2021-2035	Planning Phase	J,L
NEW³	Dumbarton Rail Corridor	San Mateo County Transit District (SamTrans)	\$3,900	\$250	(1) 2021-2035	Planning Phase	J,L

Regionally Significant Subtotal (in millions)	\$3,188
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Footnotes and Legend:

Highlight	Project budget was revised based on approach approved by C/CAG Board on 2/13/20.
2	Project budget was increased/decreased after 2/24/20 CMEQ meeting. Subject to revision based on final negotiation with MTC.
3	Transformative multi county projects that are requesting regional and multi county funds. Amount to be included in PBA 2050 target reflects the recommended San Mateo county share. Subject to revision based on final negotiation with MTC.

**Attachment 1 - Plan Bay Area 2050 - San Mateo County Financially Constrained Project List
Programmatic Categories (04/09/20)**

RTP ID	Programmatic Category	Programmatic Category Description	Proposed PBA 2050 Cost (\$ in millions)	Supports MTC/ABAG's Transportation Strategies
17-06-0001 ²	Bicycle and Pedestrian Program	Projects in this category are new bicycle (on-street and off-street) and pedestrian facilities, and facilities that connect existing network gaps, including but not limited to new multi-purpose pedestrian/bicycle bridges over US 101 and sidewalk gap closures	\$400	E
17-06-0002	County Safety, Security and Other	Projects in this category address safety and security needs of San Mateo County including county-wide implementation of Safe Routes to School Program	\$85	A
17-06-0003	Multimodal Streetscape	Projects in this category implement multimodal or complete streets elements, including but not limited to projects along facilities such as El Camino Real, Bay Road, Ralston Avenue, University Avenue, Middlefield Road, Palmetto Avenue, Mission Street, Geneva Avenue, and Carolan Avenue	\$400	E
17-06-0004	Minor Roadway Expansions	This category includes roadway capacity increasing projects (new roadways, widening or extensions of existing roadways) on minor roads such as Blomquist Street, California Drive, Railroad Avenue, Manor Drive, and Alameda de las Pulgas	\$100	A
17-06-0005	Roadway Operations	County-wide Implementation of non-capacity Increasing local road Intersection modifications and channelization countywide and County-wide implementation of local circulation improvements and traffic management programs countywide	\$200	A
17-06-0006 ²	County-wide Intelligent Transportation System (ITS) and Traffic Operation System Improvements	Installation of transportation system management improvements such as Intelligent Transportation System (ITS) elements and TOS equipment throughout San Mateo County.	\$142	A
17-06-0039 ²	Grade Separations	This project includes grade separations of the Caltrain right of way at approximately 2 to 3 high priority locations in San Mateo County, including 25th Avenue. This project is based on San Mateo County's Measure A grade separation category.	\$446	J,L
NEW	Minor Highway Improvements	Project types include minor highway extension or new lane (less than ¼ mile) and interchange modification (no additional capacity)	\$300	A,M

Programmatic Category Subtotal (in millions)	\$2,073
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Plan Bay Area 2050 Summary (in millions)	
Regionally Significant Projects	\$3,188
Programmatic Categories	\$2,073
	\$5,261
San Mateo County Target	\$5,261

- MTC/ABAG PBA 2050 Transportation Strategies**
- A. Operate and maintain the existing system
 - B. Enable seamless mobility with unified trip planning and fare programs
 - C. Reform regional transit fare policy
 - D. Implement per-mile tolling on congested freeways with transit alternatives
 - E. Build a complete streets network
 - F. Advance regional Vision Zero policy through street design and reduced speeds
 - G. Advance low-cost transit projects
 - H. Build new Transbay rail crossing
 - I. Build a next generation bus rapid transit network
 - J. Make strategic modernization & expansion investments for public transit
 - K. Extend the regional rail network
 - L. Increase existing rail capacity and frequency by modernizing the network

Footnote:

2	Project budget was increased/decreased after 2/24/20 CMEQ meeting. Subject to revision based on final negotiation with MTC.
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APPENDIX K: CHECKLIST FOR MODELING CONSISTENCY

MTC Checklist for Modeling Consistency for CMPs

2011 Submittal

Prepared for City/County Association of Governments of San Mateo County

In cooperation with the Santa Clara Valley Transportation Authority

October 24, 2011

Introduction

The purpose of this document is to provide the checklist of deliverables requested by the Metropolitan Transportation Commission (MTC) to establish that the City/County Association of Governments of San Mateo County (C/CAG) travel demand models apply a regionally consistent model set for the development of travel demand forecasts. The specific checklist of product deliverables was defined by MTC in the *2011 County Congestion Management Plans: Updated MTC Guidance and Review Process Resolution No. 3000, Revised*, Attachment B. The required checklist products are provided in the following sections.

Product 1

Description of the C/CAG Model

The current C/CAG model had its origin in the corridor model developed for the Grand Boulevard Initiative (GBI) Multi-model Corridor Study by the Santa Clara VTA in 2009. The GBI study evaluated the impacts of enhanced transit service (bus rapid transit) and enhanced developed strategies in the El Camino Real corridor to transform an existing auto-oriented commercial transportation corridor into a more transit-oriented, mixed-use transportation corridor. The GBI model was essentially the VTA Countywide model with added zone and network detail to improve upon what was network and zone detail based on the MTC regional models for San Mateo County. The basis for the network and zone refinements applied within San Mateo County was the C/CAG Countywide models originally developed in the mid-1990s.

For the updated C/CAG model development, the GBI model was revised to produce an updated base year 2005 calibration and validation with selected model enhancements. These enhancements included calibration of the auto ownership models to American Community Survey (ACS) 2005 county-level data, addition of bicycle network infrastructure (bike lanes and paths) in the networks, travel time skims, mode choice and bicycle assignments and development of a toll modeling procedure to estimate

express lane vehicle volumes. The model was validated to year 2005 screenline volumes for the AM and PM peak periods and to year 2005 observed transit boardings.

Consistency with MTC Model

As noted previously, the C/CAG model was designed to be consistent with the previous MTC Travel Demand Model forecasting system BAYCAST-90 model. This section provides a general overview of the C/CAG models and also describes several basic modeling characteristics that are shared between the models.

Transportation Analysis Zones (TAZ's) — The current CMP model has a more refined zone system in San Mateo County and Santa Clara County than the MTC regional models. Additional zones were added to more accurately reflect and support the added roadway network and to provide more detail in transit rich corridors and dense central business districts. In all, an additional 156 zones were added in San Mateo County and an additional 1,122 zones were added in Santa Clara County. The new model maintains the use of MTC's zone system in the remaining seven Bay Area counties, but enlarges the full model region and zones to include Santa Cruz, San Benito, Monterey, and San Joaquin Counties.

Highway Network and Transit Network — The roadway network used by the C/CAG model includes additional detail in both San Mateo and Santa Clara Counties. The current CMP model also includes detailed stop, station and route detail in the transit network for San Mateo and Santa Clara Counties, and maintains the MTC roadway and transit networks in the remaining Bay Area counties. The Association of Monterey Bay Area Governments (AMBAG) provided the basis for roadway networks in Monterey, San Benito, and Santa Cruz counties and the San Joaquin County COG provided roadways for San Joaquin County, however, the detailed networks was simplified to match the coarser zone structure in each of those four added counties. Express lane facilities, representing the MTC 'Backbone' express lanes system for 2035, were also coded in the network with a toll facility indicator based on the highway corridor segment and the direction of travel. Differential toll facility codes were required in order to apply specific toll rates to optimize utilization of the express lanes to preserve level-of-service for free carpool users. The C/CAG model also includes a representation of the bicycle network infrastructure in the base year and 2035 forecast year for San Mateo, Santa Clara, San Francisco and southern Alameda Counties, explicitly representing existing and future bike lanes and bike paths in travel time development, mode choice and bicycle assignments.

Capacities and Speed — The current C/CAG model incorporates the area type and assignment group classification system published by MTC in BAYCAST-90. Input free-flow speeds for expressways are slightly lower in the C/CAG models to more accurately match the travel time for the expressway segments during model validation and improve the assignment match of estimated to observed expressway volumes.

Trip Purposes — The current C/CAG model uses the same trip purposes used in the BAYCAST-90 model and also uses additional trip purposes not modeled by MTC. C/CAG model trip purposes include the following:

- Home-based work trips
- Home-based shop and other trips
- Home-based social/recreation trips
- Non-home-based trips
- Home-based school: grade school, high school, and college trips
- Light, medium and heavy duty internal to internal zone truck trips

The C/CAG model uses MTC BAYCAST-90 trip generation equations for trip production and trip attraction functions for all trip purposes listed above. In order to address special markets not included in the MTC trip purposes, the C/CAG model includes several additional trip purposes beyond those modeled by MTC, including:

- Air-passenger trips to San Francisco International (SFO) Airport and San Jose/Mineta International Airport (SJC) and
- Light, medium and heavy-duty external truck trips

Market Segments — The C/CAG model adopts the BAYCAST-90 disaggregate travel demand model four income group market segments for the home-based work trip purpose in trip generation, distribution and mode choice. In addition, the C/CAG model also maintains the three workers per household (0, 1 and 2+ workers) and three auto ownership markets (0, 1 and 2+ autos owned) used in the MTC worker/auto ownership models. Trips by peak and off-peak time period are also stratified in the trip distribution, mode choice and highway and transit assignment models.

External Trips — The C/CAG model uses a different approach for incorporating inter-regional commuting estimates than MTC. For external zones coincident with the MTC model, MTC interregional vehicle volumes were applied for base year 2000 and adjusted to the future by assuming a 1 percent growth rate per year. For external gateways from San Joaquin County and Santa Cruz, Monterey and San Benito Counties, the incorporation of those counties as internal modeled areas obviated the development of external vehicle volumes for those areas of the C/CAG models.

