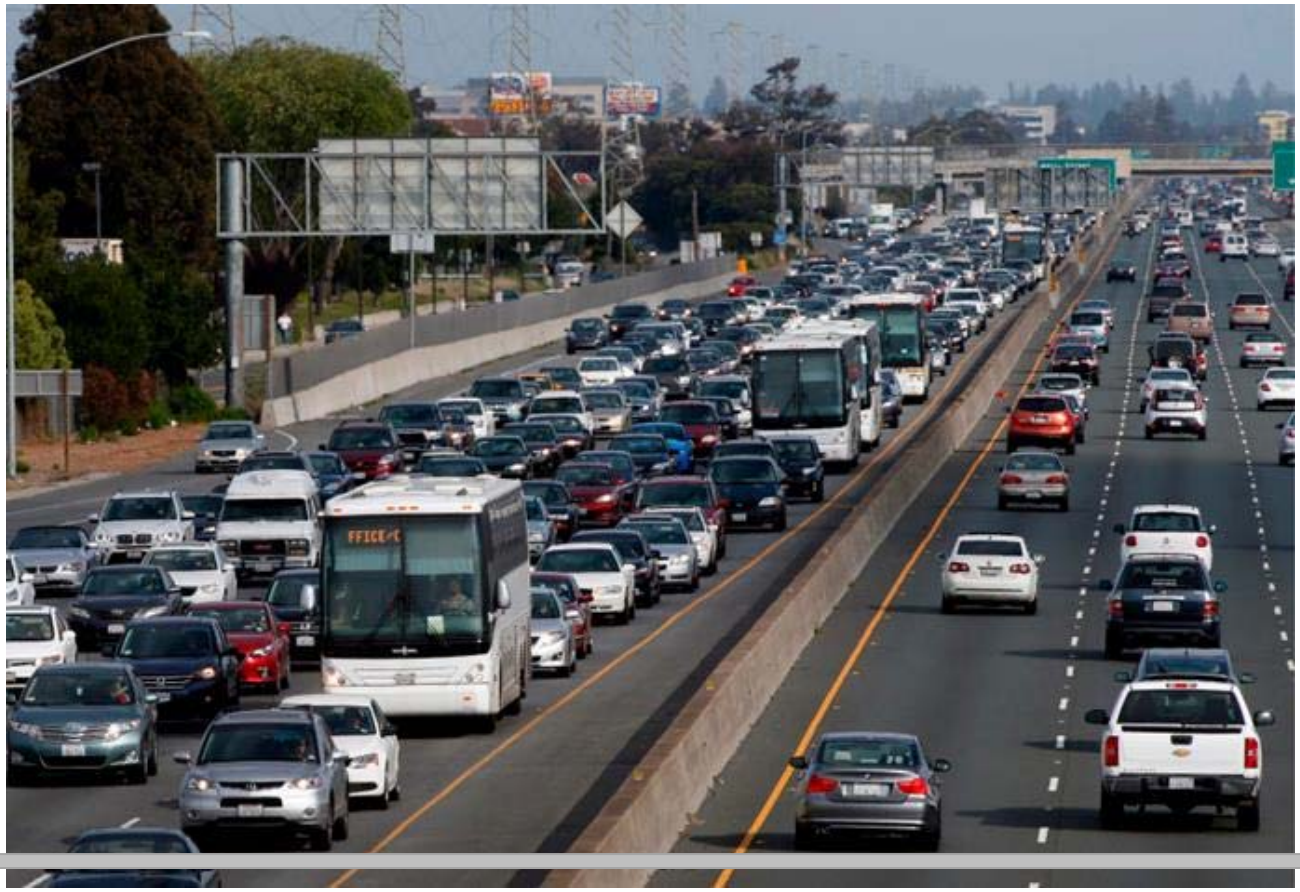

Final Draft

San Mateo County
Congestion Management Program 2019

C/CAG
City/County Association of Governments
of San Mateo County

March 12, 2020

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Executive Summary

The City/County Association of Governments of San Mateo County (C/CAG), as the Congestion Management Agency for San Mateo County, is required to prepare and adopt a Congestion Management Program (CMP) on a biennial basis. The purpose of the CMP is to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion, and promote countywide solutions. The CMP is required to be consistent with the Metropolitan Transportation Commission (MTC) planning process that includes regional goals, policies, and projects for the Regional Transportation Improvement Program (RTIP). The 2019 CMP, which is developed to be consistent with MTC's Plan Bay Area 2040, provides updated program information and performance monitoring results for the CMP roadway system.

The CMP roadway system comprises of 53 roadway segments and 16 intersections. The roadway network includes all the State highways within the County in addition to Mission Street, Geneva Avenue, and Bayshore Boulevard. The intersections are located mostly along El Camino Real (Chapter 2). Baseline Level of Service (LOS) Standards were adopted for each of the roadway segments and intersections on the system wherein five roadway segments and four intersections were designated LOS F (F designated as the worse possible congestion) (Chapter 3). In addition to vehicle counts taken at the CMP intersections, bicycle and pedestrian counts were also conducted at each CMP intersection.

CMP legislation requires use of a delay-based metric, Level of Service (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 vehicle miles traveled (VMT) as the primary metric for traffic impacts under CEQA. Hence, there will be different metrics being used to report roadway and traffic conditions in various reports such as the CMP, traffic impact analysis under CEQA, other monitoring reports by local jurisdictions during the transition period. It is anticipated CMP legislation will be amended to better align with these recent regulations in the future.

Since the CMP legislation has not been updated to provide new guidance with regard to performance metrics, for the 2019 CMP update, C/CAG has made minor updates to the various chapters in this CMP and provided the monitoring report on the roadway segments and intersections using the same methodology and same locations as in past cycles

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 2021. It is expected that such a process will take one year due to its countywide nature and the significance of the CMP.

In addition to the roadway system LOS, the CMP also includes other elements to evaluate the performance of the roadway and transit network such as travel time to traverse the length of the County by single-occupant vehicle, carpool, and transit in addition to transit ridership during the peak periods (Chapter 4). Monitoring is completed every two years to determine compliance with the adopted LOS standards and changes to the performance elements are measured.

The results of the 2019 Monitoring indicate the following roadway segments exceeded its LOS Standard before the reduction of interregional trips:

- SR-35 between I-280 and SR-92 – AM and PM Periods
- SR-84 between SR-1 and Portola Road – PM Period
- SR-84 between I-280 and Alameda de las Pulgas – AM and PM Periods
- SR-84 between Willow Road and University Avenue – AM Period
- SR-92 between SR-1 and I-280 – AM and PM Periods
- SR-92 between I-280 and US-101 – AM and PM Periods
- SR-92 between US-101 and Alameda County Line – AM and PM Periods
- US-101 between San Francisco County Line and I-380 – AM and PM Periods
- US-101 between I-380 and Millbrae Avenue – AM and PM Periods
- US-101 between Millbrae Avenue and Broadway – AM and PM Periods
- US-101 between Broadway and Peninsula Avenue – AM and PM Periods
- US-101 between SR-92 and Whipple Avenue – AM and PM Periods
- SR-109 between Kavanaugh Drive and SR-84 – PM Period
- I-280 between San Francisco County Line and SR-1 (north) – AM Period
- I-280 between SR-1 (north) and SR-1 (south) – AM Period
- I-280 between SR-1 (south) and San Bruno Avenue – AM and PM Periods
- I-280 between San Bruno Avenue and SR-92 – PM Period
- I-280 between SR-92 and SR-84 – AM and PM Periods
- I-280 between SR-84 and Santa Clara County Line – PM Period

It is noted that twelve (12) CMP segments had deficient level of service (without interregional travel exemptions) in both the AM and PM peak periods. Four (4) segments had deficient level of service in the PM peak period only.

The CMP-enabling 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. Based on the monitoring report and after the exclusions for interregional traffic was applied, five out of the 53 roadway segments exceeded the LOS standard. The segments in violation of the LOS Standard in 2019 are as follows:

- PM – Northbound and Southbound SR 35 between I-280 and SR-92
- PM – Eastbound and Westbound SR-84 between SR-1 and Portola Road
- AM & PM – Westbound SR-84 between I-280 and Alameda de Las Pulgas
- AM – Westbound SR-92 between I-280 and US-101
- PM – Eastbound SR-92 between US-101 and Alameda County Line

Regarding intersections, all intersection locations are in compliance with their LOS Standards.

Travel time for single occupancy vehicles and high occupancy vehicles along US-101 identified as part of the 2019 monitoring indicates a minor improvement in the northbound direction during the AM peak hour.

Travel times for bus and passenger rail modes are estimated based on SamTrans and Caltrain published schedules for travel between County lines during peak commute periods (7 a.m. – 9 a.m. and 4 p.m. to 7 p.m.). Caltrain travel times show a 2% decrease in the AM southbound peak period and 8% increase in the PM southbound peak period.

Because a new SamTrans route that traverses San Mateo County to San Francisco was introduced in August 2019, new travel times are presented.

The CMP includes C/CAG's programs and policies regarding transportation systems management (TSM) and transportation demand management (TDM), which address efforts to increase efficiency of the existing system and encourage utilization of alternative modes of transportation. The TSM/TDM programs under Measure A, Commute.org, Transportation Fund for Clean Air (TFCA), local cities, and C/CAG are updated in the 2019 CMP to reflect the current status (Chapter 5). Also included in the CMP is the C/CAG Land Use Impact Analysis Program Policy which address long-range planning, individual large developments generating 100 or more net peak period trips on the CMP network, and cumulative developments.

The Policy provides procedures for local jurisdictions to analyze and mitigate potential impacts to the CMP network resulting from land use decisions (Chapter 6 and Appendix I). The Countywide Congestion Relief Plan (CRP), (reauthorized through June 2023) was developed to address the roadway system deficiencies (or violations of LOS Standards) on a countywide basis. The CRP relieves individual jurisdictions from the need to develop individual deficiency plans to mitigate (or reduce) existing congestion on specific locations. Elements contained in the CRP includes revised provision for Countywide programs such as Employer-based shuttle program and local transportation services, Travel Demand Management, Countywide Intelligent Transportation System (ITS) program and traffic operational improvement strategies, Ramp Metering, and other programs Linking Transportation and Land Use (Chapter 7). The seven-year Capital Improvement Program (CIP) consists of projects programmed in the updated 2020 State Transportation Improvement Program (STIP), OBAG 2, and TDA Article 3 in Chapter 8, Table X.

Other elements included in the 2019 CMP are updates to Measure M, an additional VRF approved by the voters in November 2010, imposes an annual fee of ten dollars ($10) on motor vehicles registered in San Mateo County to help fund transportation-related congestion mitigation and water pollution mitigation programs (Chapter 11). The most current Measure M 5-Year Implementation Plan for Fiscal Year 2017-2021 is included in Appendix M.

The Traffic Impact Analysis (TIA) Policy, which provides uniform procedures to analyze traffic impacts on the CMP network, was added to the 2009 CMP and remains the same. The TIA

Policy applies to all General Plan updates, Specific Area Plans, and modifications to the CMP roadway network. (Chapter 12 and Appendix L)

Chapter 1 - Introduction

Background

In 1989, the California Legislature approved, and Governor Deukmejian signed legislation enacting a comprehensive reform of the Gann spending limit and an $18.5 billion Transportation Financing Program. That financing program and accompanying transportation planning and development measures were presented to the voters as Propositions 111 and 108. Both propositions were approved by California's voters in June of 1990.

The funding package associated with Propositions 111 and 108 included a requirement that every urban county within California designate a Congestion Management Agency (CMA) that would prepare, implement, and biennially update a Congestion Management Program (CMP). In San Mateo County, the City/County Association of Governments (C/CAG) was designated as the CMA. Subsequent legislation (AB 2419) allowed existing Congestion Management Agencies to discontinue participation in the Program. San Mateo County C/CAG voted to continue to participate in and adopt a CMP.

In 1997, SB 45 was passed, significantly revising State transportation funding policies. These changes included reducing the duration of the State Transportation Improvement Program (from 7 years to 4 years), giving Regional Transportation Planning Agencies more responsibility for project selection through the Regional Transportation Improvement Program, and creating the Interregional Improvement Program.

Congressional Reauthorization of Intermodal Surface Transportation Efficiency Act (ISTEA) in 1998, known as the Transportation Equity Act for the 21st Century (TEA-21), preserved funding flexibility, increased funding levels, and established several new planning considerations (access to jobs, consistency with the Intelligent Transportation System national architecture, etc.). On July 6, 2012, Moving Ahead for Progress in the 21st Century (MAP-21) was enacted and reauthorized Federal surface transportation programs through September 30, 2014. MAP-21 reformed the project approval and delivery process for highway and transit projects within a streamlined process.

According to the state legislation (AB 471, AB 1791, AB 1963, AB 2419 and SB 45) that calls for Congestion Management Programs to be prepared, 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 2015. This is the fourteenth CMP for San Mateo County. It describes the decisions adopted by C/CAG in previous CMPs to comply with the applicable sections of AB 471, AB 1791, AB 1963, SB1636 and to include new provisions required by SB 45, TEA-21, and the new MAP-21.

1California Government Code Section 65088(e).

When the California Legislature defined the requirements for Congestion Management Programs, they set in motion the following actions:

1. A political process that encourages local jurisdictions (cities and the County) to discuss and seek resolution of anticipated transportation supply problems.
2. A political process that requires that all types of measures, including the possibility of implementing land use changes, creating travel demand management 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.
3. 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 the County of San Mateo and the cities in San Mateo County to implement the requirements of AB 471, AB 1791, AB 1963, SB 1636, SB 45, and MAP-21. The decisions made by the City/County Association of Governments are intended to clearly describe the intent of C/CAG to make this process work by adopting CMP elements that emphasize communication and cooperation and provide a flexible approach to resolving issues. The overall goal of this CMP is to help C/CAG promote countywide solutions to transportation problems based upon cooperation and mutual support.