Pricing — The C/CAG model uses MTC pricing assumptions for transit fares, bridge tolls, parking charges, and auto operating costs as assumed in the current MTC Regional Transportation Plan (RTP) and Sustainable Community Strategies (SCS) update. All prices are expressed in year 1990 dollar values in the models. The C/CAG model also uses regional express lane toll charges for the AM and PM peak periods that are based on optimizing the level-of-service in the carpool lanes. Depending on the level of utilization, these toll charges would vary by direction, time of day and by specific corridor.

Auto Ownership — The current C/CAG model applies BAYCAST-90 for auto ownership models to estimate the number of households with 0, 1, and 2+ autos by four income groups in each traffic analysis zone. Walk to transit accessibility measures were incorporated in the auto ownership models consistent with MTC BAYCAST-90 to more logically associate low auto ownership households with transit services. The auto ownership models were recently calibrated to the 2005-2009 American Community Survey to match workers per household and auto ownership by county.

Mode Choice — The mode choice models for BAYCAST-90 include the use of nested structures for most trip purposes, however, explicit estimation of nested structures to consider transit submodes were not included in the model specification.¹ The C/CAG model adds a nesting structure for transit submodes of local bus, express bus, Bus Rapid Transit (BRT), light rail, heavy rail and commuter rail underneath the MTC BAYCAST-90 nested structures. Consistent with the BAYCAST-90, mode choice coefficients are preserved by constraining the model to the BAYCAST-90 parameters, except those in transit submode structure.² The C/CAG model includes a transit submode nest for Bus Rapid Transit (BRT), which is an emerging transit technology in the region. Submode constants for BRT were developed from a market analysis and state preference survey that compared the relative tradeoffs between bus, light rail and hypothetical BRT service. The resulting BRT constants were between the calibrated submode constants applied to local bus service and light rail service, implying that BRT service is perceived as more attractive than local bus service, but not as attractive as light rail service.

Peak Hour and Peak Periods for Highway Assignments —The highway assignments produce AM and PM peak hour volumes, AM and PM peak period volumes (5 AM to 9 AM and 3 PM to 7 PM, respectively – each coincident with the time periods of operation for carpool lanes), midday volumes (9 AM to 3 PM) and evening volumes (7 PM to 5 AM). The four time period volumes are then added together to develop daily vehicle volumes.

Vehicle and Transit Assignments — The current C/CAG model incorporates a methodology analogous to the MTC “layered,” equilibrium assignment process, which distinguishes standard mixed-flow lanes from high-occupancy-vehicle (HOV) lanes. The equilibrium assignment process used in the current CMP model is functionally equivalent to the MTC methodology. The C/CAG model includes additional vehicle classes in the highway assignments for park-and-ride vehicles and drive-alone and carpool toll vehicles.

Drive-alone and carpool toll vehicles for AM and PM peak periods are estimated using a toll model post-processor that estimates toll volumes based on a comparison of the non-toll and toll travel times and costs. This procedure assumes that toll choice occurs after the decision to choose auto versus transit has already been considered, and therefore does not influence transit mode choice. A toll choice constant for drive-alone and carpool modes was developed based on a calibration of toll volumes estimated by application of the toll model to the I-680 Express Lane facility and comparison of estimated to observed express lane volumes. It should be noted that by 2035, in order to maintain the operational feasibility of implementing regional express toll lanes, it was assumed that only 3+ occupant carpools

¹ A nested structure partitions the alternatives into groups (nests) of similarity. The groups can be further generalized into subgroups (subnests) and so on, which has the form of an inversed tree.

would be allowed to travel in the carpool lanes for free. This was assumed for all carpool facilities in the C/CAG model region.

In the current CMP model, transit passengers are assigned with a methodology analogous to that used by MTC, with separate assignments for each transit submode and access mode. Assignments are also performed separately for peak and off-peak conditions. A total of eighteen separate transit assignments are run to cover the full combination of transit submode and access modes as well as to estimate transit ridership for air-passengers and external home-based work transit trips from the San Joaquin (ACE, BART and San Joaquin SMART bus) and AMBAG (Caltrain and Monterey Express) model regions.

Model Validation with 2005 Traffic and Transit Volumes — The current C/CAG model is validated to year 2005 traffic volumes for county-level screenlines and specific major transportation facilities. Two time periods are validated for county screenlines: AM peak period (5 AM to 9 AM) and PM peak period (3 PM to 7 PM). Peak hour validation was performed for US 101 and SR 82 (El Camino Real) using traffic counts provided by Caltrans. Daily transit boardings were validated for the year 2005 at the system level for major regional transit operators (Caltrain, BART, MUNI, VTA and AC Transit) and at the route level for SamTrans express and local routes.

Product 2

Description of Demographic Forecasts

The C/CAG model uses the Association of Bay Area Governments (ABAG) Projections 2009 data series for the base year 2005 and the ABAG Current Regional Plans scenario as the basis for the 2035 long-range forecasts for San Mateo County, as provided by MTC at the MTC 1454 zone level. The MTC zone level allocations were sub-allocated to the smaller C/CAG zones (including finer zones for both San Mateo and Santa Clara Counties) based on local development information and parcel level data. As such, the C/CAG socioeconomic data inputs are consistent at both the MTC zone level and the ABAG census tract level, however, slight differences do exist in San Mateo and Santa Clara Counties due to rounding errors resulting from the allocation process. Key ABAG land use variables used in the San Mateo C/CAG models do not differ by more than one percent at the county level for any of the 9 MTC region counties. No differences exist at the census tract level outside of San Mateo and Santa Clara Counties for any of the remaining MTC counties.

Product 3

ABAG County-Level Estimates for Population, Households, Jobs, and Employed Residents Year 2005, Current Regional Plans (v 0.1)

ABAG Projections 2009

County	Population	Households	Jobs	Employed Residents
San Francisco	795,792	338,923	553,073	388,097
San Mateo	721,890	260,066	337,344	318,599
Santa Clara	1,762,986	595,720	872,820	733,989
Alameda	1,505,308	543,776	730,264	705,906
Contra Costa	1,023,390	368,323	379,021	459,606
Solano	421,600	142,039	150,513	194,903
Napa	133,695	49,256	70,690	64,102
Sonoma	479,203	181,786	220,442	237,700
Marin	252,605	103,188	135,473	122,204
Bay Area	7,096,469	2,583,077	3,449,640	3,225,106

San Mateo C/CAG Trip-based Models

County	Population	Households	Jobs	Employed Residents
San Francisco	795,792	338,923	553,073	388,097
San Mateo	721,900	260,072	337,313	319,235
Santa Clara	1,762,957	595,716	872,248	733,965
Alameda	1,505,308	543,776	730,264	705,906
Contra Costa	1,023,390	368,323	379,021	459,606
Solano	421,600	142,039	150,514	194,903
Napa	133,695	49,256	70,690	64,102
Sonoma	479,203	181,786	220,442	237,700
Marin	252,605	103,188	135,473	122,204
Bay Area	7,096,450	2,583,079	3,449,038	3,225,718

Percent Difference

County	Population	Households	Jobs	Employed Residents
San Francisco	0.00%	0.00%	0.00%	0.00%
San Mateo	0.00%	0.00%	-0.01%	0.20%
Santa Clara	0.00%	0.00%	-0.07%	0.00%
Alameda	0.00%	0.00%	0.00%	0.00%
Contra Costa	0.00%	0.00%	0.00%	0.00%
Solano	0.00%	0.00%	0.00%	0.00%
Napa	0.00%	0.00%	0.00%	0.00%
Sonoma	0.00%	0.00%	0.00%	0.00%
Marin	0.00%	0.00%	0.00%	0.00%
Bay Area	0.00%	0.00%	-0.02%	0.02%

Product 3, continued**ABAG County-Level Estimates for Population, Households, Jobs, and Employed Residents
Year 2035, Current Regional Plans (v 0.1)****MTC Tour-based Models**

County	Population	Households	Jobs	Employed Residents
San Francisco	980,071	417,997	698,793	472,195
San Mateo	893,067	322,624	442,850	392,101
Santa Clara	2,433,531	827,254	1,212,948	1,054,001
Alameda	1,958,248	705,343	906,300	963,499
Contra Costa	1,323,390	480,474	469,462	603,803
Solano	504,331	171,284	173,057	220,100
Napa	148,517	54,642	86,961	71,000
Sonoma	572,443	212,784	262,078	258,396
Marin	269,179	110,673	147,872	102,999
Bay Area	9,082,777	3,303,075	4,400,321	4,138,094

San Mateo C/CAG Trip-based Models

County	Population	Households	Jobs	Employed Residents
San Francisco	980,071	417,997	698,793	472,195
San Mateo	893,066	322,620	442,858	392,097
Santa Clara	2,433,551	827,261	1,212,959	1,054,016
Alameda	1,958,248	705,343	906,300	963,499
Contra Costa	1,323,390	480,474	469,462	603,803
Solano	504,331	171,284	173,057	220,100
Napa	148,517	54,642	86,961	71,000
Sonoma	572,443	212,784	262,078	258,396
Marin	269,179	110,673	147,872	102,999
Bay Area	9,082,796	3,303,078	4,400,340	4,138,105

Percent Difference

County	Population	Households	Jobs	Employed Residents
San Francisco	0.00%	0.00%	0.00%	0.00%
San Mateo	0.00%	0.00%	0.00%	0.00%
Santa Clara	0.00%	0.00%	0.00%	0.00%
Alameda	0.00%	0.00%	0.00%	0.00%
Contra Costa	0.00%	0.00%	0.00%	0.00%
Solano	0.00%	0.00%	0.00%	0.00%
Napa	0.00%	0.00%	0.00%	0.00%
Sonoma	0.00%	0.00%	0.00%	0.00%
Marin	0.00%	0.00%	0.00%	0.00%
Bay Area	0.00%	0.00%	0.00%	0.00%

Product 4

Identification of Differences between CMA and ABAG Census Tract Level

C/CAG socioeconomic data inputs are consistent at both the MTC zone level and the ABAG census tract level for the Current Regional Plans scenario for the year 2035. The MTC zone level data was provided by MTC subsequent to a meeting of the Regional Model Working Group³. Data at the MTC zone level in San Mateo and Santa Clara Counties was allocated to the smaller San Mateo C/CAG model zones using local land use development patterns, however, MTC zone level, and by default ABAG census-tract level, control totals were preserved in the allocation process.