Elements of the CMP

Each Congestion Management Agency is charged with developing, adopting and updating a Congestion Management Program.[2] The following elements must be included in a congestion management program:

Roadway System

The Congestion Management Agency must specify a system of highways and roadways for which traffic level of service 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).[3]

Traffic Level of Service (LOS) Standards

Level of Service Standards intended to measure roadway congestion must be established for all state highways and principal arterials included in the CMP's Roadway System.[4] Level of service is a qualitative description of roadway operations ranging from LOS A, or free flow conditions, to LOS F, or completely jammed conditions. The Congestion Management Program may not establish any standard below Level of Service E unless the level of service was F at the time that the standard was established.

[2]California Government Code Section 65089(a).
By State statute, CMPs need not be changed every year, but must be formally amended and readopted every two years.
[3]California Government Code Section 65089(b)(1)(A).
[4]Ibid.

Performance Element
The Performance Element was added by AB 1963. This element includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods in San Mateo County.[5]

Trip Reduction and Travel Demand Element
The Congestion Management Program must contain an element promoting the use of alternative transportation modes and ways to reduce future travel demand. Improving a county's jobs/housing balance and implementing travel demand management 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.[6] Estimates of the costs associated with mitigating the projected impacts must be included in the CMP, with some exceptions.[7]

Seven-Year Capital Improvement Program (CIP)
The CMP must contain a seven-year program of projects expected to maintain or improve traffic levels of service 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.[8]

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, the Congestion Management Agency (C/CAG in San Mateo County) is charged with monitoring the implementation of all elements of the CMP and determining conformance with the CMP's requirements and recommendations.

Organization of this CMP
This report, which describes the 2019 Congestion Management Program for San Mateo County, is divided into the following chapters that correspond to the listing of CMP requirements included in AB 1791 and AB 1963:

1. The roadways and intersections that comprise San Mateo County's CMP Roadway System to be monitored for traffic operating conditions are described in Chapter 2.

2. The Level of Service Standards for the CMP's roadway segments, which were designated in the 1991 CMP (one additional segment was added in the 1999 CMP), and the standards for the intersections, which were designated in the 1993 CMP, are presented in

[5]California Government Code Section 60589(b)(2).
[6]California Government Code Section 65089(b)(4).
[7]According 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.
[8]California Government Code Section 65089(b)(5).

Chapter 3.

3. The measures adopted by C/CAG to evaluate San Mateo County's multimodal system performance for the movement of people and goods are described in Chapter 4.

4. The key features of San Mateo County's efforts to encourage commuters to use alternatives to driving alone -- carpools, vanpools or transit -- are explained in Chapter 5.

5. The process to be used to analyze and mitigate the impacts on San Mateo County's transportation systems of potential or planned land use changes is presented in Chapter 6.

6. The guidelines for deficiency plans, should those need to be prepared in the future, are explained in Chapter 7. Also included in this Chapter is a listing of the deficiencies that were identified during the monitoring of the 2019 CMP.

7. The process for projects to be considered for funding as part of this CMP's Capital Improvement Program is presented in Chapter 8. This chapter also includes the transportation goals adopted in the Metropolitan Transportation Commission (MTC) Plan Bay Area 2040.

8. The features of the C/CAG CMP Transportation Model are described in Chapter 9.

9. The procedures that C/CAG will use to monitor conformance with the CMP are described in Chapter 10.

10. The Vehicle Registration Fee Program includes Measure M - $10 vehicle registration fee is updated in Chapter 11.

11. The Traffic Impact Analysis (TIA) Policy is included in Chapter 12 and the complete TIA Policy is included in Appendix L.

12. The results of the 2019 Monitoring Report are presented in Appendix F.

Chapter 2 – Congestion Management Program (CMP) Roadway System

Legislative Requirements

California Government Code Section 65089 (b)(1)(A) requires that the Congestion Management Agency specify a system of roadways for which level of service standards will be set and monitored. All state highways and principal arterials are to be included in the Congestion Management Program's (CMP's) Roadway System. However, this statute does not specifically define what constitutes a principal arterial. Once a roadway is included in the CMP's Roadway System, the roadway cannot be removed (in a future CMP).

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 2021. It is expected that such a process will take one year due to its countywide nature and the significance of the CMP.

Discussion

Designating the CMP system of roadways is one of the key decisions affecting the CMP, because this action by C/CAG defines which roadways in San Mateo County will have their traffic level of service monitored. In effect, the C/CAG's adoption of a system (network) of roadways establishes the following framework for the subsequent, but related actions taken by C/CAG:

1. C/CAG has identified which freeways, streets, highways,[9] and intersections in San Mateo County it has deemed to be important enough to have their existing and future traffic operating conditions monitored. The roadways incorporated into the CMP Roadway System serve the vast majority of trips made by driving from, to or through San Mateo County.

2. C/CAG has indicated which freeways, streets, highways, and intersections in San Mateo County the C/CAG will be expecting to receive nominations of actions or will help formulate actions intended to maintain or attain traffic flow standards designated for those roadways. Possible actions that could be defined to mitigate potential operational or capacity problems on specific roadways include new roadway construction, transit improvements related to the travel origins and destinations served by that roadway, travel demand management actions, or land use changes.[10]

CMP Roadway System

The CMP Roadway System incorporates the CMP Roadway System adopted in 1991 plus the 16 intersections adopted in 1993 and the one additional roadway segment adopted in 1999. The

[9]Freeways (e.g., U.S. 101 and I-280) are roadways that are completely grade separated from other highways and that do not permit access directly from abutting land uses. Streets (e.g., El Camino Real), also called arterials in this CMP, allow access directly from abutting land uses and are almost never grade-separated from other roadways, (except freeways). Highways, as used in this CMP, refer to roads located in rural areas (e.g., Highway 1 south of Half Moon Bay).

[10]Each of those kinds of actions are discussed in the chapters that follow.

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:

1. 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.)

2. They extend from the San Mateo County/San Francisco County line to the San Mateo County/Santa Clara County line.

3. They extend from San Francisco Bay to the Pacific Ocean and/or connect two major north/south routes.

4. They connect directly with the roadways included in the CMP networks of adjacent counties.

5. 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.

The specific roadways included in the CMP Roadway System and the reasons why these roadways were included are as follows:

1. State Route (SR) 1, SR 35, SR 82, SR 84, SR 92, U.S. 101, SR 109, SR 114, I-280, and I-380 are part of the California State Highway System. These are all the State Highways in San Mateo County.

2. SR 1, SR 35, SR 82, U.S. 101, and I-280 extend from the San Francisco County line in the north to the Santa Clara County line in the south. These are the only roadways in San Mateo County to meet this requirement.

3. SR 84 and SR 92 extend east/west from San Francisco Bay to (SR 1 near) the Pacific Ocean. These roadways in addition to I-380 also connect two (or more) major north/south routes.

4. Geneva Avenue, Mission Street and Bayshore Boulevard are the only roadways that are not State Highways that connect to roadways included in the CMP of an adjacent county. These roadways had to be included in San Mateo County's CMP Roadway System to be consistent with San Francisco County's CMP Roadway System. (No roadways, in addition to the State Highways already mentioned, needed to be added to be consistent with the CMP Roadway Systems of Alameda, Santa Clara, and Santa Cruz Counties).

5. Portions of El Camino Real (SR 82) are the only roadway segments in San Mateo County that qualify for inclusion in the CMP's Roadway System based on this CMP's definition of a Principal Arterial. (El Camino Real was included in the

CMP's roadway system because this street is part of the California State Highway System-SR 82).

The following intersections were added to the CMP Roadway System adopted in 1993 to have their levels of service monitored.

- Geneva Avenue and Bayshore Boulevard
- SR-35 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 and Millbrae Avenue
- SR-82 and Broadway
- SR-82 and Peninsula Avenue
- SR-82 and Ralston Avenue
- SR-82 and Holly Street
- SR-82 and Whipple Avenue
- SR-84 (Bayfront Expressway) and SR-109 (University Avenue)
- SR-84 and Willow Road
- SR-84 and Marsh Road
- SR-84 (Woodside Road) and Middlefield Road
- SR-92 and SR-1
- SR-92 and Main Street.

The roadways and intersections in San Mateo County whose traffic levels of service will have to be monitored because they are now part of the CMP Roadway System are shown on Figure 1. Figure 2 shows the monitored CMP routes. Detailed descriptions of the roadways included in this CMP's Roadway System are presented in Appendix A. The 1999 CMP included the division of one of the segments on State Route 1 into two separate segments for the purposes of monitoring. This division will occur at Sharp Park Boulevard in Pacifica. The results of the 2019 CMP Monitoring Report with the current levels of service are contained in Appendix F.

Figure 1: CMP Roadway Network and Intersection Map

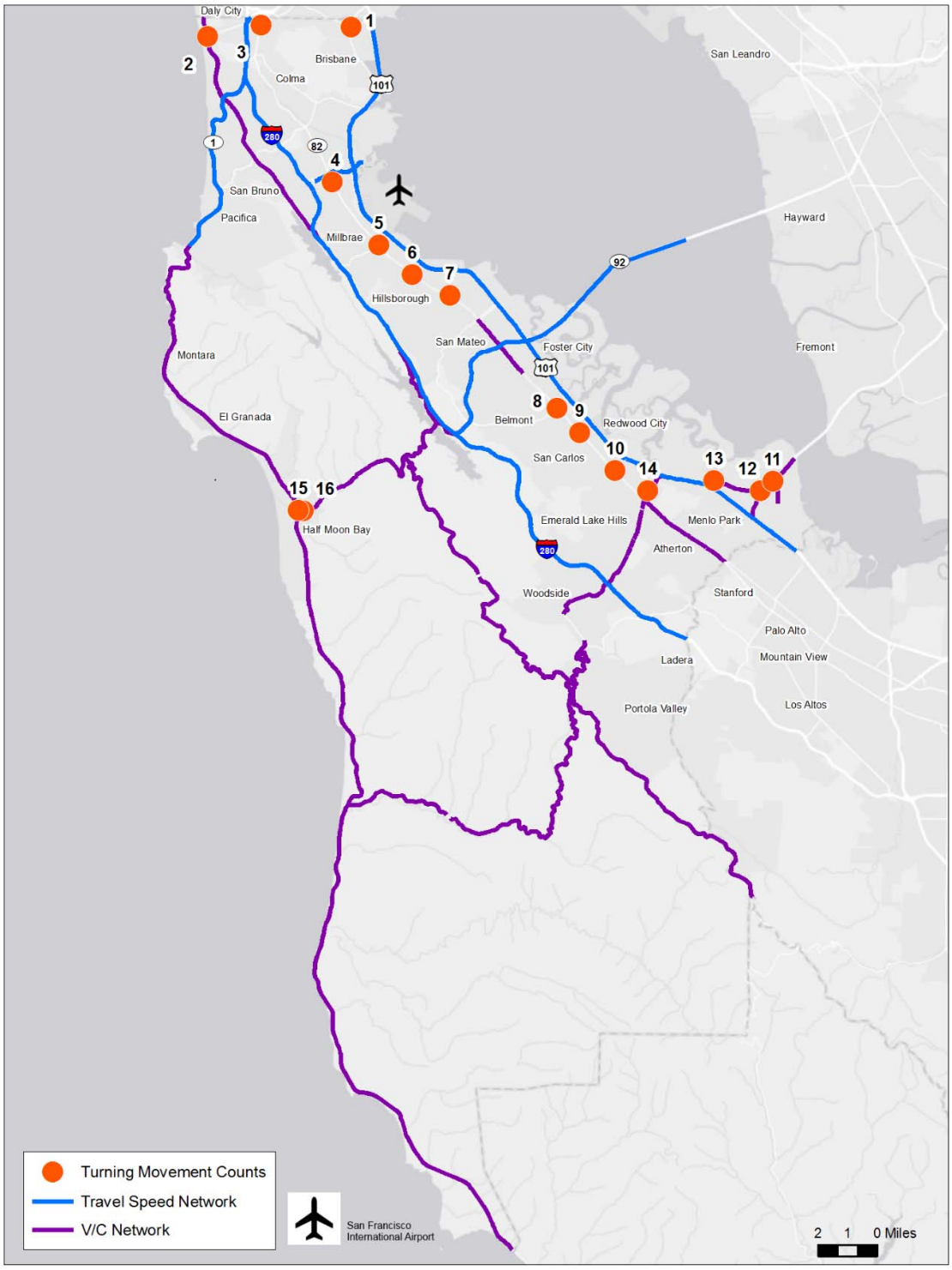
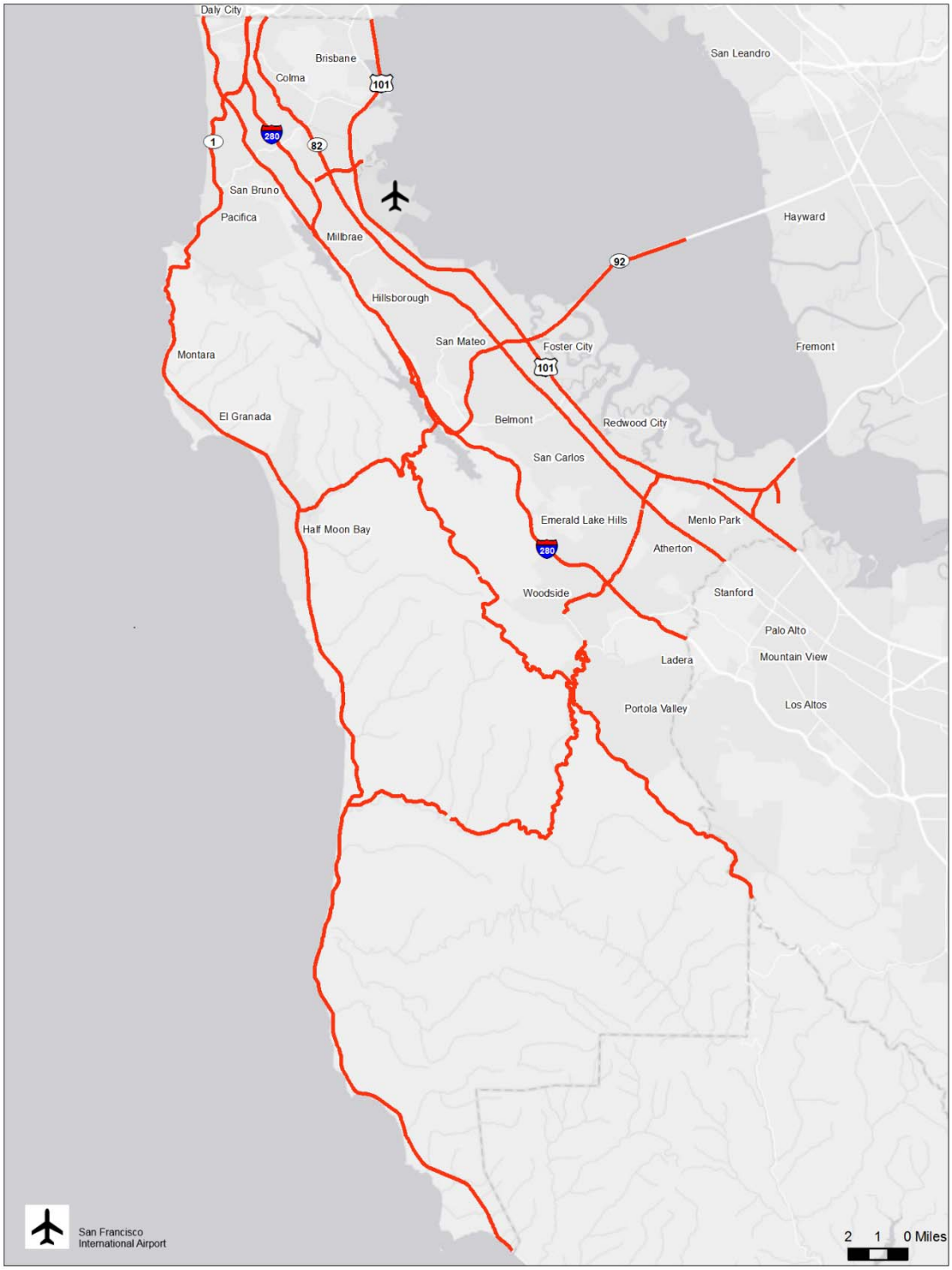


Figure 2: Spring 2019 CMP Monitored Routes



Chapter 3 – Traffic Level of Service Standards

Legislative Requirements

California Government Code Sections 65089.1 (A) and (B) requires that level of service 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 *Highway Capacity Manual,* or a uniform methodology adopted by the CMA that is consistent with the *Highway Capacity Manual.*

The CMP legislation stipulates that the CMP's Level of Service Standards can be set at any level of service - A through F. However, only roadway segments or intersections currently operating at Level of Service F may have a LOS F standard set for them.

Discussion

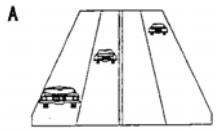
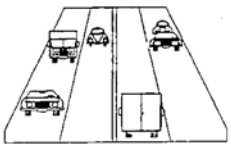
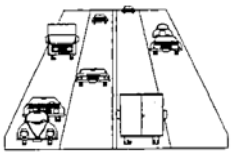
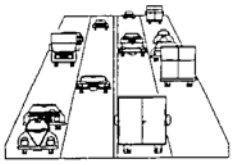
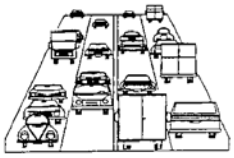
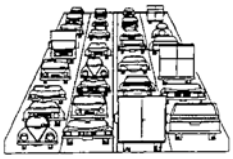
Level of service (LOS) is a qualitative term used to describe a roadway's operating condition. The level of service of a road or street is designated by a letter grade ranging from A to F, with LOS A representing free-flow conditions with little or no delay and LOS F representing forced flow with excessive delays. Verbal descriptions of the levels of service for the five types of facilities in San Mateo County's CMP Roadway System-freeways, multilane highways, two-lane highways, arterials, and intersections are presented in Table I. Graphical illustrations of the LOS designations are presented on Figure 3.

Table I: Level of Service Descriptions

Level of Service	Freeways and Multilane Highways	Two-Lane Highways
A	Highest quality of service with free-flow conditions and a high level of maneuverability.	Free-flow conditions with a high level of maneuverability. Passing is easy to accomplish.
B	Free-flow conditions, but presence of other vehicles are noticeable. Minor disruptions easily absorbed.	Stable operations with passing demand approaching passing capacity.
C	Stable operations, but minor disruptions cause significant local congestion.	Stable operations, but with noticeable increases in passing difficulty.
D	Borders on unstable flow with ability to maneuver severely restricted due to congestion.	Approaching unstable traffic flow. Passing demand is high while passing capacity approaches zero.
E	Unstable operations with conditions at or near capacity. Disruptions cannot be dissipated and cause bottlenecks to form.	Unstable operations. Passing is virtually impossible and platooning becomes intense.
F	Forced or breakdown flow with bottlenecks forming at locations where demand exceeds capacity. Speeds may drop to zero.	Heavily congested flow with traffic demand exceeding capacity. Speeds may drop to zero.

Level of Service	Arterials	Intersections
A	Highest quality of service with free-flow conditions and a high level of maneuverability.	Free-flow conditions with a high level of maneuverability. Passing is easy to accomplish.
B	Free-flow conditions, but presence of other vehicles are noticeable. Minor disruptions easily absorbed.	Stable operations with passing demand approaching passing capacity.
C	Stable operations, but minor disruptions cause significant local congestion.	Stable operations, but with noticeable increases in passing difficulty.
D	Borders on unstable flow with ability to maneuver severely restricted due to congestion.	Approaching unstable traffic flow. Passing demand is high while passing capacity approaches zero.
E	Unstable operations with conditions at or near capacity. Disruptions cannot be dissipated and cause bottlenecks to form.	Unstable operations. Passing is virtually impossible and platooning becomes intense.
F	Forced or breakdown flow with bottlenecks forming at locations where demand exceeds capacity. Speeds may drop to zero.	Heavily congested flow with traffic demand exceeding capacity. Speeds may drop to zero.

Figure 3: Level of Service Definitions

LEVEL OF SERVICE	FLOW CONDITIONS	DELAY	SERVICE RATING
A 	Highest quality of service. Free traffic flow with low volumes. Little or no restriction on maneuverability or speed.	None	Good
B 	Stable traffic flow, speed becoming slightly restricted. Low restriction on maneuverability.	None	Good
C 	Stable traffic flow, but less freedom to select speed or to change lanes.	Minimal	Adequate
D 	Approaching unstable flow. Speeds tolerable but subject to sudden and considerable variation. Less maneuverability and driver comfort.	Minimal	Adequate
E 	Unstable traffic flow and rapidly fluctuating speeds and flow rates. Low maneuverability and low driver comfort.	Significant	Poor
F 	Forced traffic flow. Speed and flow may drop to zero.	Considerable	Poor

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 level of service calculations. Existing levels of service are to be calculated every two years as part of the CMP's traffic operations monitoring program. (The results of the monitoring of existing levels of service in 2019 for the CMP roadway segments and intersections are presented in Appendix F.) Future (or anticipated) levels of service are expected to be calculated as part of the program to evaluate the impacts of planned (or anticipated) land use changes.[11]

The methods used in this CMP to analyze existing and future levels of service on the CMP Roadway System were selected after reviewing the methods used by local jurisdictions and Caltrans. A survey conducted in 1991 revealed that most of the cities that responded used

[11]See Chapter 6 for further discussion of the program that will analyze the potential countywide impacts of land use changes on San Mateo County's transportation system.

standard level of service methods for signalized intersections with half using the *Highway Capacity Manual* method and half using the Transportation Research Board's *Circular 212* method. About a third of the responding cities used a reserve capacity method to evaluate un-signalized intersections. The volume-to-capacity method was used to evaluate arterials in half of the responding cities. Most cities indicated that they did not use a standard level of service calculation method for the remaining facilities-freeways, multilane highways, and two-lane highways. Of those cities that had previously selected a method, the volume-to-capacity ratio method was preferred. Caltrans uses a floating car method to determine travel speeds as a measure of congestion on freeways.

The original methods selected to calculate the levels of service are described in Appendix B. These methods are consistent with the Transportation Research Board's *Circular 212* and the *Highway Capacity Manual,* as required by the CMP legislation. For the 2005 CMP, LOS for intersections was performed utilizing both the Circular 212 Methodology (based on a volume-to-capacity ratio of the critical movements) and the 2000 HCM Methodology (calculated based on an average control delays, expressed in seconds per vehicle). The LOS ratings using the 2000 HCM method are one to two grades lower than the ratings based on Circular 212 methodology. In addition, calculated LOS ratings using the 2000 HCM methodology are more consistent with field observations than the calculated ratings based on the Circular 212 methodology. For comparison purposes, the 2007 CMP also included both methodologies for calculating intersection LOS. Based on the observation that the 2000 HCM LOS results are more reflective of actual conditions, it was determined that the 2009 CMP and subsequent updates only include the 2000 HCM methodology for calculating intersection LOS.

When monitoring conformance with this CMP's recommendations, a significant increase in congestion is defined as a change in the measured level of service 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.

Projected violations of the LOS standards may be identified as a result of the Land Use Impact Analysis Program. These projected violations will not trigger preparation of deficiency plans.

Possible Options

In general, there are two basic options that can be selected to develop level of service standards. When presented to C/CAG in 1991, these options were defined as follows:

Option 1:

C/CAG could select LOS E as the standard for all roadways, with the exception of LOS F for roadways currently operating at LOS F.

Option 2:
C/CAG could select LOS standards that vary by specific roadway segment.

Option 1 would provide the greatest flexibility to modify the LOS standards when future CMPs are prepared and the lowest risk of having to change standards later based on more refined analyses. However, this approach does not differentiate among acceptable levels of congestion on various types of roadways, such as freeways versus arterials and urban settings versus rural settings.

Option 2 does allow for different standards to be selected for various types of roadway segments but does so at the risk that some standards may be set too high in relation to information about traffic volumes developed in subsequent CMPs. Nevertheless, the second option would establish a direction for San Mateo County's CMPs more in keeping with the intent of AB 471.

Process of Selecting LOS Standards for Roadway Segments
The LOS standards for roadway segments were selected during development of the 1991 CMP. Analyses of existing (1990/91) levels of service and projections of future (year 2000) levels of service were used to develop the LOS standards for San Mateo County's CMP Roadway System. The process used to develop the standards followed these steps:

1. Limits of roadway segments were selected based on facility type and number of lanes.

2. Existing (1990/91) peak-hour volumes were identified. Traffic volumes for the morning commute period (6:00 AM to 10:00 AM) and the evening commute period (3:00 PM to 7:00 PM), obtained from Caltrans, the cities, and new traffic counts, were reviewed. (The process of compiling and analyzing feasible traffic counts is described in Appendix C of the 1991 CMP.)

3. Existing (1990/91) volume-to-capacity (V/C) ratios and levels of service were evaluated.

4. After the highest hourly volumes were identified, their corresponding V/C ratios and LOS were selected to represent existing (1990/91) conditions for each roadway segment.

5. Future volumes (for the year 2000) were projected by applying growth factors obtained by comparing the Metropolitan Transportation Commission's (MTC's) (simulated) traffic assignments for the years 1987 and 2000. (The traffic volumes simulated by MTC to represent traffic conditions presumed to exist in 1987 were very similar to actual counts recorded in 1990 and 1991.)

6. Locations projected to have changes in capacity, due to roadway widening projects, were identified. Future V/C ratios (projected for the year 2000) and corresponding LOSs were evaluated for the AM and PM peak hours selected earlier.

Roadway Segment Level of Service Standards

The following LOS standards were selected for the roadway segments.

- If the existing (1990/91) level of service was F, then the standard was set to be LOS F.
- If the existing or future level of service 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,[12] 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.

The LOS standards adopted by C/CAG for the roadway segments included in this CMP are presented in Table II and on Figure 4.

The roadway segment Level of Service Standards adopted by the C/CAG to monitor attainment of the CMP support the following objective:

The LOS Standards established for San Mateo County vary by roadway segment. By adopting LOS standards based on geographic differences, the 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.

The standards created the initial linkage between planned or anticipated land use changes and the analysis of the impacts that those changes would be projected to have on San Mateo County's roadway system. (Additional discussion of the Land Use Impact Analysis Program is presented in Chapter 6.)