³ Provided by email from MTC to the Regional Model Working Group members on March 25, 2011.

Product 5

Region-Level Auto Operating Cost, Key Transit Fares and Bridge Tolls Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

Pricing Assumption	2035 Value in 2000 dollars	2035 Value in 2010 dollars
Auto Operating Cost per Mile	\$0.222	\$0.280
Bridge Tolls	Toll schedule starting July 1, 2012	Toll schedule starting July 1, 2012
Transit Fares	---	---
Muni Local Bus	\$1.606	\$2.000
AC Transit Local Bus	\$1.606	\$2.000
VTA Local Bus	\$1.606	\$2.000
SamTrans Local Bus	\$1.606	\$2.000

San Mateo C/CAG Trip-based Models

Pricing Assumption	2035 Value in 2000 dollars ⁴	2035 Value in 2010 dollars ⁵
Auto Operating Cost per Mile ⁶	\$0.24	\$0.30
Bridge Tolls	Toll schedule starting July 1, 2010	Toll schedule starting July 1, 2010
Transit Fares	---	---
Muni Local Bus	\$1.55	\$1.97
AC Transit Local Bus	\$1.55	\$1.97
VTA Local Bus	\$1.55	\$1.97
SamTrans Local Bus	\$1.55	\$1.97

⁴ Source for Inflation Rates : http://www.bls.gov/data/inflation_calculator.htm

⁵ Source for Inflation Rates : http://www.bls.gov/data/inflation_calculator.htm

⁶ Source: *Plan/Bay Area: Technical Summary of Predicted Traveler Responses to First Round Scenarios, Technical Report*, Metropolitan Transportation Commission, March 22, 2011, p.14.

Product 6

Highway Network and Transit Network — The roadway network used by the San Mateo C/CAG model includes additional detail in both San Mateo and Santa Clara Counties. The current CMP model also includes detailed stop, station and route detail in the transit network for San Mateo and Santa Clara Counties, and maintains the MTC roadway and transit networks in the remaining Bay Area counties. The Association of Monterey Bay Area Governments (AMBAG) provided the basis for roadway networks in Monterey, San Benito, and Santa Cruz counties and the San Joaquin County COG provided roadways for San Joaquin County, however, the detailed networks was simplified to match the coarser zone structure in each of those four added counties. Express lane facilities, representing the MTC 'Backbone' express lanes system for 2035, were also coded in the network with a toll facility indicator based on the highway corridor segment and the direction of travel. Differential toll facility codes were required in order to apply specific toll rates to optimize utilization of the express lanes to preserve level-of-service for free carpool users.

For model consistency reporting purposes, the San Mateo C/CAG models assume committed project as defined in the MTC 2035 Regional Transportation Plan in San Mateo County and all other counties, with the exception that HOV lanes are assumed on US 101 from Whipple Road north the San Mateo/San Francisco County line by conversion of the auxiliary lanes. The 2035 forecasts produced by the San Mateo C/CAG models also assumes that only 3+ person carpools are allowed to travel in the carpool lanes without a charge for the entire model region. The C/CAG model includes a representation of the bicycle network infrastructure in the base year and 2035 forecast year for San Mateo, Santa Clara, San Francisco and southern Alameda Counties, explicitly representing existing and future bike lanes and bike paths in travel time development, mode choice and bicycle assignments.

Product 7

Households by Number of Automobiles, by County

Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

County	Zero	One	Two +	Total	Zero	One	Two +	Total
San Francisco	132,684	192,192	116,364	441,240	30.1%	43.6%	26.4%	100.0%
San Mateo	18,812	116,608	198,216	333,636	5.6%	35.0%	59.4%	100.0%
Santa Clara	62,264	268,396	528,788	859,448	7.2%	31.2%	61.5%	100.0%
Alameda	86,828	235,696	415,844	738,368	11.8%	31.9%	56.3%	100.0%
Contra Costa	19,860	153,448	317,904	491,212	4.0%	31.2%	64.7%	100.0%
Solano	10,868	50,216	121,300	182,384	6.0%	27.5%	66.5%	100.0%
Napa	4,044	19,240	37,200	60,484	6.7%	31.8%	61.5%	100.0%
Sonoma	14,996	68,860	146,316	230,172	6.5%	29.9%	63.6%	100.0%
Marin	6,992	43,332	72,116	122,440	5.7%	35.4%	58.9%	100.0%
ALL	357,348	1,147,988	1,954,048	3,459,384	10.3%	33.2%	56.5%	100.0%

San Mateo C/CAG Trip-based Models

County	Zero	One	Two +	Total	Zero	One	Two +	Total
San Francisco	130,076	170,563	117,323	417,962	31.1%	40.8%	28.1%	100.0%
San Mateo	25,297	113,422	183,777	322,496	7.8%	35.2%	57.0%	100.0%
Santa Clara	73,775	250,650	501,913	826,338	8.9%	30.3%	60.7%	100.0%
Alameda	116,722	257,910	330,664	705,296	16.5%	36.6%	46.9%	100.0%
Contra Costa	33,991	159,328	287,157	480,476	7.1%	33.2%	59.8%	100.0%
Solano	8,270	49,035	113,991	171,296	4.8%	28.6%	66.5%	100.0%
Napa	2,771	17,703	34,167	54,641	5.1%	32.4%	62.5%	100.0%
Sonoma	13,600	75,388	123,801	212,789	6.4%	35.4%	58.2%	100.0%
Marin	5,004	41,293	64,354	110,651	4.5%	37.3%	58.2%	100.0%
ALL	409,506	1,135,292	1,757,147	3,301,945	12.4%	34.4%	53.2%	100.0%

Product 8
Number of Trips by Tour Purpose
Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

Purpose	Tour-based	Share
Work	9,095,396	30.2%
University	674,228	2.2%
School	3,182,584	10.6%
At-Work	2,146,148	7.1%
Eat Out	1,269,852	4.2%
Escort	2,878,708	9.6%
Shopping	4,323,304	14.3%
Social	921,024	3.1%
Other	5,650,824	18.7%
ALL	30,142,068	100.0%

San Mateo C/CAG Trip-based Models

Purpose	Trip-based	Share
Home-based Work	6,257,144	23.3%
Home-based Shopping/Other	7,481,587	27.9%
Home-based Social-Recreational	3,211,923	12.0%
Non-home-based	7,417,766	27.7%
Home-based College	576,940	2.2%
Home-based High School	558,042	2.1%
Home-based Elementary School	1,316,026	4.9%
ALL	26,819,428	100.0%

Product 9

Average Trip Distance by Tour Purpose Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

Tour Purpose	Average Trip Distance, Miles
Work	10.40
University	6.84
School	3.96
At-Work	3.35
Eat Out	5.42
Escort	4.34
Shopping	4.20
Social	4.87
Other	5.00
All	6.25

San Mateo C/CAG Trip-based Models

Trip Purpose	Average Trip Distance, Miles
Home-based Work	12.80
Home-based Shopping/Other	6.91
Home-based Social-Recreational	7.45
Non-home-based	6.75
Home-based College	10.52
Home-based High School	4.85
Home-based Elementary School	4.06
ALL	8.20

Product 10
Journey to Work, County-to-County Usual Workplace
Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

Origin County	San Francisco	San Mateo	Santa Clara	Alameda	Contra Costa	Solano	Napa	Sonoma	Marin	All
San Francisco	358,844	55,696	5,884	31,312	7,080	708	312	1,112	12,428	473,376
San Mateo	82,972	206,644	63,104	29,564	4,416	324	156	516	5,152	392,848
Santa Clara	12,508	57,712	915,460	71,272	4,960	196	80	72	780	1,063,040
Alameda	119,536	70,684	130,732	558,332	68,668	3,272	1,240	1,068	12,576	966,108
Contra Costa	64,288	16,448	17,164	139,560	315,164	18,848	5,512	2,596	19,012	598,592
Solano	11,408	2,212	1,108	15,512	31,900	126,024	17,728	5,572	8,060	219,524
Napa	2,020	484	176	2,556	4,408	7,428	44,116	7,844	3,104	72,136
Sonoma	4,948	1,204	212	1,844	1,988	2,196	8,172	215,416	20,828	256,808
Marin	20,756	3,992	512	6,240	4,676	1,052	872	6,544	58,796	103,440
Bay Area	677,280	415,076	1,134,352	856,192	443,260	160,048	78,188	240,740	140,736	4,145,872

San Mateo C/CAG Trip-based Models

Origin County	San Francisco	San Mateo	Santa Clara	Alameda	Contra Costa	Solano	Napa	Sonoma	Marin	All
San Francisco	352,045	48,851	17,360	22,807	6,088	716	578	2,434	11,508	462,387
San Mateo	86,314	229,097	52,114	21,146	2,910	721	194	1,824	2,254	396,574
Santa Clara	18,879	61,803	934,384	58,247	6,404	2,571	580	4,993	2,925	1,090,785
Alameda	124,842	60,321	93,259	605,272	60,016	6,869	1,618	6,525	14,239	972,960
Contra Costa	63,679	9,479	14,024	110,362	354,358	16,113	4,175	3,790	20,254	596,234
Solano	10,779	2,117	1,626	11,086	24,916	134,855	13,836	5,871	7,383	212,470
Napa	1,202	333	249	929	1,827	5,091	55,957	4,167	1,279	71,035
Sonoma	5,443	738	745	1,210	1,368	1,676	2,897	220,959	20,267	255,302
Marin	20,699	1,661	552	2,765	2,208	587	389	4,570	68,789	102,220
Bay Area	683,882	414,400	1,114,313	833,823	460,095	169,199	80,225	255,133	148,897	4,159,967

Product 11
Region-Level Mode Share by Tour Purpose
Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