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

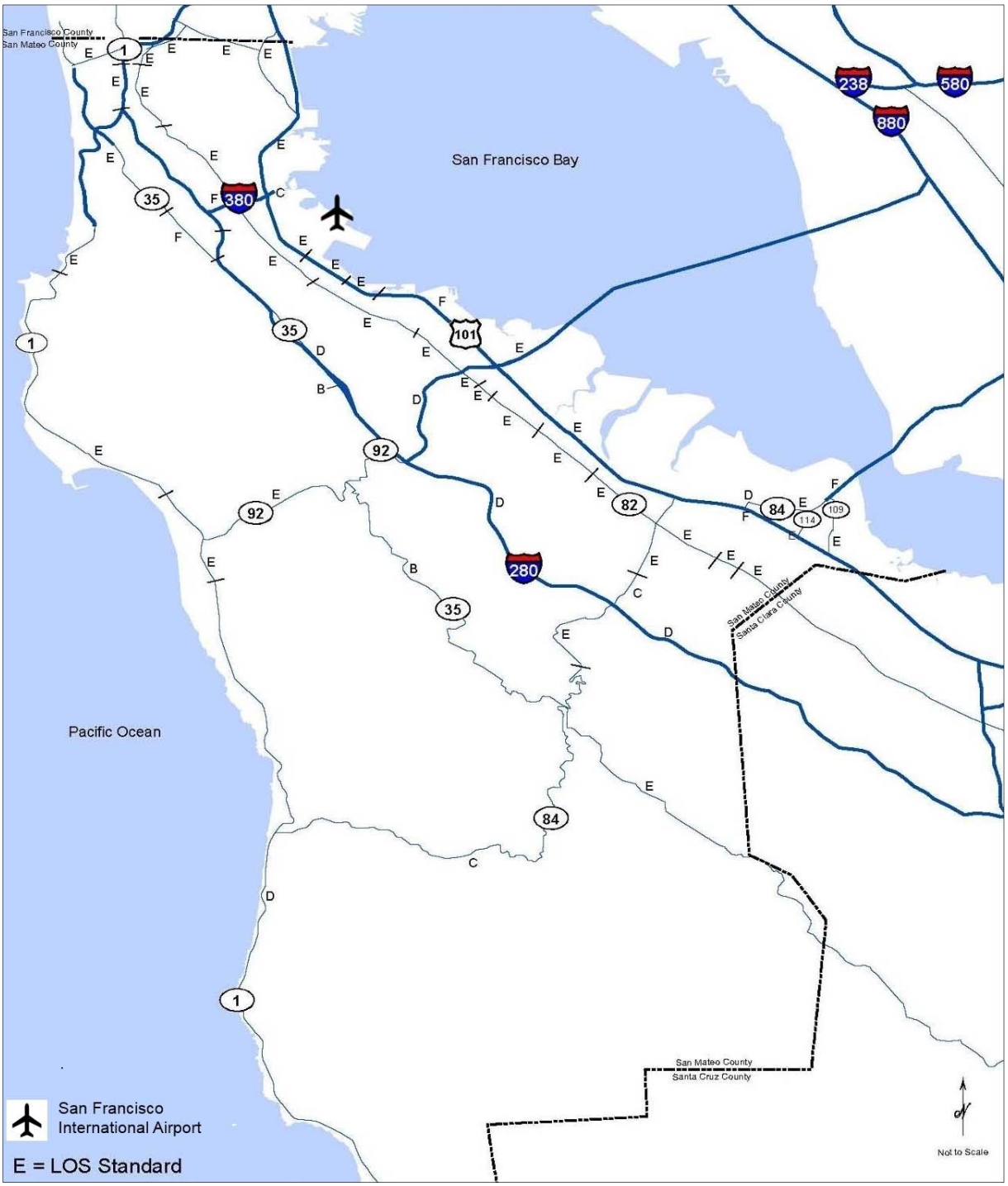
Table II: Level of Service Standards for CMP Roadway Segments

Route	Roadway Segment	Baseline (1990-91) LOS	LOS Standard
1	San Francisco County Line to Linda Mar Boulevard	D	E
1	Linda Mar Boulevard to Frenchmans Creek Road	D	E
1	Frenchmans Creek Road to Miramontes Road	E	E
1	Miramontes Road to Santa Cruz County Line	C	D
35	San Francisco County Line to Sneath Lane	C	E
35	Sneath Lane to I-280	E	F[b]
35	I-280 to SR 92	A	B
35	SR 92 to SR 84	A	B
35	SR 84 to Santa Clara County Line	A	E
82	San Francisco County Line to John Daly Boulevard	A	E
82	John Daly Boulevard to Hickey Boulevard	A	E
82	Hickey Boulevard to I-380	A	E
82	I-380 to Trousdale Drive	A	E
82	Trousdale Drive to 3rd Ave-nue	B	E
82	3rd Avenue to SR 92	B	E
82	SR 92 to Hillsdale Avenue	A	E
82	Hillsdale Avenue to 42nd Ave-nue	A	E
82	42nd Avenue to Holly Street	B	E
82	Holly Street to Whipple Avenue	A	E
82	Whipple Avenue to SR 84	D	E
82	SR 84 to Glenwood Avenue	B	E
82	Glenwood Avenue to Santa Cruz Avenue	D	E
82	Santa Cruz Avenue to Santa Clara County Line	D	E
84	SR 1 to Portola Road	B	C
84	Portola Road to I-280	D	E
84	I-280 to Alameda de las Pulgas	B	C
84	Alameda de las Pu-lgas to U.S. 101	C	E
84	U.S. 101 to Willow Road	D	D
84	Willow Road to University Avenue	E	E
84	University Avenue to Alameda County Line	F	F

Route	Roadway Segment	Baseline (1990-91) LOS	LOS Standard
92	SR 1 to I-280	E	E
92	I-280 to U.S. 101	C	D
92	U.S. 101 to Alameda County Line (Bridge Causeway)	D	E
101	San Francisco County Line to I-380	E	E
101	I-380 to Millbrae Avenue	D	E
101	Millbrae Avenue to Broadway	D	E
101	Broadway to Peninsula Avenue	E	E
101	Peninsula Avenue to SR 92	F	F
101	SR 92 to Whipple Avenue	D	E
101	Whipple Avenue to Santa Clara County Line	F	F
109	Kavanaugh Drive to SR 84 (Bayfront Expressway)	E	E
114	U.S. 101 to SR 84 (Bayfront Expressway)	D	E
280	San Francisco County Line to SR 1 (north)	N/A	E
280	SR 1 (north) to SR 1 (south)	D	E
280	SR 1 (south) to San Bruno Avenue	C	D
280	San Bruno Ave-nue to SR 92	C	D
280	SR 92 to SR 84	C	D
280	SR 84 to Santa Clara County Line	C	D
380	I-280 to U.S. 101	F	F
380	U.S. 101 to Airport Access Road	A	C
Mission Street	San Francisco County Line to SR 82	A	E
Geneva Avenue	San Francisco County Line to Bayshore Boulevard	A	E
Bayshore Boulevard	San Francisco County Line to Geneva Avenue	A	E

a Levels of Service calculated based on volume-to-capacity ratios.
b The LOS Standard has been changed from LOS E to LOS F based on the evaluation of additional traffic count data.

Figure 4: CMP Roadway Segments and Level of Service (LOS) Standards



Intersection Level of Service Standards

Sixteen intersections were added to the CMP Roadway System first adopted in 1991. A process similar to the process used to develop the standards for the roadway segments was used to develop the standards for the intersections.

As with the CMP's roadway segments, intersection levels of service were calculated by using volume-to-capacity ratios. The *Transportation Research Board's Circular 212* Planning method was used, and capacity adjustments were made to reflect traffic operations in San Mateo County. The method used to calculate intersection levels of service is described in detail in Appendix B.

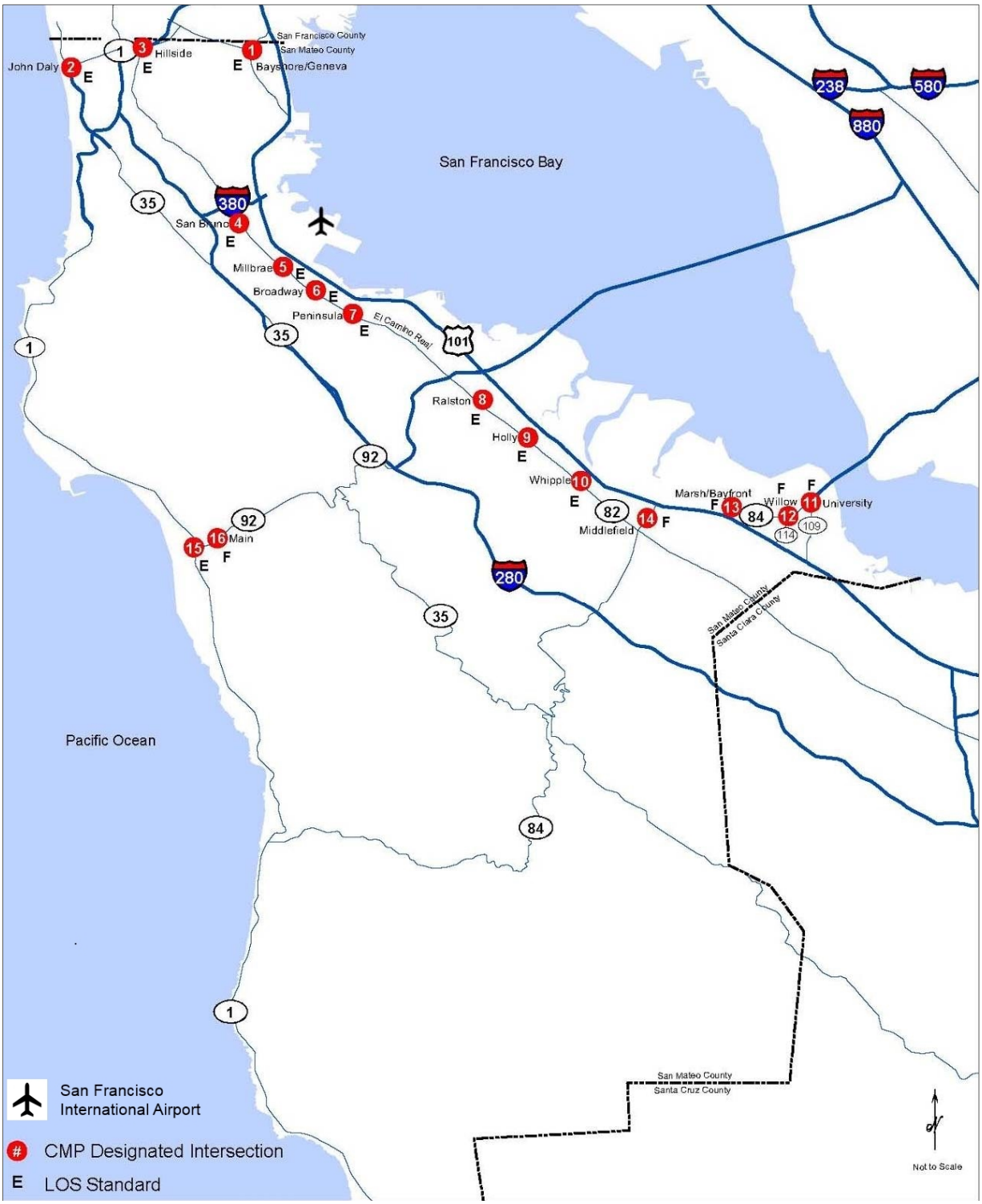
The following process was used to develop the level of service standards for intersections:

1. Existing (1993) peak-hour intersection turning-movement volumes were obtained from manual counts conducted during the morning commute period (7:00 AM to 9:00 AM) and the evening commute period (4:00 PM to 6:00 PM).
2. Existing volume-to-capacity ratios were calculated, and levels of service were evaluated for the AM and PM peak hours.
3. Future intersection volumes were projected by applying growth factors obtained by comparing MTC's traffic assignments for roadway segments adjacent to each intersection for the years 1987 and 2000.
4. Future (year 2000) V/Cs were calculated and LOSs were evaluated for the AM and PM peak hours.
5. Intersection Level of Service Standards were selected based on the following considerations:
    a. If the existing level of service is F, then the standard is set to be LOS F.
    b. If the existing or future level of service is or will be E, then the standard is also set to be E.
    c. 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.
    d. On SR 82 (El Camino Real), the standard is set to be LOS E to be consistent with the roadway segment standards.
    e. 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.)
6. The LOS standards adopted by C/CAG for the 16 designated intersections are presented in Table III and Figure 5.

Table III: Intersection Level of Service Standards

Intersection	Peak Hour	Baseline (1993) LOS	LOS Standard
Geneva Avenue/Bayshore Boulevard	AM	A	E
	PM	A	
Skyline Boulevard (SR 35)/ John Daly Boulevard	AM	A	E
	PM	A	
Mission Street (SR 82)/John Daly Boulevard- Hillside Boulevard	AM	A	E
	PM	A	
El Camino Real (SR 82)/San Bruno Avenue	AM	A	E
	PM	C	
El Camino Real (SR 82)/Millbrae Avenue	AM	C	E
	PM	B	
El Camino Real (SR 82)/Broadway	AM	A	E
	PM	A	
El Camino Real (SR 82)/ Park-Peninsula Avenue	AM	A	E
	PM	A	
El Camino Real (SR 82)/Ralston Avenue	AM	A	E
	PM	C	
El Camino Real (SR 82)/Holly Street	AM	A	E
	PM	B	
El Camino Real (SR 82)/Whipple Avenue	AM	A	E
	PM	B	
Bayfront Expressway (SR 84)/ University Avenue (SR 109)	AM	D	F
	PM	F	
Bayfront Expressway (SR 84)/ Willow Road (SR 114)	AM	F	F
	PM	C	
Bayfront Expressway (SR 84)/Marsh Road	AM	E	F
	PM	F	
Woodside Road (SR 84)/Middlefield Road	AM	D	E
	PM	E	
SR 92/SR 1	AM	B	E
	PM	A	
SR 92/Main Street	AM	F	F
	PM	D	

Figure 5: CMP Intersections and Level of Service (LOS) Standards



Level of Service Standards and Monitoring the CMP

The LOS standards presented in this CMP are all based on analyzing existing traffic counts or projections of local and regional traffic. That is, the calculations of existing and projected weekday levels of service do not exclude some types of trips, such as those associated with interregional travel or low-income housing. For purposes of determining deficiencies, however, 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. Levels of service associated with traffic occurring on weekends or at times when special events occur have not been analyzed in this CMP.