Tour Purpose	Automobile	Walk	Bicycle	Transit	All Modes
Work	81.8%	5.3%	1.5%	11.3%	100.0%
University	63.7%	13.8%	1.3%	21.2%	100.0%
School	69.6%	20.7%	1.6%	8.1%	100.0%
At-Work	69.4%	29.3%	0.7%	0.6%	100.0%
Eat Out	81.1%	15.4%	1.3%	2.3%	100.0%
Escort	93.8%	5.7%	0.3%	0.2%	100.0%
Shopping	87.0%	10.0%	1.1%	2.0%	100.0%
Social	78.7%	15.8%	1.7%	3.8%	100.0%
Other	85.6%	10.2%	1.5%	2.7%	100.0%
All Purposes	81.7%	11.2%	1.3%	5.8%	100.0%

San Mateo C/CAG Trip-based Models

Trip Purpose	Automobile	Walk	Bicycle	Transit	All Modes
Home-based Work	83.5%	3.4%	1.3%	11.8%	100.0%
Home-based Shopping/Other	84.1%	9.9%	0.7%	5.3%	100.0%
Home-based Social-Recreational	81.2%	10.7%	3.6%	4.5%	100.0%
Non-home-based	82.5%	12.9%	0.9%	3.7%	100.0%
Home-based College	66.6%	9.3%	5.3%	18.8%	100.0%
Home-based High School	55.5%	21.4%	4.4%	18.7%	100.0%
Home-based Grade School	52.9%	31.2%	6.3%	9.6%	100.0%
All Purposes	80.7%	12.5%	1.7%	5.1%	100.0%

Product 12

Region-Level VMT and VHT by Facility Type and Time Period Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

VMT

Time Period	Facility Type					All Facilities
	Freeways	Expressways	Major Arterials	Collectors	Other	
Early AM (3 a.m. - 6 a.m.)	5,504,092	544,464	1,158,156	381,730	354,247	7,942,689
AM Peak (6 a.m. - 10 a.m.)	26,675,579	2,918,973	9,919,154	3,048,868	3,437,135	45,999,709
Midday (10 a.m. - 3 p.m.)	26,067,097	3,063,934	10,925,935	3,047,571	4,407,032	47,511,570
PM Peak (3 p.m. - 7 p.m.)	28,630,722	3,380,237	12,261,677	3,558,105	4,461,626	52,292,367
Evening (7 p.m. - 3 a.m.)	17,572,988	1,820,157	5,900,622	1,744,592	2,237,126	29,275,485
Daily	104,450,478	11,727,765	40,165,545	11,780,866	14,897,167	183,021,820

VHT

Time Period	Facility Type					All Facilities
	Freeways	Expressways	Major Arterials	Collectors	Other	
Early AM (3 a.m. - 6 a.m.)	90,089	11,137	34,596	13,125	22,837	171,784
AM Peak (6 a.m. - 10 a.m.)	565,113	69,017	331,877	119,925	208,660	1,294,591
Midday (10 a.m. - 3 p.m.)	461,465	65,853	357,347	118,317	254,178	1,257,160
PM Peak (3 p.m. - 7 p.m.)	600,243	80,725	419,721	147,321	256,638	1,504,646
Evening (7 p.m. - 3 a.m.)	294,320	37,677	183,263	61,581	129,425	706,267
Daily	2,011,229	264,408	1,326,803	460,269	871,738	4,934,448

San Mateo C/CAG Trip-based Models

VMT

Time Period	Facility Type					All Facilities
	Freeways	Expressways	Major Arterials	Collectors	Other	
AM Peak (5 a.m. - 9 a.m.)	23,254,078	2,296,635	7,889,177	1,803,260	4,748,694	39,991,844
Midday (9 a.m. - 3 p.m.)	33,882,129	2,808,072	9,945,821	2,488,415	7,186,680	56,311,117
PM Peak (3 p.m. - 7 p.m.)	28,035,161	3,460,308	12,253,081	3,003,551	6,555,756	53,307,857
Evening (7 p.m. - 5 a.m.)	21,284,834	1,507,476	4,050,705	1,024,120	1,024,120	28,891,255
Daily	106,456,202	10,072,491	34,138,784	8,319,346	19,515,250	178,502,073

VHT

Time Period	Facility Type					All Facilities
	Freeways	Expressways	Major Arterials	Collectors	Other	
AM Peak (5 a.m. - 9 a.m.)	557,271	77,891	294,386	100,785	195,611	1,225,944
Midday (9 a.m. - 3 p.m.)	655,232	86,735	369,138	141,306	292,117	1,544,528
PM Peak (3 p.m. - 7 p.m.)	812,268	127,094	524,676	199,404	284,232	1,947,674
Evening (7 p.m. - 5 a.m.)	345,015	41,581	139,328	44,753	129,816	700,493
Daily	2,369,786	333,301	1,327,528	486,248	901,776	5,418,639

Product 13

Region-Level Average Speed (VMT/VHT) by Facility Type and Time Period Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

Time Period	Freeways	Facility Type	
		All Other Facilities	All Facilities
Early AM (3 a.m. - 6 a.m.)	61.1	29.9	46.2
AM Peak (6 a.m. - 10 a.m.)	47.2	26.5	35.5
Midday (10 a.m. - 3 p.m.)	56.5	27.0	37.8
PM Peak (3 p.m. - 7 p.m.)	47.7	26.2	34.8
Evening (7 p.m. - 3 a.m.)	59.7	28.4	41.5
Daily	51.9	26.9	37.1

San Mateo C/CAG Trip-based Models

Time Period	Freeways	Facility Type	
		All Other Facilities	All Facilities
AM Peak (5 a.m. - 9 a.m.)	41.7	25.0	32.6
Midday (9 a.m. - 3 p.m.)	51.7	25.2	36.5
PM Peak (3 p.m. - 7 p.m.)	34.5	22.3	27.4
Evening (7 p.m. - 5 a.m.)	61.7	21.4	41.2
Daily	44.9	23.6	32.9

APPENDIX L: TRAFFIC IMPACT ANALYSIS POLICY

C/CAG
CITY/COUNTY ASSOCIATION OF GOVERNMENTS
OF SAN MATEO COUNTY

*Atherton • Belmont • Brisbane • Burlingame • Colma • Daly City • East Palo Alto • Foster City • Half Moon Bay • Hillsborough • Menlo Park
Millbrae • Pacifica • Portola Valley • Redwood City • San Bruno • San Carlos • San Mateo • San Mateo County • South San Francisco • Woodside*

Policy on Traffic Impact Analysis (TIA)
To Determine Traffic Impacts on the Congestion
Management Program (CMP) Roadway Network
Resulting From Roadway Changes, General Plan
Updates, and Land Use Development Projects

August 10, 2006

Section I

INTRODUCTION

As the Congestion Management Agency for San Mateo County, C/CAG is responsible for maintaining the performance and standards of the Congestion Management Program (CMP) roadway network. The CMP roadway network is of countywide significance, and their performance must be preserved.

Traffic Impact Analysis (TIA) is the term used in the study of the expected effects of projects and land use decisions on transportation facilities. The study's purpose is to determine whether the transportation system can accommodate the traffic generated by the projects or land use decisions. And to help decision makers to make improvements needed to the roadways, bike routes, sidewalks, and transit services affected by the project. This helps decision makers determine whether to approve the project and what conditions to impose on the project.

This document includes the following sections:

- Section I: Introduction
- Section II: Definition & Purpose
- Section III: Policy
 1. Roadway Modification Projects
 2. General Plan and Specific Plans
 3. Land Use Development Projects
- Section IV: Scope and Parameters of Traffic Impact Analysis
- Section V: Definition of CMP Impact

Section II

DEFINITION & PURPOSE

Definition

This document states policy and establishes procedures to determine cumulative capacity impacts on the CMP roadway network (impacts on the quality of traffic services) from the following three types of projects:

1. **Roadway modification projects:**
 - a. Projects that change the traffic capacity of CMP roadway.
 - b. Projects near the CMP roadway and impact the CMP roadway network.
2. **General Plan and Specific Plans.**
 - a. New General Plan or General Plan updates which include land use changes that would cause an impact on the CMP roadway network.
 - b. Specific Plans, Specific Area Plans, Precise Plans, which include land use changes that would cause an impact on the CMP roadway network.
3. **Land use development project.**

Purpose

The purpose of this policy is to ensure uniform procedures for performing Traffic Impact Analysis to evaluate impacts on the CMP roadway resulting from land use and project decisions in San Mateo County.

The intent of this policy is to preserve acceptable performance on the CMP roadway network, and to establish community standards for consistent system-wide transportation review. Preservation of CMP roadway and intersection performance will require an evaluation of the near and long term impacts of General Plan updates, land use development proposals, as well as proposed roadway modifications that will either reduce the capacity of the CMP network, or cause additional traffic on the CMP network.

It is not intended that the Traffic Impact Analysis guided by this document will provide all information required for California Environmental Quality Act (CEQA) purposes. Traffic impact analysis to determine traffic impacts on the CMP network may be conducted as part of the CEQA process.

This policy will be reviewed and integrated into the 2007 Congestion Management Program for San Mateo County. It will be reviewed subsequently in two years.

Section III **POLICY**

This policy provides an avenue to assess the cumulative traffic impacts on the Congestion Management (CMP) roadway network, of General Plan decisions made by local jurisdictions. It provides direction to local jurisdictions on how to analyze CMP traffic impacts resulting from roadway changes or land use decisions, determine feasible and appropriate mitigations.

Land use development proposals and proposed roadway modifications must be consistent with the jurisdiction's adopted General Plan, unless the proposal is to be amended into the General Plan before final approval by the jurisdiction. Local jurisdictions must evaluate traffic impacts of proposed revisions to their jurisdiction-wide General Plans and Specific Area Plans on the CMP network.

1. Roadway Modification Projects

Project sponsor, in consultation with C/CAG staff, shall determine if a roadway modification project on or near a CMP roadway will have potential near-term and long-term traffic impacts on the CMP roadway network. Section 4, *Scope and Parameters of Traffic Impact Analysis*, and more specifically the definition of impacts in Section 5, *Definition of CMP Impacts* should be used in developing initial thresholds (e.g. change in intersection or lane volumes) to determine significant traffic impacts on a CMP roadway.

If initial assessment indicates that significant traffic impact on the CMP network may result from the proposed project, its sponsor must conduct traffic impact analysis consistent with this policy to determine traffic impacts on the CMP roadway system. Moreover, a travel demand forecasting model must be used to determine long-term traffic impacts if the project is to modify the CMP roadway. See "Travel Demand Forecasting" requirements below. For near term analysis, if the travel demand forecasting model does not provide the level of detail desired, then the use of manual assignment models, micro-simulation models or other tools to provide a more detailed and informative analysis of a roadway project is acceptable.

Mitigation:

Proposed roadway changes to the CMP roadway that are determined to have a CMP traffic impacts for current or future years cannot be considered in conformity with the Congestion Management Program unless mitigated to no CMP impact. This mandatory mitigation requirement applies only to roadway projects on the CMP network. More latitude is provided for mitigating impacts to the CMP network that result from local land use decisions as described in sections 2 and 3 of this policy.

CMP traffic impacts could be mitigated through modifications of the proposed project. The level of service analysis or simulation can often be used to identify elements of the project that, if modified, will reduce the project impacts.

Mitigation measures may also include roadway improvements, operational changes, or a provision for alternate routes. For example, adding a turn lane at the intersection, modifying or eliminating on street parking may improve travel times. All mitigation measures shall first be discussed with and reviewed by C/CAG staff.

This policy does not prohibit a local jurisdiction from mitigating impacts on local streets that result from congestion on a CMP roadway.

2. General Plan and Specific Plans

Project sponsor, in consultation with C/CAG staff, shall determine if a General Plan change or a Specific Plan will have potential traffic impacts on the Congestion Management Program (CMP) roadway network. Jurisdictions must conduct travel demand forecasting and traffic impact analysis to determine long term cumulative traffic impacts on the CMP roadway system. See “Travel Demand Forecasting” requirements below. For scope and parameters of traffic impact analysis, see Section 4. For definition of traffic impacts on the CMP system, see Section 5. If a jurisdiction makes small and incremental amendments to its General Plan to include land use changes, and that each individual land use change would not have CMP traffic impact, then flexibility is provided that the travel demand forecasting model needs to be run every two years to account for the cumulative list of projects and site specific General Plan changes.

Mitigation:

General Plan updates or Specific Plans that are determined to have CMP traffic impacts must consult C/CAG staff to identify feasible mitigations.

Cumulative development traffic impacts identified in the evaluation of a jurisdiction may be mitigated in a variety of ways. Clearly, revising the allowable land use intensities is the most direct way to mitigate traffic impacts to the CMP network. However, it is recognized that this may not be consistent with the jurisdiction’s economic development plans. As alternatives, the jurisdiction may adopt a trip reduction policy that requires new development to make measurable reductions in their trip generation. These trip reduction requirements should be incorporated in the standard Conditions of Approval. The local jurisdiction should also implement a plan to monitor or sample actual trip generation to ensure that the trip reduction conditions are being met following project occupancy. Alternatively, jurisdictions may elect to provide capital improvements to reduce the traffic impact of cumulative development. To be viable, this type of mitigation must include a reliable funding mechanism such as a traffic mitigation fee program that includes, at a minimum, partial funding for the impacted CMP roadways. Where the impact is on the freeway system it will usually not be feasible to fully fund a needed improvement through a local fee. However, the fee program should provide a minimum of funding that would meet likely local share requirements, if approved by the jurisdiction.

All mitigation measures shall first be discussed with and reviewed by C/CAG staff before they are included in the report.

3. Land Use Development Projects

Project sponsor shall comply with the “Land Use Impact Analysis Program” guidelines in the latest Congestion Management Program (CMP) for San Mateo County. Project sponsors shall consult C/CAG staff regarding land use development projects that are determined to have traffic impacts on the CMP roadway network.

Mitigations:

Adopted General Plan trip reduction requirements should ultimately be implemented at the project level through Conditions of Approval. As with the General Plan mitigations, the trip reduction program should include a plan for monitoring trip generation and procedures to determine if established targets are met or exceeded. The option to reduce the intensity of a project to eliminate significant impacts to the CMP network should also be considered. If physical mitigation is desired, the jurisdiction should determine whether the project can and should be required to construct the mitigation project or whether funding the project’s pro rata share is appropriate, and paid to the jurisdiction.

Travel Demand Forecasting Requirements

It is the intent of this policy that the cumulative traffic impacts to the CMP roadway system be evaluated consistently throughout the County. Toward this end, the C/CAG Countywide Travel Demand Forecasting Model must be used to forecast traffic demand for the analysis of the long-term cumulative traffic impacts of CMP roadway modification projects, General Plan updates, and Specific Area Plans.

Long Term Cumulative Analysis

The long-term cumulative analysis must be based on C/CAG or C/CAG derivative model forecasts. C/CAG will periodically update the model to provide travel demand forecasts under a 15 to 20 year planning horizon. This does not, necessarily require individual cumulative model runs for each land use development project. For example, a project that is consistent with the City’s existing General Plan may not require a new model run. Previous General Plan consistent model results can be used. The alternative methods used for near term analysis or individual development projects as described in the next section may be used to modify the existing model results to illustrate conditions with and without the proposed project. If alternative methods are used to modify cumulative model forecasts, comparison must be made with long-range C/CAG model forecasts to ensure consistency. This type of minor adjustments to the C/CAG model results is permitted for individual land use development projects or minor changes to an existing General Plan. However new C/CAG model runs are required at least every two years¹, for

¹ The biennial update of the C/CAG model runs can be postponed until they are needed for the analysis of a

Specific Plans and for major General Plan updates. Updating the C/CAG model runs is necessary to ensure that the cumulative impacts both within each jurisdiction as well as from neighboring jurisdictions are represented in the model results.

A C/CAG derivative model that is consistent with the C/CAG model may also be used; however, it must be reviewed and approved by C/CAG staff in advance. Derivative models must be updated periodically to maintain a 15 to 20 year planning horizon. Approval of a C/CAG derivative model includes the demonstration to C/CAG staff that the model yields similar output as the C/CAG model given the same input assumptions. In addition, the land use assumptions and transportation network assumptions incorporated in a C/CAG derivative model must be consistent with the most recent C/CAG model in order to be eligible for consideration. The C/CAG Countywide Travel Demand Forecasting Model runs must be reviewed by C/CAG. C/CAG may hire its travel demand model consultant to conduct the review, and costs incurred will be borne by the project sponsor.

Near Term Analysis

The use of C/CAG Countywide Travel Forecasting Model or a C/CAG derivative model is not mandatory for near term analysis of projects. The use of methodologies that are widely accepted by the traffic engineering profession such as applying established growth factors to existing traffic volumes, manual assignment models (e.g. TRAFFIX) are also allowable for these analysis scenarios. However, alternative methods for near term impact or individual development project analysis do not replace the requirement for a long-term cumulative impact analysis consistent with this Traffic Impact Analysis Policy.

C/CAG Review for Conformance

For roadway modification projects, C/CAG staff shall review for consistency with this Traffic Impact Analysis (TIA) policy and determine conformity with the Congestion Management Program (CMP).

For General Plan updates, Specific Plans, and land use development projects, C/CAG staff shall review TIA reports for consistency with this TIA policy. This review shall not constitute approval or disapproval of the project that is the subject of the report. C/CAG does not have the authority to approve or reject projects. That decision rests with the lead agency. However, the CMP establishes community standards and guidelines for consistent system-wide transportation review and provides comments to the lead agency on the TIA report based on staff review. Compliance with the Congestion Management Program may be enforced through the withholding of apportionments under Section 2105 of the Streets & Highways Code as well as declaring a local agency ineligible for future transportation funds.

development, planning or CMP roadway project. Therefore, in communities with limited development activity, the two-year-old model runs need only be updated when there is a land use or roadway project to be analyzed.

Section IV

SCOPE AND PARAMETERS FOR TRAFFIC IMPACT ANALYSIS (TIA)

Project sponsors must initiate consultation between the lead agency, C/CAG, Caltrans (if applicable), and those preparing the Traffic Impact Analysis (TIA) before commencing work on the study to establish the appropriate traffic impact analysis scope. At a minimum, the TIA should include the following:

A. Boundaries of the TIA

The boundaries of a TIA must not only include the immediate project area but also areas outside of the project area that may be impacted by the project. For example, the boundaries of an arterial segment, for analysis purposes, may be defined as at least one signalized intersection beyond the project limits on either end. If modification to a segment between intersections will affect the up-stream or down-stream intersection, then average travel time or average travel speed for a segment covering the up- and down-stream intersections must be analyzed.

Boundaries of a TIA must be agreed upon by the lead agency and C/CAG before commencing work on the analysis. Consultation with Caltrans is recommended, if applicable. However, if the project proposes to change a State owned facility, then the boundaries of analysis must be agreed upon by Caltrans as well.

B. Traffic Analysis Scenarios

Consultation between the lead agency, C/CAG, Caltrans (if applicable), and those preparing the TIA is recommended to determine the appropriate scenarios for the analysis. The following scenarios should be addressed as a minimum:

- Existing background condition (includes already approved developments and roadway network changes)
- Existing condition plus Project
- Future (15² to 20 year horizon) background without Project (no-build)
- Future (20 year horizon) background condition plus project

C. Analysis Period

Consultation between the lead agency, C/CAG, Caltrans (if applicable), and those preparing the TIA is recommended to determine the appropriate analysis periods. The TIA shall include, at a minimum, an analysis of transportation conditions in the AM and PM peak hours.

2 20-year Model forecasts are assumed to be updated every 5 years so forecast horizon may be as short as 15 years.