Level of Service Issues for Future CMPs

Although the C/CAG has adopted level of service standards for the roadway segments and intersections that are part of the CMP Roadway System, future resolution of the following issues could affect the definition of LOS standards in future CMPs:

1. The Level of Service Standards presented in Table 3 apply to *continuous roadway segments and specific intersections.* The adopted standards do not require measuring congestion at other specific sites, such as other intersections, freeway ramps or freeway weaving areas. If the measurement and analysis of operating conditions for those types of facilities are to be added to future CMPs, the LOS standards would be set for them at that time.
2. The level of service standards was based on calculated volume-to-capacity ratios. This measure of performance was selected due to the types of available data. The level of service calculation methods may be modified in future CMPs and the resulting levels of service may be different. For example, for roadway segments, it is possible that levels of service measured by conducting travel time runs could be different from those levels of service measured by volume-to-capacity ratios as described in this CMP. Similarly, for intersections, it is possible that levels of service measured by delay times could be different from those levels of service measured by volume-to-capacity ratios. This is one reason why the LOS standards for this CMP are one to two levels worse than the levels of service projected for the year 2000.
3. Limited amounts of data were available to evaluate existing levels of service. For example, the counts provided by Caltrans were listed in one-hour increments (i.e., 4:00 PM to 5:00 PM, 5:00 PM to 6:00 PM). These one-hour increments do not necessarily reflect when the highest peak-hour volumes occur (e.g., those could have occurred from 4:30 PM to 5:30 PM).
4. The Level of Service Standards may be refined by using the Countywide Travel Demand Forecasting Model. That model is described in Chapter 9. It will allow C/CAG to more accurately forecast the performance of the CMP's Roadway

System in future years. As a result, C/CAG could identify additional roadway segments and intersections operating at LOS F. The C/CAG would then amend this CMP's LOS Standards to reflect the new information.

5. For roadways and intersections with a LOS Standard F, if the monitoring results indicate a LOS F, determine the level (seconds of delay) that exceeds the upper threshold limits defined for LOS F. This will help identify and breakdown the different severity levels within the LOS F designation.
6. The most recently adopted 2010 Highway Capacity Manual (HCM2010), which updates 2000 HCM, will significantly enhance how engineers and planners assess the traffic and environmental effects of highway projects. The HCM2010 will be considered in the future as a regionally consistent option for analysis of level of services. The Metropolitan Transportation Commission (MTC) encourages the use of HCM2010, especially for the integrated multimodal approach to analysis of streets for various users.

Chapter 4 – Performance Element

Legislative Requirements

One of the changes imposed by AB 1963 is to rename the "Transit Level of Service Standards" element to the "Performance" element. According to California Government Code section 65089(b)(2), this element includes 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 capital improvement program, deficiency plans, and the land use impact analysis program.

Discussion

One of the key phrases in AB 1963 regarding this element is "multimodal system performance". The purpose of this element is to identify measures that, either individually or taken as a group, evaluate how the *countywide transportation system (including all modes)* is performing, and to present the results of the evaluation. The Traffic Level of Service Standards element and the monitoring of that element provides C/CAG with information regarding the performance of the roadway system. This element will provide information regarding the transportation system.

The performance measures will be used to evaluate the effectiveness of projects proposed for inclusion in the CMP Capital Improvement Program. They will also be used to evaluate the effectiveness of proposed actions in deficiency plans to determine whether they are appropriate and acceptable. In the Land Use Impact Analysis Program, the performance measures can be used to evaluate proposed mitigation measures.

Possible Performance Measures

There is a myriad of performance measures that can be selected for the CMP. The 12 transportation system performance measures, listed in the Statewide CMP/Air Quality Study, are:

1. Level of Service (Volume-to-Capacity)
2. Hours of Delay
3. Travel Time (Vehicle Only)
4. Travel Time (All Motorized Modes)
5. Modal Split
6. Average Vehicle Occupancy
7. Average Vehicle Ridership
8. Vehicles Miles of Travel
9. Vehicles Miles of Travel Per Person Trip
10. Person Throughput (Person Trips Per Hour Per Mile of Facility)
11. Accessibility Percent Employees Within X Minutes
12. Accessibility Percent Employees Within X Miles

These 12 measures were used as the springboard for discussion and selection of the performance measures for San Mateo County.

Selection Criteria

The selection process included: a discussion of the performance measure options, an identification of available data, and an identification of information that could be developed using the San Mateo Countywide Travel Demand Forecasting model. The selection criteria included measurability (Can they be measured in the field or be easily ascertained from available data?), forecastability (Can changes in the measure be predicted using the countywide travel demand forecasting model or other tool?), multimodality (Does the measure include a variety of modes?), and clarity (Can the measure be understood by lay people?).

San Mateo County Performance Measures

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. These measures will be evaluated for peak commute periods, when congestion levels are at their highest. The four measures are:

1. *Level of Service.* 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 Level of Service Standards have been set for selected roadway segments and intersections. Roadway level of service will be measured with either vehicle counts, to determine volume-to-capacity ratios, or floating car runs, to determine travel speeds. In addition, the duration of the peak period will be reviewed.
2. *Travel Times for Single-Occupant Automobiles, Carpools, and Transit.* This performance measure will determine the amount of time required to traverse selected corridors on a variety of modes. The corridors will be selected so that

comparable distances can be measured. (One example would be the U.S. 101/Caltrain corridor from the northern county border to the southern county border. Travel times would be measured for travelers on Caltrain, in single-occupant automobiles on U.S. 101, and in a SamTrans bus on El Camino Real.) Field measurements would be used to determine the travel times for single-occupant automobiles. Transit schedules would be used to determine travel times via bus and Caltrain. Transit travel times could also be field checked. The travel times could be compared among the modes and as they vary over time. Travel times for peak periods would be compared to travel times for off-peak periods to determine the amount of peak-period delay on each mode.

3. *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 Capital Improvement Program. If a new transportation improvement project does not incorporate pedestrian and bicycle travel, it must explain provide justification for such.

4. *Ridership/Person Throughput for Transit*. [13] 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, how the ridership compares to the capacity, and how the various transit modes (SamTrans, Caltrain, BART) compare among themselves.

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.

California Senate Bill 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 level of service (LOS) to another metric such as vehicle miles traveled (VMT).

The Governor's Office of Planning and Research (OPR) is responsible for identifying the alternative metric and updating the CEQA Guidelines on transportation impact analysist. OPR has selected VMT as the new metric regarding transportation impact assessment under CEQA guidelines in December 2018 with statewide application beginning on July 1, 2020. Since the CMP legislation requires use of the LOS metric, which is in direct conflict with SB 743, the legislation is anticipated to be amended or revamped at some point.

13 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.

CMP legislation requires use of a delay-based metric, Level of Service (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 vehicle miles traveled (VMT) as the primary metric for traffic impacts under CEQA. Hence, there will be different metrics being used to report roadway and traffic conditions in various reports such as the CMP, traffic impact analysis under CEQA, other monitoring reports by local jurisdictions during the transition period. It is anticipated CMP legislation will be amended to better align with these recent regulations in the future.

Since the CMP legislation has not been updated to provide new guidance with regard to performance metrics, for the 2019 CMP update, C/CAG has made minor updates to the various chapters in this CMP and provided the monitoring report on the roadway segments and intersections using the same methodology and same locations as in past cycles.

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 2021. It is expected that such a process will take one year due to its countywide nature and the significance of the CMP.

C/CAG is currently working with local jurisdictions on developing guidance to implement the VMT metric for land use projects under CEQA.

Chapter 5 – Trip Reduction and Travel Demand Element

Legislative Requirements

California Government Code 65089.a.3 requires that a Trip Reduction and Travel Demand Element be part of the CMP. This element should promote alternative transportation methods (carpools, vanpools, transit, bicycles, park-and-ride lots, etc.), improve the balance between jobs and housing, and promote other strategies to reduce traffic congestion such as flexible work hours, telecommuting, and parking management programs. Also stated is that the agency shall consider parking cash-out programs.

Discussion

The purpose of this CMP element is to describe San Mateo County's ongoing efforts to reduce congestion and attain the Traffic Level of Service Standards, presented in Chapter 3, through a variety of actions. One of the ways to reduce congestion would be to increase the people-carrying capacity of the CMP Roadway System by promoting the use of travel modes other than the single-occupant automobile, such as carpools, vanpools, transit, and bicycles. The implementation of congestion reduction strategies such as staggered work hours, telecommuting, and parking management are also expected to be pursued at the local level. Data for mode of transportation to work by San Mateo County employed residents from the US Census Bureau are presented in Table IV.

Table IV: San Mateo County Employed Residents (Mode of Transportation to Work)

Mode	2013	% of Total	2015	% of Total	2017	% of Total
Drive Alone	263,356	69%	268,211	68%	274,829	67%
Carpool	43,399	11%	39,855	10%	44,651	11%
Public Transportation**	38,807	10%	41,533	11%	46,772	11%
Walked	9,646	3%	10,775	3%	11,565	3%
Motorcycle	8,024	2%	10,556	3%	12,763	3%
Bicycle						
Other Means						
Work at Home	15,900	4%	21,575	5%	19.341	5%
Total Employed Residents	**379,132**		**392,505**		**409,921**	
Total Population	747,373		748,731		769,545	

Notes: Source: 2000 Census; US Census Bureau; American Community Survey 1-Year (2013, 2015, 2017)
* Available data provided combined Motorcycle, Bicycle, and Other Means
** 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.

Most county employed residents are driving alone to work. In 2017, solo automobile drivers accounted for 67 percent of the county employed residents commute trips, compared to 68 percent in 2015. In 2017, 11 percent traveled to work by transit and 11 percent by carpool compared to 11 percent and 10 percent in 2015 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 V, 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. 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 V: San Mateo County's Employment and Employed Residents

	2015	2020	2025	2030	2035	2040
Employment (Total Jobs)	374,920	407,557	414,558	421,558	432,926	445,080
Employed Residents	374,526	406,029	412,475	417,876	424,182	431,991
Ratio of Employment to Employed Residents	1.00	1.00	0.99	0.99	0.98	0.97

Notes: *Source: ABAG Projections 2013.*

Not all of San Mateo County's employed residents work in San Mateo County and not all the jobs in San Mateo County are filled by San Mateo County residents. Table IV presents 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.

In 'Trips to Work by San Mateo County Residents', approximately 58% of San Mateo County residents work within in the county, 22% travel to the North (San Francisco, Napa, Sonoma, and Marin Counties), 4% travel to the East (Alameda, Contra Costa, Solano, and San Joaquin Counties), and 16% travel to the South (Santa Clara, Santa Cruz, Monterey and San Benito Counties) in 2015.

In 'Trips to Work in San Mateo County Originating from Outside the County', approximately 35% of work-related trips into San Mateo County originate from the East, 35% originate from the North, and 31% originate from the South in 2015.

In 'Trips to Work Through San Mateo County', approximately 65% of work-related trips that pass through the County head to the South (Santa Clara, Santa Cruz, Monterey and San Benito Counties) and 35% pass through the county to the North and East (San Francisco, Napa, Sonoma, Marin, Alameda, Contra Costa, Solano, and San Joaquin Counties) in 2015.

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.

Table VI: Origins and Destinations of Home-to-Work Trips

	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%

	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%

	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 Travel Demand Model

Current TSM/TDM Programs in San Mateo County

Measures that reduce the number of vehicles on the roadway system are referred to as Transportation Demand Management (TDM) measures. Measures that improve the efficiency of the system are referred to as Transportation System Management (TSM) measures. TSM measures include traffic signal synchronization, ramp metering, and high occupancy vehicle (HOV) lanes (also known as diamond or carpool lanes). Both TDM and TSM are addressed in this element.

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 A TSM Plan

In June 1988, voters in San Mateo County approved Measure A that created the San Mateo County Transportation Authority 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 the Authority to adopt, in conjunction with the cities 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 Bicycles and Pedestrians 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.
The three primary goals of San Mateo County's TSM plan are as follows:

Goal 1: To develop a coordinated countywide TSM program that: (1) examines the nature and cause of growing peak-hour traffic congestion in the county; (2) reviews available TSM techniques and implementation methods; (3) identifies TSM measures that would be effective in the county; and (4) recommends implementation of a plan by local governments and employers.

Goal 2: To increase the efficiency of the existing transportation system in San Mateo County during peak-commute periods by: (1) reducing single-occupant auto work-trips; (2) increasing the use of public transit and other alternative modes of transportation; and (3) reducing the rate of increase in roadway usage. An initial target is to achieve a 25-percent rate of participation by employees in alternatives to single-occupant auto work-trips during peak hours within five years. In addition to relieving congestion, implementation of the recommended TSM measures would also help attain State and Federal air quality standards, and conserve energy.

Goal 3: To establish an ongoing planning process for evaluating and refining the countywide TSM plan that: (1) evaluates the effectiveness of traffic mitigation programs; (2) recommends adjustments to existing programs where needed; and (3) promotes local and regional planning to achieve a balance between land use decisions and the demand for transportation facilities.

Measures to implement the goals of the Measure A TSM effort and to encourage more efficient use of existing transportation networks were identified in the plan. These included promoting ridesharing (car and vanpools), flexible work hours, and countywide long-range planning leading to growth targets and a jobs/housing balance.

In the current Measure A, annually, 0.7 percent of the total sales tax revenue is allocated to fund projects that further these goals. Local agencies, including cities, towns, joint powers agencies, SamTrans, and school districts, can nominate projects to receive these funds.

The San Mateo County's Measure A transportation sales tax Expenditure Plan (2004) states that a 3% share of sales tax revenues, an estimated $45 million (over the next 25-year period) will be allocated towards pedestrian and bicycle projects including paths, trails and bridges over roads and highways. In addition, the Expenditure Plan also states that a 4% share of sales tax revenues, an estimated $60 million (over the next 25-year period) will be allocated to local shuttle services. Priority will be given to those shuttle service programs that include a portion of the funding from businesses, employers and other private parties. Priority will be given to service that connects with Caltrain, BART and ferry terminals.

Local TSM/TDM Programs That Have Been Implemented in Direct Response to the Requirements Under Measure A

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. A variety of methods are used. Some cities have formed joint powers agencies to implement a common program and to take advantage of the cost effectiveness of consolidated efforts. The Cities of Burlingame, Foster City, San Mateo, Redwood City, San Carlos, and Belmont had operated as the Inter-City TSM Agency (ITSMA). The Cities of Daly City, South San Francisco, San Bruno, Pacifica, Brisbane, Millbrae, Half Moon Bay, and Colma, had formed the Multi-City TSM Agency (MTSMA). In May 2000, these two agencies joined forces in order to provide a comprehensive program of services for the entire County. The combined joint powers agency is the Peninsula Traffic Congestion Relief Alliance. The cities of Atherton, Hillsborough and the County of San Mateo have also joined the new agency. The City of Menlo Park operates independent programs, some of which preceded Measure A. The San Francisco International Airport, the largest employer site in San Mateo County, has a trip reduction rule for tenants with 20 or more employees to provide commuter benefits to onsite employees.

Commute.org Overview

Commute.org is San Mateo County's Transportation Demand Management (TDM) agency. Formed in 2000 as a JPA, Commute.org now has 18 members in San Mateo County and has a mission of reducing single occupancy vehicle travel for commutes to, from, and through the county.

Working directly with employers, commuters, and residents, Commute.org helps people switch from driving alone to using 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, and bicycles, as an alternative 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 60 private employers, residential property developers and commercial property managers.

Specific programs offered through Commute.org include:

Shuttle Program
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 Employer Outreach 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 Employer Programs 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 is this prestigious program. In order to receive this designation and employer is required to meet very stringent criteria which translates into more employees having better options for commuting.
- Bicycle Incentive - Reimbursement for Infrastructure - Commute.org reimburses employers who install bicycle racks, or lockers, at their work sites to accommodate employees who bicycle to and from work. Employers are reimbursed up to 50 percent of

the cost of any bike parking, from basic bike racks to high-security lockers (maximum $500 per unit).

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.
- Vanpool Incentive – Commuters who agree to drive a new vanpool for six consecutive months can earn a $500 incentive. Other commuters who agree to participate as vanpool passengers for three consecutive months are also eligible to receive an incentive (maximum of $100 per month for three months).
- Carpool Incentive – Employees, residents, and college students who carpool can receive up to $100 per year in e-gift cards. For each 10 days that someone carpools (driver or passenger), they can receive a $25 reward up to four times in each calendar year.
- Commute.org facilitates the process of finding carpool and vanpool partners using the STAR platform's trip planning tools.
- 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.
- Bicycle Safety Program - In partnership with employers, property managers and municipalities, Commute.org sponsors bicycle safety training sessions to promote bicycling as a commute alternative. A certified bicycle instructor from the League of American Cyclists provides information on bicycle riding tips, laws, repairs and

maintenance. Commute.org also offers printed San Mateo County Bicycle Safety guides which are available in Spanish and English.

Annual Events

Commute.org also coordinates several large-scale annual events in San Mateo County. The events include:

- 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, typically held in early May, promotes bicycling as an alternative way to commute. Commute.org is the county-wide coordinator, serving thousands of cyclists at dozens of Energizer Stations across San Mateo County.

TDM Partnerships

The entire Commute.org team is actively involved in transportation related programs throughout San Mateo County and the greater Bay Area region. The team collaborates with a wide range of public, private, and non-profit organizations that share the goal or reducing single occupancy commuting.

City of Menlo Park Programs

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 two Caltrain shuttles, the Willow and Marsh shuttles, which operate during the AM and PM peak hours taking passengers from Caltrain to their businesses, schools, shopping or appointments. The Willow and Marsh shuttles carried 40,426 passengers in 2018. After operational issues due to a driver shortage, the Marsh shuttle added back its second shuttle bus in April 2019. Due to high ridership, the Willow shuttle will soon be upgraded to a larger vehicle in 2020 to help alleviate crowding. These shuttle programs are generously funded by contributions from the City of Menlo Park's partners: The San Mateo City/County Association of Governments, San Mateo County Transportation Authority, and local businesses.

The City also manages a community-based shuttle service which is open to the general public with a focus on the senior community. Smaller shuttle buses provide a community feel allowing easy maneuverability into major activity centers such as the senior centers and popular shopping destinations. There are two fixed-route community shuttles, the one-bus Menlo Midday shuttle and the two-bus Belle Haven shuttle. The Menlo Midday shuttle connects West Menlo Park and Sharon Heights with downtown Menlo Park, along with medical facilities at Stanford and in Palo Alto. The Belle Haven shuttle provides all-day service between the Belle Haven neighborhood and downtown Menlo Park. Collectively, these community shuttles carried 14,149 passengers in 2018. Due to a driver shortage, the Menlo Midday shuttle was suspended in September 2018 and the Belle Haven has been running one bus since October 2017. In 2020, the Menlo Midday shuttle will resume along with an extension of the Belle Haven shuttle to Palo Alto. These shuttle programs are generously funded by contributions from the City of Menlo Park's partners: the San Mateo City/County Association of Governments and the Metropolitan Transportation Commission's Lifeline Program.

For those residents who do not live within an easy walking distance of a SamTrans stop or the community shuttle service stop, Menlo Park offers the Shoppers' shuttle. This service picks up passengers at their homes providing rides to shopping areas, downtown Menlo Park, the library, and senior centers. On Tuesdays, the Shoppers' Shuttle transports riders to shopping destinations in Redwood City. On Wednesday and Saturdays, the shuttle stops at various locations in Menlo Park and nearby medical facilities at Stanford and in Palo Alto. In 2018, the Shoppers' Shuttle carried 1,617 passengers. The Shoppers' shuttle is funded by City of Menlo Park.

Other Local TSM/TDM Programs

C/CAG Local Transportation Services Component of the Countywide Congestion Relief Plan
In 2002, the C/CAG Board approved the Countywide Congestion Relief Plan that includes the creation of a Local Transportation Services element. The intent of Local Transportation Services

element is 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. It will be up to each jurisdiction to determine how these services will be organized, the type of service to be provided, and the amount of contribution that the jurisdiction wishes to make. The benefit to the jurisdiction will be the creation or expansion of local transportation services that focus primarily on connecting that jurisdiction's residential areas with downtown, employment centers, schools, and transit stations.

Funding for the Local Transportation Services program comes from the C/CAG Member assessments that were adopted under the Countywide Congestion Relief Plan combined with dollar for dollar matching funds from the San Mateo County Transportation Authority. All projects must also match these funds dollar for dollar from funds coming from the local jurisdiction.

San Mateo County Transportation Authority (TA) Shuttle Program

The San Mateo County Transportation Authority (TA) Measure A Expenditure Plan Program for Local Shuttles, which is included as part of the Transit Program Category. A call for projects issued in December 2017 resulted in the TA allocating approximately $10,000,000 in Measure A funds for FY 2018/19 and FY 2019/20 to fund a total of 35 projects sponsored by Commute.org (10 shuttles), Caltrain (13), SamTrans (5), City of Menlo Park (3), City of South San Francisco (1), San Mateo Community College District (1), City of Daly City (1), and City of San Carlos (1).

San Francisco International Airport's Program

San Francisco International Airport (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 successfully worked with BART to reestablish weekday direct service to Millbrae station in early 2019, and employees commuting via Millbrae station can now connect directly to the nonstop BART Purple Line for free using the Airport BART discount card. Employees also have the option of taking the new Route SFO SamTrans bus, which connects all terminals with Caltrain at Millbrae.

The Airport works closely with its tenants, the San Francisco Department of the Environment, and the Peninsula Traffic Congestion Relief Alliance 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.

South San Francisco's Transportation Demand Management (TDM) Ordinance

The City of South San Francisco has adopted a comprehensive and enforceable TDM ordinance. C/CAG recognizes the value of the City of South San Francisco's efforts and will consider the City of South San Francisco's TDM ordinance for use in future update of the guidelines for the land use component of the Congestion Management Program.

Shuttle Service in San Mateo County [14]
San Mateo County overall has a total of forty (40) shuttle services offered by a various service providers and operators, including SamTrans, Commute.org, and individual cities. This total also includes shuttles funded by private employers but operated by public entities. The shuttles can be categorized within the following groups: Commuter Caltrain Shuttles, Commuter Caltrain/BART Shuttles, Commuter BART Shuttles, and Community Shuttles. Caltrain serves as the lead organization for 40 percent of the shuttles with the cities lead for 24 percent, Alliance for 22 percent, and private sector at 14 percent. With regards to administration and management, Commute.org manages 53 percent of the shuttles, Caltrain manages 26%, cities manage 12 percent, and the private sector entities manage 9 percent. As indicated previously, funds to operate shuttle services come from a variety of sources including SMCTA, C/CAG, BAAQMD, Caltrain, and SamTrans. Fifty-two percent of the shuttles receive funding from employers whereas 41 percent receive funding from individual cities.

C/CAG Carpool 2.0 Incentive Program
With the completion of the C/CAG Countywide Carpooling Incentives Pilot Program in FY 2017-18, and based on the results and analyses, findings and lessons learned during the project, C/CAG staff has collaborated with Commute.org, San Mateo County's Transportation Demand Management (TDM) implementation agency, to develop the Countywide Carpooling Incentive Program 2.0 (Program), that will be implemented through 2019, or until funds are depleted.

The Program's objective is like the original pilot program, which is to encourage commuters to carpool or share rides and will focus on commuters traveling to or from San Mateo County. The trips would be tracked through commercially available program applications (apps) such as Commute Tracker, Scoop, or Waze Carpool, or manually, through the existing Commutator's STAR platform, powered by Ride amigos and under license with Commute.org. The new program will have more flexibility and control enabling C/CAG and Commute.org to adjust the incentive accordingly to align with the Program's goals.

[14] San Mateo County Shuttle Inventory and Analysis by SMCTA(2010)

Chapter 6 – Land Use Impact Analysis Program

Legislative Requirements

Proposition 111 (Government Code Sections 65088-65089) requires that local governments develop a Land Use Impact Analysis Program to determine the impacts of land use decisions upon regional transportation routes and air quality. The legislation states each Congestion Management Agency must develop:

A program to analyze the impacts of land use decisions made by local jurisdictions on regional transportation systems, including an estimate of the costs associated with mitigating those impacts. This program shall measure, to the extent possible, the impact to the transportation system using the performance measures described in paragraph (2). In no case shall the program include an estimate of the cost of mitigating the impacts of interregional travel. The program shall provide credit for local public and private contributions to improvements to regional transportation systems. However, in the case of toll road facilities, credits shall only be allowed for local public and private contributions, which are unreimbursed from toll revenues or other State or federal sources. The agency shall calculate the amount of the credit to be provided. The program defined under this section may require implementation through the requirements and analysis of the California Environmental Quality Act, in order to avoid duplication.

Legislation does not alter the constitutional discretion local jurisdictions have in making land use decisions or in determining the responsibilities of development proposals to mitigate impacts. The legislation, however, does place the San Mateo City/County Association of Governments (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.

Components of the Land Use Impact Analysis Program

The legislation does not specify the exact nature of an Impact Analysis Program; therefore, each CMA has considerable discretion in how much it chooses to require transportation improvements to overcome the impacts of land use decisions.

Roadway System

The designated CMP Roadway System comprises the roadways and intersections included in the CMP that will be subject to analysis and monitoring by C/CAG. The CMP Roadway System is defined in Chapter 2.

Travel Modeling

The Travel Demand Forecasting Model, as described in Chapter 9, will be used to determine the impacts of land use alternative and development proposals on the CMP network.

Land Use Data Base

A Land Use Information System has been developed to provide existing and projected land use data for use in the Travel Forecasting Model. This data, which is updated annually, was collected from all jurisdictions and reflects the most complete and accurate information available.

Review Process

C/CAG must develop a process for reviewing the impacts of land use proposals on the CMP network. C/CAG has the option of reviewing proposals at various stages of the planning process. C/CAG has discretion about the nature of the process.

Land Use Impact Analysis Program

The program has been developed as a three-tiered process. 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.

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 2025 based on a county wide land use plan, which reflects desired levels and types of development. This analysis will be conducted for both the Congestion Management Program and the Countywide Transportation Plan.

The Travel Demand Forecasting 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 2025 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 Capital Improvement Programs and Financial Plan

The Countywide Transportation Plan (CTP) indicates which projects should be included in future capital improvement programs to relieve congestion the most effectively. C/CAG will make recommendations to the cities, County, SamTrans, Transportation Authority, and the Joint Powers Board when they formulate future capital improvement programs. The C/CAG Board adopted the 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: Notification

Local jurisdictions will notify C/CAG at the beginning of the CEQA process of all development applications or land use policy changes (i.e., General Plan amendments) that are expected to generate a net (subtracting existing uses that are currently active) 100 or more peak period trips

on the CMP network, within ten days of completion of the initial study prepared under the California Environmental Quality Act (CEQA). Peak period includes 6:00 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. Examples of developments that would generate 100 peak period trips include 100 single-family dwelling units; 15,000 square feet of retail space; 50,000 square feet of office space; a 150-room hotel; or 100,000 square feet of light industrial space.

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 traffic impact analyses, their own travel forecasting models, or C/CAG's Travel Demand Forecasting 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 all the new peak hour trips 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.

a. Reduce the scope of the project so that it will generate less than 100 peak hour trips.
b. Build adequate roadway and/or transit improvements so that the added peak hour trips will have no measurable impact on the Congestion Management Program roadway network.
c. Contribute an amount per peak hour trip to a special fund for improvements to the Congestion Management Program roadway network. This amount will be set annually by C/CAG based on a nexus test.
d. Require the developer and all subsequent tenants to implement Transportation Demand Management programs that mitigate the new peak hour trips. A list of acceptable programs and the equivalent number of trips that are mitigated will be provided by C/CAG annually. Programs can be mixed and matched so long as the total mitigated trips is equal to or greater than the new peak hour trips generated by the project. These programs, once implemented, must be on-going for the occupied life of the development. Programs may be substituted with prior approval of C/CAG, so long as the number of mitigated trips is not reduced. Additional measures may be proposed to C/CAG for consideration. Also, there may be special circumstances that warrant a different amount of credit for certain measures. These situations can also be submitted to C/CAG in advance for consideration.

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 Travel Forecasting Model every two years.

Step 2: Testing of Cumulative Impacts

Each update of the Travel Demand Forecasting Model (generally done every 2 to 4 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 capital improvement programs, and (4) providing data for jurisdictions to use in the development of site traffic impact analyses 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 Level of Service Standard. Hopefully this information can be used to avert the need for the development of some deficiency plans.

Implementation Guidelines

A copy of the Guidelines for implementing the land use component of the congestion management program is in Appendix I.