D. Facilities To Be Included In the Analysis

1. A CMP intersection shall be included in a TIA if it is expected to be impacted by the proposed project.
2. A non-CMP intersection that is along a CMP segment shall be included in a TIA if it is expected to be impacted by the proposed project.
3. A freeway segment shall be included in a TIA if it is expected to be impacted by the proposed project.
4. A CMP arterial segment shall be included in a TIA if it is expected to be impacted by the proposed project.

E. Report Format

Traffic Impact Analysis reports must present findings for the various analysis scenarios and analysis periods as described above in the following units of measurement:

Intersections:	LOS and delay time
Freeway segments:	LOS and volume-to-capacity ratio
Arterial segments:	LOS and average travel speed

Section V

DEFINITION OF CMP IMPACT

A project is considered to have a CMP impact if it causes one or more of the following:

1. CMP Intersection currently in compliance with the adopted LOS standard:

- A. A project will be considered to have a CMP impact if the project will cause the CMP intersection to operate at a level of service that violates the standard adopted in the current Congestion Management Program (CMP).
- B. A project will be considered to have a CMP impact if the cumulative analysis indicates that the combination of the proposed project and future cumulative traffic demand will result in the CMP intersection to operate at a level of service that violates the standard adopted in the current Congestion Management Program (CMP) and the proposed project increases average control delay at the intersection by four (4) seconds or more.

2. CMP Intersection currently not in compliance with the adopted LOS standard:

A project is considered to have a CMP impact if the project will add any additional traffic to the CMP intersection that is currently not in compliance with its adopted level of service standard as established in the CMP.

3. Freeway segments³ currently in compliance with the adopted LOS standard:

- A. A project is considered to have a CMP impact if the project will cause the freeway segment to operate at a level of service that violates the standard adopted in the current Congestion Management Program (CMP).
- B. A project will be considered to have a CMP impact if the cumulative analysis indicates that the combination of the proposed project and future cumulative traffic demand will result in the freeway segment to operate at a level of service that violates the standard adopted in the current Congestion Management Program (CMP) and the proposed project increases traffic demand on the freeway segment by an amount equal to one (1) percent or more of the segment capacity, or causes the freeway segment volume-to-capacity (v/c) ratio to increase by one (1) percent.

4. Freeway segments currently not in compliance with the adopted LOS standard:

A project is considered to have a CMP impact if the project will add traffic demand equal to one (1) percent or more of the segment capacity or causes the freeway segment volume-to-capacity (v/c) ratio to increase by one (1) percent, if the freeway segment is

³ Freeway segments are as defined in the Congestion Management Program Monitoring Program and are directional.

currently not in compliance with the adopted LOS standard.

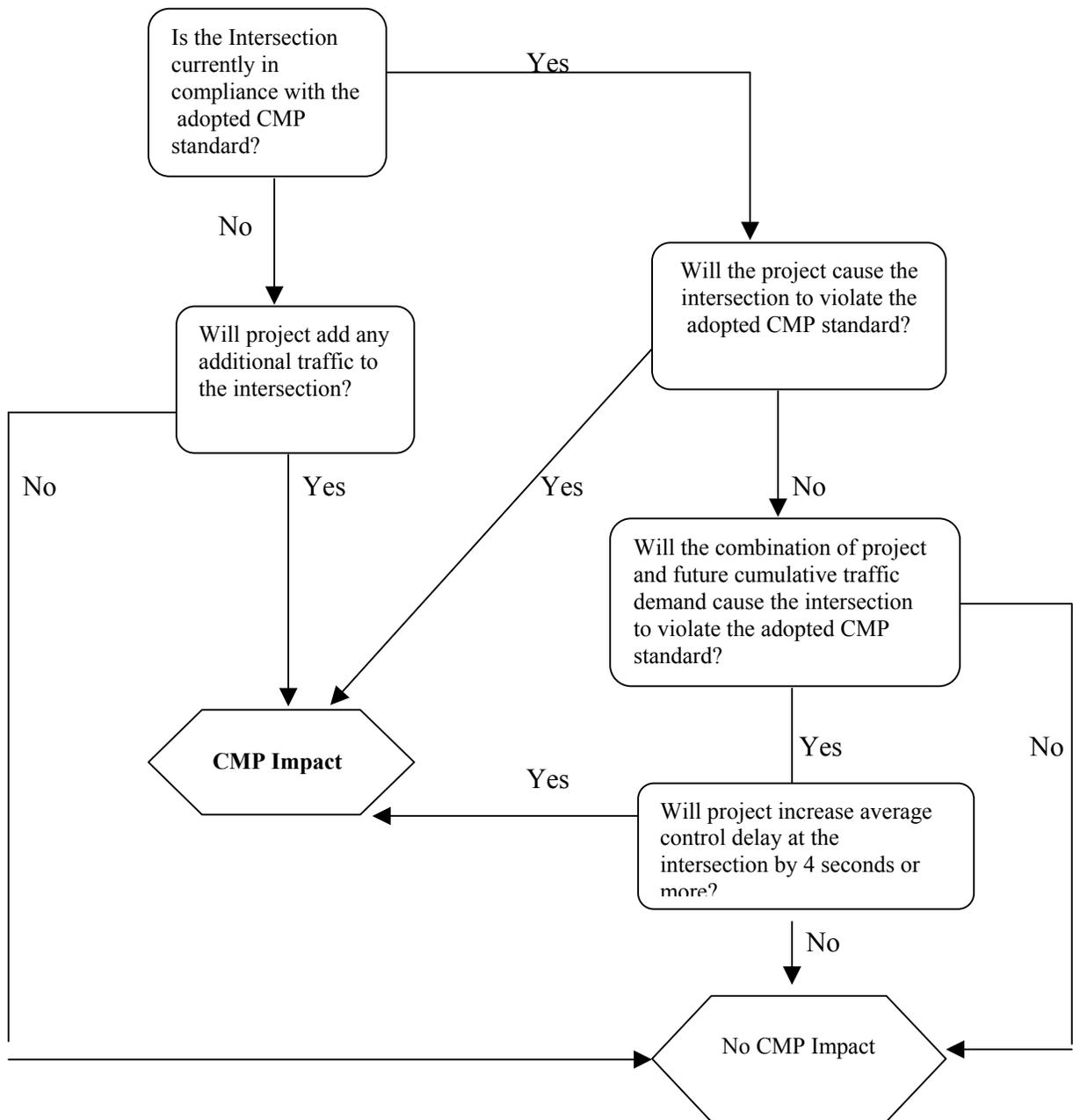
5 CMP Arterial Segments:

The analysis of arterial segments is only required when a jurisdiction proposes to reduce the capacity of a CMP designated arterial through reduction in the number of lanes, adding or modifying on-street parking, or other actions that will affect arterial segment performance.

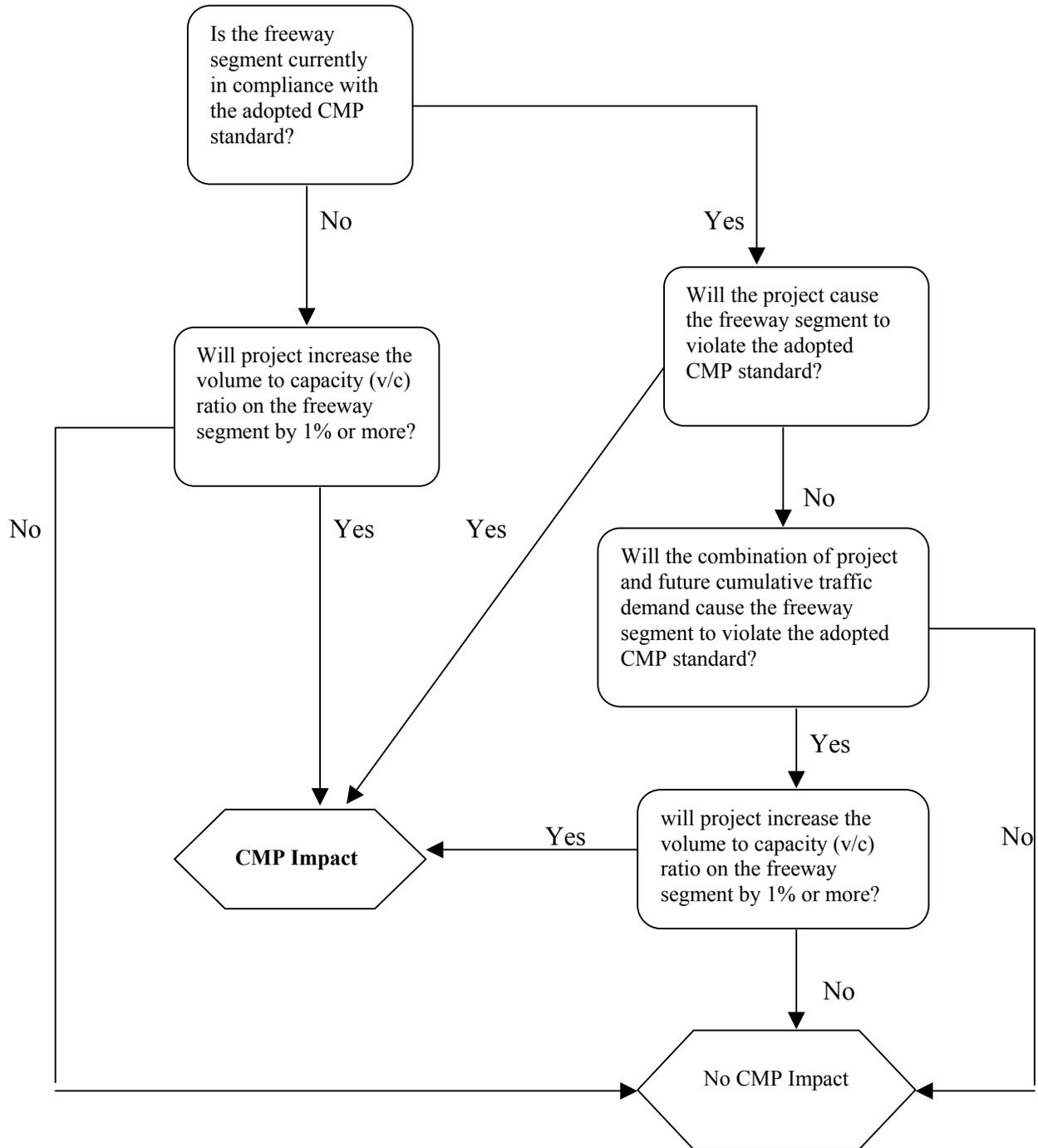
A project is considered to have a CMP impact if it causes mid-block queuing, parking maneuver resulting in delays or other impacts that result in any segment intersection to operate at a level of service that violates the adopted LOS standard set for the nearest CMP intersection.