Compliance Monitoring
Status of the land use impact analysis program compliance monitoring is included in Appendix I.

MTC Resolution 3434 (Regional Transit Expansion Program) and Compliance with SB 1636 (2002). The Metropolitan Transportation Commission (MTC) adopted Resolution No. 3434, a Regional Transit Expansion Plan for the San Francisco Bay Area region in 2001 (revised in 2007). Transit expansion projects in San Mateo County included in resolution 3434 are:

- Caltrain Express: Phase 1 (open for service)
- Caltrain Express: Phase 2
- Caltrain Electrification
- Dumbarton Rail
- Expanded Ferry Service Phase 1: South San Francisco to San Francisco
- Expanded Ferry Service Phase 2: Redwood City to San Francisco

On July 27, 2005, MTC adopted the Transit Oriented Development (TOD) policy for Resolution 3434 regional transit expansion projects. The TOD policy goals are aimed at improving the cost-effectiveness of regional investments in new transit expansions and easing the Bay Area's chronic housing shortage. That TOD policy conditions the use of regional discretionary funding for transit expansion projects on supportive local land use plans and policies. The TOD policy only applies to physical transit extensions funded in Resolution 3434, including the Dumbarton Rail, Expanded Ferry Services, and the Caltrain Extension.

San Mateo County Transit Oriented Development (TOD) Housing Incentive Program
C/CAG administers the Transit Oriented Development (TOD) Housing Incentive Program for San Mateo County. The goal of the program is to promote, support, and facilitate TOD projects throughout the County to provide a better relationship between land use and transportation. The program encourages the cities and the County to develop high-density housing (greater than 40 units per acre) within one third of a mile of a rail station.

The program provides financial incentives to jurisdictions that build Transit Oriented Development (TOD) projects by rewarding them with additional funds for transportation projects; encourages jurisdictions that receive additional transportation funding to find some way of financially assisting TOD projects so that they become economically viable. An additional incentive is provided to encourage low- or moderate-income housing.

Chapter 7 – Deficiency Plan Guidelines

The legislation that resulted in the preparation of Congestion Management Programs (CMPs) defined the preparation of deficiency plans as a way for local jurisdictions (cities and the County) to remain in conformance with the CMP when the level of service (LOS) for a CMP roadway segment or intersection deteriorates below the established standard. A CMP roadway segment or intersection can be found to violate the LOS standard when levels of service are monitored biennially.

California Government Code Section 65089.1(b)(1)(B) states:

In no case shall the LOS standards established be below the Level of Service E or at the current level, whichever is further from Level of Service A, except where a segment or intersection has been designated as deficient and a deficiency plan has been adopted pursuant to Section 65089.3.

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 level of service 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:

a. Implementation of a specific plan to correct the LOS deficiency on the affected network segment; or
b. Implementation of other measures intended to result in measurable improvements in the LOS on the systemwide CMP Roadway System and to contribute to significant improvements in air quality. 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 systemwide 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 transportation demand management). 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 transportation demand management (TDM) programs;
- 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.

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 agency[15] 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

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

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,[16] 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.

(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

[16]This 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.

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

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.

Current Deficiencies
The City/County Association of Governments of San Mateo County (C/CAG) retained a consultant to conduct the 2019 congestion monitoring of the 53 roadway segments and 16 intersections that comprise the CMP Roadway System in San Mateo County. A copy of the CMP Congestion Monitoring Report is included in Appendix F.

The results of the 2019 Monitoring indicate the following roadway segments exceeded its LOS Standard before the reduction of interregional trips:

- SR-35 between I-280 and SR-92 – AM and PM Periods
- SR-84 between SR-1 and Portola – PM Period
- SR-84 between I-280 and Alameda de las Pulgas – AM and PM Periods
- SR-84 between Willow and University – AM Period
- SR-92 between SR-1 and I-280 – AM and PM Periods
- SR-92 between I-280 and US-101 – AM and PM Periods
- SR-92 between US-101 and Alameda County Line – AM and PM Periods
- US-101 between SF County Line and I-380 – AM and PM Periods
- US-101 between I-380 and Millbrae – AM and PM Periods
- US-101 between Millbrae and Broadway – AM and PM Periods
- US-101 between Broadway and Peninsula – AM and PM Periods
- US-101 between SR-92 and Whipple – AM and PM Periods
- SR-109 between Kavanaugh and SR-84 – PM Period
- I-280 between SF County Line and SR-1 (north) – AM Period
- I-280 between SR-1 (north) and SR-1 (south) – AM Period
- I-280 between SR-1 (south) and San Bruno – AM and PM Periods
- I-280 between San Bruno and SR-92 – PM Period
- I-280 between SR-92 and SR-84 – AM and PM Periods
- I-280 between SR-84 and SC County Line – PM Periods

Indicated in the tables below (from Appendix F) are current 2019 LOS for all roadway segments and intersections.

Table VII: 2019 CMP Roadway Segment Level of Service (LOS)

2019 CMP Roadway Segment Levels of Service															
			2019 LOS												
Route	Roadway Segment	LOS Standard	AM Without Exemption	PM Without Exemption	AM With Exemption	PM With Exemption	2019 LOS[2]	2017 LOS[2]	2015 LOS[2]	2013 LOS[2]	2011 LOS[2]	2009 LOS[2]	2007 LOS[2]	2005 LOS[2]
1	San Francisco County Line to Linda Mar Blvd.	E	C	A	C	A	C	A	A	F[3]/F[4]	F[3]/B[4]	F[3]/F[4]	F[3]/F[4]	F[3]/F[4]
1	Linda Mar Blvd. to Frenchmans Creek Road	E	D	D	D	D	D	D	D	D	D	D	D	D
1	Frenchmans Creek Road to Miramontes Road	E	E	E	E	E	E	E	E	E	E	E	E	E
1	Miramontes Road to Santa Cruz County Line	D	C	C	C	C	C	C	C	B	B	B	B	C
35	San Francisco county Line to Sneath Lane	E	D	B	D	B	D	C	D	B	A	C	C	C
35	Sneath Lane to I-280	F	F	F	A	F	F	F	F	F	F	E	F	F
35	I-280 to SR 92	B	C	D	A	C	C	B	C[3]/A[4]	C[3]/B[4]	C[3]/B[4]	B	B	C/C
35	SR 92 to SR 84	B	B	B	B	B	B	B	B	B	B	B	B	B
35	SR 84 to Santa Clara County Line	E	B	B	B	B	B	B	B	B	B	B	B	B
82	San Francisco County Line to John Daly Blvd	E	A	A	A	A	A	A	A	A	A	A	A	A
82	John Daly Boulevard to Hickey Boulevard	E	A	A	A	A	A	A	A	A	A	A	A	A
82	Hickey Boulevard to I-380	E	A	A	A	A	A	A	A	A	A	A	C	A
82	I-380 to Trousdale Drive	E	A	A	A	A	A	A	A	A	A	A	B	A
82	Trousdale Drive to 3rd Avenue	E	A	A	A	A	A	A	A	A	B	A	A	A
82	3rd Avenue to SR 92	E	A	A	A	A	A	A	A	A	A	A	A	A
82	SR 92 to Hillside Avenue	E	A	A	A	A	A	A	A	A	A	B	B	B
82	Hillside Avenue to 42nd Avenue	E	A	B	A	B	B	C	C	B	B	B	B	B
82	42nd Avenue to Holly Street	E	A	A	A	A	A	B	B	A	A	B	B	A
82	Holly Street to Whipple Avenue	E	A	A	A	A	A	A	B	B	C	C	D	D
82	Whipple Avenue to SR 84	E	A	A	A	A	A	A	A	A	B	C	C	C
82	SR 84 to Glenwood Avenue	E	B	A	A	A	A	A	B	A	B	B	B	B
82	Glenwood Avenue to Santa Cruz Avenue	E	B	C	A	C	C	C	C	C	B	B	C	D
82	Santa Cruz Avenue to Santa Clara County Line	E	D	D	B	D	D	B	B	B	A	B	B	C
84	SR 1 to Portola Road	C	C	D	C	D	D	B	D[3]/B[4]	C	C	C	C	C
84	Portola Road to I-280	E	B	B	B	B	B	C	C	B	B	B	B	B
84	I-280 to Alameda de las Pulgas	C	E	E	E	E	E	D	D[3]/D[4]	D[3]/D[4]	D[3]/C[4]	C	D/A	C
84	Alameda de las Pulgas to U.S. 101	E	D	E	D	E	E	D	D	D	E	E	E	E
84	U.S. 101 to Willow Road	D	C	B	C	B	B	B	C	C	B	E/E	C	B
84	Willow Road to University Avenue	E	F	E	A	E	E	B	F[3]/B[4]	F[3]/B[4]	F[3]/C[4]	F/E	F/F	F/F
84	University Avenue to Alameda County Line	F	F	F	F	F	F	F	F	F	F	F	F	F
92	SR 1 to I-280	E	F	F	E	E	E	E	E	E	E	E	E	E
92	I-280 to U.S. 101	D	F	F	E	D	E	E	F[3]/E[4]	F[3]/E[4]	F[3]/F[4]	E[3]/D[4]	F[3]/D[4]	F[3]/E[4]
92	U.S. 101 to Alameda County Line	E	F	F	A	F	F	C	F[3]/F[4]	E	F[3]/A[4]	A/B[3]	A/B[3]	A/B[3]

Notes:

[2] The first value represents LOS without exemptions, and the second value represents LOS with exemptions.

[3] Based on average speed from travel time surveys.

[4] Exemptions applied to volume-to-capacity ratios estimated from average speeds.

"-" = not applicable. LOS standard is not violated. Therefore, exemptions were not applied.

LOS Standard violations (after application of exemptions) are highlighted in red

LOS based on 1994 Highway Capacity Manual Methodology.

Notes: Delay = Average control delay in seconds per vehicle, LOS = Level of Service.

2019 CMP Roadway Segment Levels of Service

Route	Roadway Segment	LOS Standard	2019 LOS				2019 LOS[2]	2017 LOS[2]	2015 LOS[2]	2013 LOS[2]	2011 LOS[2]	2009 LOS[2]	2007 LOS[2]	2005 LOS[2]
			AM Without Exemption	PM Without Exemption	AM With Exemption	PM With Exemption								
101	San Francisco County Line to I-380	E	F	F	D	D	D	E	F[3]/ E[4]	E	F[3]/ A[4]	D[3]	E[3]	D[3]
101	I-380 to Millbrae Avenue	E	F	F	E	D	E	D	F[3]/ D[4]	F[3]/ C[4]	F[3]/ C[4]	D[3]	F[3]/C[4]	F[3]/ D[4]
101	Millbrae Avenue to Broadway	E	F	F	E	D	E	C	F[3]/ E[4]	F[3]/ C[4]	F[3]/ C[4]	F[3]/C[4]	F[3]/C[4]	F[3]/ D[4]
101	Broadway to Peninsula Avenue	E	F	F	D	D	D	D	F[3]/ E[4]	F[3]/ C[4]	F[3]/ C[4]	F[3]/D[4]	F[3]/C[4]	F[3]/ D[4]
101	Peninsula Avenue to SR 92	F	F	F	F	F	F	F	F	F	F	F[3]	F[3]	F[3]
101	SR 92 to Whipple Avenue	E	F	F	C	E	E	E	F[3]/ E[4]	F[3]/ D[4]	F[3]/ D[4]	F[3]/E[4]	F[3]/D[4]	F[3]/ E[4]
101	Whipple Avenue to Santa Clara County Line	F	F	F	F	F	F	F	F	F	F	F[3]	F[3]	F[3]
109	Kavanaugh Drive to SR 84 (Bayfront Expwy.)	E	C	F	C	A	C	C	D	D	C	D	D	C
114	U.S. 101 to SR 84 (Bayfront Expressway)	E	B	C	B	C	C	C	C	A	B	C	C	B
280	San Francisco County Line to SR 1 (north)	E	F	E	E	E	E	E	E	E	E	F[3]/D[4]	F[3]/A	E[3]
280	SR 1 (north) to SR 1 (south)	E	F	E	E	E	E	D	E	E	A/B	E	E	E[3]
280	SR 1 (south) to San Bruno Avenue	D	F	F	D	C	D	D	F[3]/ C[4]	F[3]/ D[4]	F[3]/ D[4]	E[3]/D[4]	F[3]/C[4]	F[3]/ E[4]
280	San Bruno Avenue to SR 92	D	D	E	D	B	D	A	C	B	D	E[3]/C[4]	A/B[3]	A/B[3]
280	SR 92 to SR 84	D	F	E	B	A	B	A	E/C	C	A/B	D[3]	D[3]	D[3]
280	SR 84 to Santa Clara County Line	D	D	F	D	A	D	A	F[3]/ A[4]	F[3]/ A[4]	E[3]/ A[4]	D[3]	D[3]	E[3]/ C[4]
380	I-280 to U.S. 101	F	F	F	F	F	F	F	F	F	F	F[3]	F[3]	E[3]
380	U.S. 101 to Airport Access Road	C	A	A	A	A	A	A	A	A	A	B[3]	D[3]/C	A[3]
Mission St	San Francisco County Line to SR 82	E	A	A	A	A	A	A	A	A	A	A	A	A
Geneva Ave.	San Francisco County Line to Bayshore Blvd.	E	A	A	A	A	A	A	A	A	A	A	A	A
Bayshore Blvd.	San Francisco County Line to Geneva Avenue	E	A	A	A	A	A	A	A	A	A	A	A	A

Notes:

[2] The first value represents LOS without exemptions, and the second value represents LOS with exemptions.

[3] Based on average speed from travel time surveys.

[4] Exemptions applied to volume-to-capacity ratios estimated from average speeds.

"-" = not applicable. LOS standard is not violated. Therefore, exemptions were not applied.

LOS Standard violations (after application of exemptions) are highlighted in red

LOS based on 1994 Highway Capacity Manual Methodology.