Analysis of the segment using a calibrated micro-simulation model may be required by C/CAG staff to evaluate non-intersection impacts of the proposed project. CMP impact is determined if, based on the micro-simulation model, the average travel speed for the arterial segment is reduced by 4 miles per hour (mph) or more. Segments with average speeds that indicate LOS E or worse (based on Exhibit 15-2, HCM2000) cannot be modified by local jurisdictions if the proposed modifications would further reduce travel speeds on the segment.

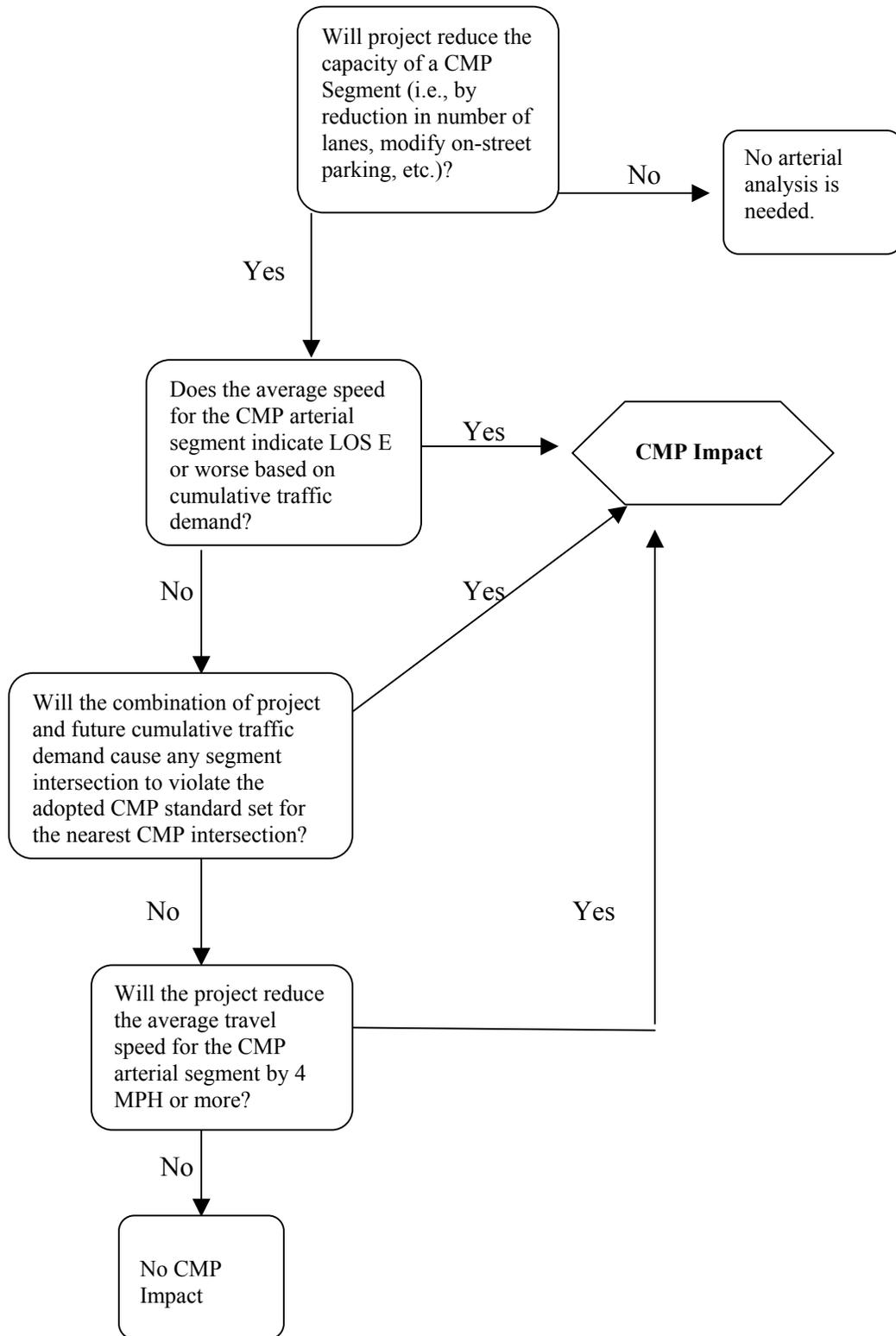
To determine CMP impact on a CMP Intersection



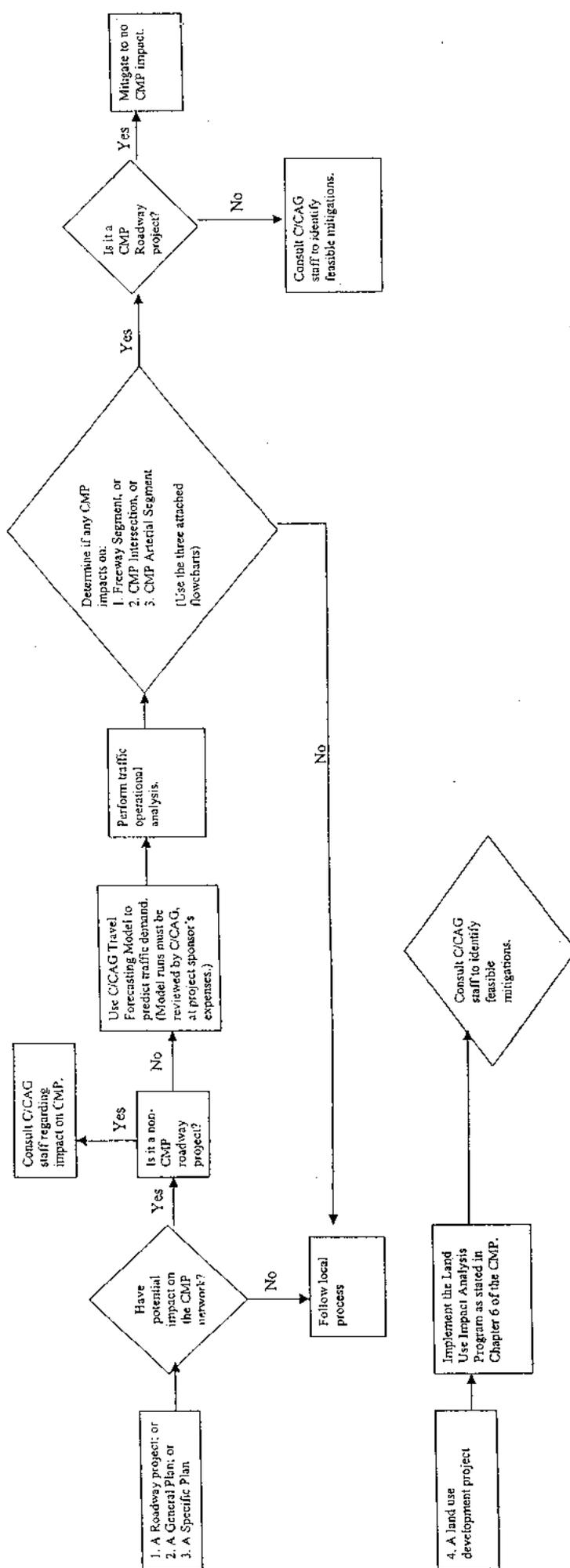
To determine CMP impact on a Freeway Segment



To determine CMP impact on Arterial Segment



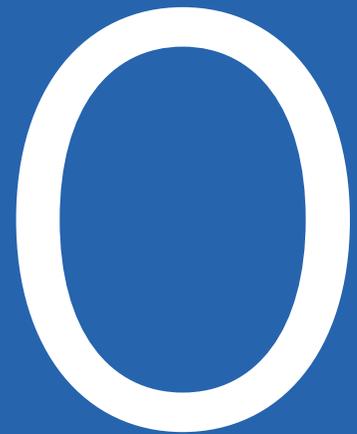
Flow chart for traffic impacts on the congestion management program (CMP) roadway network



APPENDIX M: MEASURE M IMPLEMENTATION PLAN



Executive Summary



Executive Summary

The Measure M program was approved by San Mateo County voters in 2010 to support local transportation projects and programs aimed at maintaining safe and clean roads, reducing congestion, and improving air quality.

The **Strategy** section of the Plan outlines goals, objectives, and formal recommendations to modernize the Measure M program through its next five years of operation. The Plan also includes an updated **Implementation Plan**, which lists the allocation percentages for funding recipients, and provides specific guidance on eligibility, and performance measures.

Methodology

Development of the Measure M Strategic and Implementation Plan began with a comprehensive performance assessment of the current program; followed with forward planning, and goal setting with program partners and stakeholders; and finally concluded with a review of best practices nationwide. The Plan development process is described in more detail below:

Performance Assessment

The performance assessment included stakeholder input through interviews and a survey of each jurisdiction, as well as a detailed review of allocation and expenditure data for each Measure M funded program from inception to Fiscal Year 2019/20. The analysis found that flexibility for funding recipients and the ability to use Measure M to leverage additional funding are strengths of the program. The assessment also found that the program could benefit from standardized data collection practices to aid in future planning exercises and evaluation of program impacts.

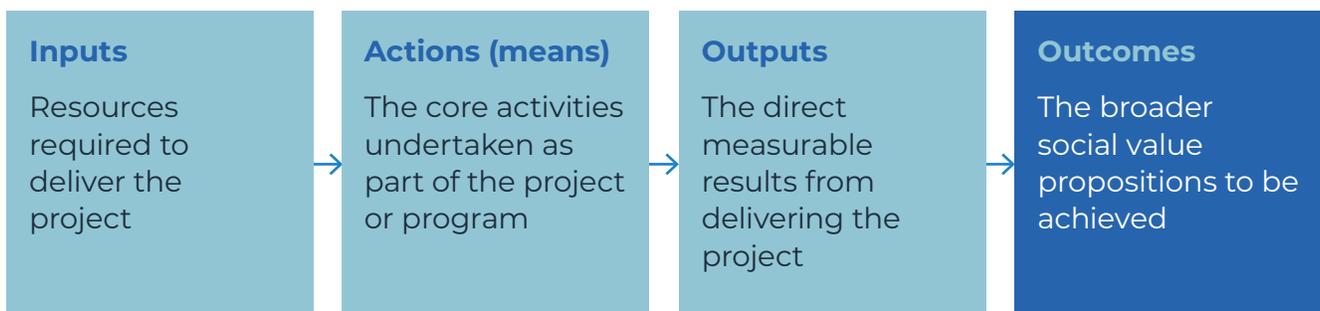
Goal and Objective Setting

Stakeholder discussions and a representative group of funding recipients helped to set goals and objectives for the Measure M program. Each program established goals that are demonstrated through a Logic Framework, outlining the inputs, actions, outputs, and outcomes that should be achieved in the Fiscal Years 2021/22-2025/26 Implementation Plan period. The Logic Framework model is a useful tool to guide planning and support funding recipients in collecting data that can be used to clearly indicate success and identify challenges for consideration in future plans.

Best Practices

The Plan also benefited from lessons learned from local and national agencies whose programs were studied through a best practices review. The review provided guidance for innovation and efficient program delivery that can be adopted by C/CAG and Measure M funding recipients.

Figure 0-1. Logic Framework



Strategic Plan Outcome

Vision

The Plan provides recommendations for the Measure M program and its funding recipients to be implemented in the next five years. Recommendations aim to further the “Modernizing Measure M” Vision Statement, which was developed through program review and discussions with C/CAG staff, stakeholders, and partners:

To improve mobility and reduce water pollution in San Mateo County through flexible, innovative, efficient, insight-driven and accountable program delivery.

Recommendations

The Vision Statement is pillared by five Guiding Principles, which frame each of the recommendations. Recommendations have been set for Measure M, targeting program administration, programming, evaluation, and funding allocation.

Guiding principles:



Flexible Planning

- Continued flexibility in approved funding uses
- Expand fund usage guidance for Local Streets and Roads recipients



Accountable Monitoring and Evaluation

- Require annual reporting through streamlined template
- Publish online dashboard to communicate program information



Innovative Programming

- Repurpose unused admin funds for innovative Countywide Program pilots
- Encourage innovation among Countywide Program operators
- Support knowledge sharing across funding recipients



Insight-driven Decision Making

- Standardize evaluation framework for each funding recipient
- Review countywide program allocation based on updated need
- Develop longer term structure that considers impact in allocation decisions



Efficient Operation

- Transition to online reporting
- Streamline back-end budget systems

Allocation and Action Plans

The Modernizing Measure M Plan outlines a set of recommendations, actions and targets for each of the programs receiving Measure M funding. This set of actions is intended to guide planning, evaluation, and future decision making in support of an impactful and effective program.

The Local Streets and Roads allocation is recommended to stay the same at 50% of the net Measure M revenues. The allocation between local jurisdictions is recommended to continue utilizing a distribution formula consisting of 50% population and 50% road miles for each jurisdiction. The formula is modified to guarantee each jurisdiction a minimum amount of \$75,000.

The Countywide Programs allocation is recommended to be revised using guidance from a needs-based allocation model, which considers a quantitative review of historic revenue to identify how valuable Measure M is within each program’s overall funding situations,

and a qualitative look at future risk and programmatic need. This is the first step towards building a comprehensive allocation framework. As C/CAG collects more programmatic data and performance metrics, the goal is to add an impact-based component to the next framework to enable successful and impactful funding distribution.

The recommended Countywide Program allocation distribution are outlined in **Table 0-1**.

Next Steps and Strategic Plan Use

C/CAG will use the recommended actions outlined in the Strategic and Implementation Plan to continue improving the Measure M program and its operation. Funding recipients will use the Implementation Plan to identify their programs’ funding allocations, confirm allowable uses for their funding, and report on progress toward their stated goals and objectives.

Table 0-1. Countywide Program Funding Allocation Recommendations

Countywide Program		FY 2010/11-2020/21 Allocation	FY 2021/22-2025/26 Allocation
	Transit Operations/ Senior Mobility	22%	18%
	Technology/ Smart Corridor	10%	11%
	Safe Routes to School	6%	6%
	Stormwater(NPDES/MRP)	12%	15%

APPENDIX N: MTC GUIDANCE FOR CONSISTENCY OF CMPS WITH THE RTP

**Metropolitan Transportation Commission and Association of Bay Area Governments
Joint MTC Planning Committee with the ABAG Administrative Committee**

January 13, 2023

Agenda Item 3b

MTC Resolution No. 3000, Revised – Congestion Management Program Policy

Subject:

Approval of MTC’s revised Congestion Management Program (CMP) Policy to inform the Bay Area’s County Transportation Agencies (CTAs) (also known as “Congestion Management Agencies” or “CMAs”) on how MTC intends to make a finding of consistency between each prepared 2023 CMP and Plan Bay Area 2050, the Regional Transportation Plan and Sustainable Communities Strategy.

Background:

CMPs were established by State law in 1990 to create a cooperative context for transportation planning by cities and their respective CTA. A primary intent of CMPs is to monitor county multi-modal transportation networks and identify improvements to the performance of these multi-modal systems. The CMPs primary performance measure is vehicle delay presented as Level of Service (LOS) A through F.

The CMPs are prepared biennially (odd years). However, CMPs are not required in a county if a majority of local governments representing a majority of the population adopt resolutions electing to be exempt from this requirement (Assembly Bill 2419 (Bowler) Chapter 293, Statutes of 1996). Three Bay Area counties—Marin, Napa, and Sonoma counties—have opted out of the CMP process. MTC has encouraged local consideration of the opt out process, noting that the CMP legislation is outdated and the CMP’s primary measure –“LOS” – has largely been superseded by other statewide priorities to reduce vehicle miles travelled (“VMT”) and reduce greenhouse gas emissions, such as Senate Bill 743 (Steinberg). Instead, MTC has encouraged the Bay Area CTAs to focus limited planning resources on Countywide Transportation Plans (CTPs) as a more flexible, comprehensive, and inclusive planning process to identify and reflect local funding priorities, and to focus on coordination with MTC staff on the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS).

MTC's Responsibility:

For each prepared CMP, MTC's responsibilities include making a finding of consistency between the CMP and the RTP/SCS (currently Plan Bay Area 2050), evaluating the consistency and compatibility of the CMPs in the Bay Area, and including CMP projects into the Regional Transportation Improvement Program (RTIP). For counties that do not prepare a CMP, MTC will work directly with the respective County Transportation Agency to reflect project priorities from an adopted Capital Improvement Program (CIP) and ensure they are consistent with the adopted RTP/SCS for RTIP funding.

Revisions to the CMP Policy:

MTC's Congestion Management Program Policy was revised to provide guidance for the development of the 2023 CMPs consistent with Plan Bay Area 2050, the Bay Area's currently adopted RTP/SCS, and to reflect changes and updates to MTC's Guidance for Model Consistency, Collaboration, and Transparency, and MTC's Transit-Oriented Communities Policy.

Next Steps:

In fall 2023, CTAs will submit their 2023 CMP and their respective project priorities for consideration into the 2025 TIP. MTC will then begin its consistency review before submitting the final 2024 RTIP priorities to the California Transportation Commission by December 15, 2023. See Table 1 for a summary of the 2023 CMP review process.

Issues:

None identified.

Recommendations:

MTC Resolution No. 3000, Revised, delegates to this Committee the responsibility for approving revisions to the CMP Guidance (MTC Resolution No. 3000, Revised). Staff recommends that the Committee approve Attachments A and B of MTC Resolution No. 3000, Revised, to provide guidance for developing the 2023 CMPs consistent with Plan Bay Area 2050, the Bay Area's currently adopted RTP/SCS.

Attachment:

- Attachment A: Table 1. 2023 CMP Review Process and Schedule
- Attachment B: MTC Resolution No. 3000, Revised



Alix A. Bockelman

Table 1. 2023 CMP Review Process and Schedule

Date	Activity	Responsible Party
October 2023	CTAs submit 2023 CMP (for counties that prepare CMPs), RTIP projects summary listings and identification of projects requiring project-level performance measure analysis to MTC. Deadline to submit Complete Streets Checklist for new projects.	CTAs
October 2023	Consistency review of submitted 2023 CMPs with Plan Bay Area 2050 (RTP/SCS) and compatibility of prepared CMPs in the Bay Area.	MTC staff
November 2023	Final Project Programming Request (PPR) forms due to MTC. Final RTIP project listing and performance measure analysis due to MTC. Final Project Study Report (or PSR equivalent), Resolution of Local Support, and Certification of Assurances due to MTC (final complete applications due)	CTAs
December 13, 2023	Programming & Allocations Committee (PAC) scheduled a review of RTIP and referral to Commission for approval	MTC's PAC
December 15, 2023	2024 RTIP due to the California Transportation Commission (CTC) (PAC approved project list will be submitted)	MTC staff
December 15, 2023	MTC's scheduled Consistency Findings on 2023 CMPs and scheduled approval of the 2024 RTIP	MTC Commission