Table VIII: 2019 CMP Intersection Level of Service (LOS)

				2000 HCM Method								
Int #	Intersection	LOS Standard	Peak Hour	2019 LOS	2017 LOS	2015 LOS	2013 LOS	2011 LOS	2009 LOS	2007 LOS	2005 LOS	2019 Standard Exceeded
1	Bayshore & Geneva	E	AM	E	B	B	B	B	C	B	C	No
			PM	B	A	B	B	B	C	C	C	No
2	SR 35 & John Daly Blvd	E	AM	B	C	D	C	C	B	B	B	No
			PM	B	B	E	C	C	C	B	C	No
3	SR 82 & Hillside/John Daly	E	AM	B	B	C	C	B	C	C	C	No
			PM	C	C	C	C	C	D	C	D	No
4	SR 82 & San Bruno Ave	E	AM	C	B	C	C	C	C	C	C	No
			PM	C	C	C	C	C	D	D	D	No
5	SR 82 & Milbrae Ave	E	AM	E	D	D	E	F/D	E	E	E	No
			PM	E	D	E	D	E	D	E	E	No
6	SR 82 & Broadway	E	AM	B	A	B	B	B	B	B	B	No
			PM	A	A	B	B	B	A	B	B	No
7	SR 82 & Park-Peninsula	E	AM	C	B	C	C	C	B	B	B	No
			PM	C	B	C	C	C	B	B	B	No
8	SR 82 & Ralston	E	AM	C	C	C	C	C	D	D	E	No
			PM	C	C	C	D	C	D	D	E	No
9	SR 82 & Holly	E	AM	C	C	C	C	C	C	C	C	No
			PM	C	C	C	C	C	D	C	C	No
10	SR 82 & Whipple Ave	E	AM	C	C	C	C	C	C	C	D	No
			PM	D	D	C	C	C	D	D	D	No
11	University & SR 84	F	AM	C	F	C	E	C	B	B	B	No
			PM	F	F	F	F	F	F	F	E	No
12	Willow & SR 84	F	AM	D	C	D	D	C	C	C	C	No
			PM	E	F	F	F	E	F	F	E	No
13	SR 84 & Marsh Rd	F	AM	F	F	F	D	D	C	C	C	No
			PM	F	F	F	D	E	F	D	C	No
14	Middlefield & SR 84	E	AM	D	E	C	D	C	D	D	D	No
			PM	E	E	D	D	D	D	D	D	No
15	SR 1 & SR 92	E	AM	B	B	C	C	D	C	D	D	No
			PM	C	C	C	C	C	D	D	D	No
16	Main St & SR 92	F	AM	B	B	C	B	C	C	C	C	No
			PM	B	B	B	B	B	C	C	C	No

Based on the 2000 HCM Methodology, the results indicate the following deficient segments after the reduction of interregional trips:

- PM – Northbound and Southbound SR-35 between I-280 and SR-92
- PM – Eastbound and Westbound SR-84 between SR-1 and Portola Road
- AM & PM – Westbound SR-84 between I-280 and Alameda de Las Pulgas
- AM – Westbound SR-92 between I-280 and US-101
- PM – Eastbound SR-92 between US-101 and Alameda County Line

It is noted that twelve (12) CMP segments had deficient level of service (without interregional travel exemptions) in both the AM and PM peak periods. Four (4) segments had deficient LOS in the PM peak period only.

For the 2000 HCM Method, which calculates an average control delay (expressed in seconds per vehicle), LOS ratings resulting from the 2019 monitoring when compared to the 2017 monitoring program are as follows: Intersections 1, 5, and 14 are operating at standard and should be monitored to avoid exceeding the established LOS standard. Intersections 11 and 13 are operating at LOS F which is the standard at those locations but should be evaluated for possible improvements.

Many San Mateo County jurisdictions have been identified as being connected to these segments. This number will increase substantially when the jurisdictions not physically connected to these segments but contributing 10% of the offending traffic are also included. It is likely that many jurisdictions will have to participate in multiple deficiency plans because of the traffic contributed by that jurisdiction to the deficient locations in several areas.

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 and the County - from having to develop and implement individual deficiency plans for current Level of Service (LOS) changes and any that may be detected in future years. An updated executive summary of the CRP is included below.

San Mateo County Congestion Relief Plan (Deficiency Plan)
This Congestion Relief Plan is necessary because several locations throughout the County have been determined through traffic counts to have congestion that exceeds the standards that were adopted by C/CAG as part of the Congestion Management Program. Although the Plan is a legal requirement and enforceable with financial penalties, it is more important that the Plan be viewed as an opportunity to make a real impact in congestion that has been allowed to go unchecked for many years. A key factor in developing the Plan has been for C/CAG to respect and support the economic development done by local jurisdictions to make San Mateo County prosperous and to ensure a sound financial base to support local government. Economic prosperity however, has created severe traffic problems, which if not properly addressed, will threaten that same prosperity. Therefore, this Plan aims to find ways to improve mobility Countywide and, in every jurisdiction, while not putting a halt to this economic growth.

The Plan, which was initiated in July 1, 2002 and updated July 1, 2019, will relieve all San Mateo County jurisdictions - 20 cities and the County - from having to fix the specific congested locations that triggered the development of this Plan, and any new ones that may be detected for the next four years.

The following elements, which were updated and effective as of July 1, 2019 through June 30, 2023 through a C/CAG Board approval on May 9, 2019, are intended to be a comprehensive package of policies and actions that together will make a measurable impact on current congestion and slow the pace of future congestion:

1. Local Transportation Services Program

The current Employer-Based Shuttle Program and Local Transportation Services Program primarily funded employer or community shuttles through a competitive process and required a 50% match from the project sponsor. Originally this program was the only available source of funds for shuttle services. Today, San Mateo County Transportation Authority (TA) has a robust fund source dedicated to fund shuttles and the funds for this program may be better spent in exploring new emerging mobility options.

In consideration of this, the proposed program is modified to include innovative programs and emerging mobility options that facilitate local transportation services and will reduce congestion. Examples of emerging mobility options include autonomous shuttles/ vehicles, and shared economy mobility services.

The state and bay area region are beginning to focus more on vehicle miles traveled (VMT) impacts and the links between housing and transportation. To accommodate this new focus, Program 4 - “Linking Transportation and Land Use” has redefined several sub-items highlighted below.

4A. Innovative Trip Reduction Strategies and Major Corridors Studies

This program was originally designed to provide local matching funds to incentivize planning and facilitate implementation of El Camino Real "Grand Boulevard Initiative" type projects, consistent with C/CAG goals and policies. Under the 2011 reauthorization, this program was expanded to apply to other major corridors to address traffic congestion and to support the economy by enhancing the movement of people and goods. As part of the 2011 reauthorization, the addition of innovative strategies to reduce auto commute trip demands, by partnering with other public or private entities was added.

There has been increased interest in the recent C/CAG carpool incentive programs. This authorization would modify the program to promote and deploy more innovative projects and programs that serve to make travel on major corridors more reliable by increasing person throughput on existing facilities and programs that can reduce trips and congestion on the existing system. An example innovative program that was previously funded under this program was the highly successful pilot Carpool Program that has been modified and continues as Carpool 2.0. It is anticipated that implementation of a carpool incentive program would continue in the future.

A US 101- Mobility Action Plan (MAP) is currently being developed by five partners, SamTrans, C/CAG, San Francisco County Transportation Authority (SFCTA), Santa Clara Valley Transportation Authority (VTA), Metropolitan Transportation Commission (MTC), and in coordination with San Mateo County Transportation Authority (SMCTA), Caltrans, and Transform. The goal of the MAP is to build on infrastructure and mobility improvement already planned and identify near-term policy changes and programs that address unreliable and inequitable mobility challenges on the corridor today. It is anticipated that some programs developed as part of this effort could be implemented under this program.

This authorization proposes to remove the corridor planning incentive and expand innovative strategies that reduce auto commute trip demands and/ or address mobility deficiencies on major corridors, in partnership with other public or private entities. The annual fund level for this program is currently $200,000. It is proposed that the new authorization level be reduced to $150,000.

4B. Transportation Improvement Strategies to Reduce Green House Gases.

The Transportation Improvement Strategies to Reduce Green House Gases is a program to provide matching funds to implement countywide or regionally significant transportation projects that reduce greenhouse gases.

Previous match contributions made under this program included: contributing $80,608 in matching funds to develop an Alternative Fuel Readiness Plan (AFRP) for San Mateo County, contributing $25,000 towards a Bay Area Air Quality Management District (BAAQMD) Regional Bike-sharing Pilot Program, and contributing $25,000 towards ad SamTrans "Making the last Mile Connection Pilot Program."

This reauthorization proposes to modify the purpose of this section to implement or contribute funds towards Green House Gases related programs and projects. These include but are not limited to a) developing tools to assist member agencies and project partners with SB 743 compliance, to b) provide grant writing technical assistance to member agencies for appropriate

Federal, State, or other external competitive grant funds, and c) to evaluate performance measures identified in the San Mateo Countywide Transportation Plan (SMCTP) 2040 Action Plan and develop feasible plans to track performance measure.

a) In September 2013, the State Legislature passed into law SB 743, which required agencies to change the significance metric used to assess the transportation impacts of land use and transportation projects under CEQA (California Environmental Quality Act) from LOS (automobile delay, Level of Service) to VMT (Vehicle Miles Traveled). The intent was to align other statewide goals, such as greenhouse gas emissions reduction and Sustainable Communities Strategies (SCS) that encourage multimodal development and promote infill opportunities in dense urban areas.

   OPR (Governor's Office of Planning Research) was charged with developing guidelines to implement SB 743. OPR published the final CEQA Guidelines on December 28, 2018 with statewide application to begin on July 1, 2020.

   C/CAG hosted several working group meetings with staff member jurisdictions and there is consensus to have C/CAG take a lead in helping agencies move towards the use of VMT as a CEQA metric and to work with city staff to develop a consistent methodology.

b) Over the years, there have been numerous transportation and other funding opportunities offered at the state, federal, or regional levels on a competitive basis. However, projects sponsored by San Mateo County jurisdictions have not been as competitive due to various reasons, one of which is the lack of availability of staff resources needed to understand and comply with grant application requirements, as well as to prepare grant applications. In May 2018 C/CAG approved of a pilot Grant Writing Technical Assistance Program (GW-TAP). The concept was well received by committees and the Board.
c) San Mateo Countywide Transportation Plan 2040 (SMCTP 2040), was adopted by the C/CAG Board of Directors on February 9, 2017. The SMCTP 2040 serves as a long-range, comprehensive transportation planning document by establishing both a coordinated planning framework and systematic transportation planning process for identifying and resolving transportation issues. A SMCTP 2040 Action Plan was developed as a living document which serves as a roadmap for implementing and tracking progress of the SMCTP 2040. The Action Plan included considerations for procuring, tracking, and evaluating performance measures.

The annual fund level for this program is currently set at $100,000. It is proposed that the new authorization be set at $150,000.

4C. Climate Change and Resiliency Planning

There is a need to expand planning efforts to include sea level rise effects on the transportation facilities in San Mateo County. The County of San Mateo finalized a Sea Level Rise Vulnerability Assessment in 2018. In 2019, the Office of Sustainability launched Climate Ready SMC to share best practices for climate change preparedness with municipalities and agencies, non-profits, private development, and businesses. This work, funded by Caltrans, will finish in 2020 and will result in improved climate models to address transportation risk including

vulnerability to temperature and heat, wildfires, riverine flooding and how these risks impact urban heat islands, health and disadvantaged communities. The work will also result in a menu of adaptation strategies, policy and planning templates to allow the County and Cities to effectively prepare for transportation related climate impacts.

This program would be modified to incorporate sea level rise and adaptation in transportation planning efforts. The annual fund level for this program is currently $150,000. It is proposed that the new authorization remain at the same level of funding.

4D. Sustainable Communities Strategy (SCS) Activities, Linking Housing with Transportation

Beginning in FY2005-06, C/CAG has programmed funds to support various activities that address the linkage between housing and transportation. Over these years, the Board has reviewed and approved staff proposals for housing/transportation-related activities in four broad areas: policy leadership; promotion of housing in transit corridors; cost-effective responses to State regulatory mandates; and local funding to meeting housing goals. The intent of all the proposed programs was to provide tools, technical support and financial incentives to help member jurisdictions plan and produce housing in transit corridors, downtowns, station areas and El Camino Real types of corridors, and promote densities that support frequent mass transit and reduce climate impacts while strengthening local neighborhoods and the regional economy.

Measures supported by C/CAG through the years have included the Transit Oriented Development Housing Incentive Program and the Grand Boulevard Multimodal Transportation Corridor Plan.

Since 2006, C/CAG and the County Department of Housing (DOH) have co-sponsored the 21 Elements project which assists all jurisdictions in San Mateo County to update their respective Housing Elements and share information on housing policies and programs.

The 21 Elements project is a cost-effective countywide work program that assists all jurisdictions to implement Housing Elements and develop effective on-going housing implementation policies and programs. In past years, C/CAG and the San Mateo County Department of Housing (DoH) have been co-funding the 21 Elements project, with DoH acting as the lead agency in managing the consultant contract. Staff recommends the continuation of this cooperative partnership to support the 21 Elements.

In 2008, state law SB 375 was approved which required the Bay Area Region to develop a Sustainable Communities Strategy (SCS), which must factor in and integrate land use planning, transportation policies, and transportation investments. The California Department of Housing and Community Development (HCD) identifies the total housing need for the San Francisco Bay Area for an eight-year period. Association of Bay Area Governments (ABAG) must then develop a methodology to distribute this need to local governments in a manner that is consistent with the development pattern included in the Sustainable Communities Strategy (SCS).

In 2005, C/CAG championed an amendment of State law related to Housing Elements to enable formation of county-level subregions to allocate planned housing growth (CA Government Code

§65584.03). C/CAG has utilized the Sub-RHNA process in two rounds of RHNA to date. The 6th Cycle of RHNA and housing element updates must be completed by January 2023 for the planning period of January 2023 to 2031. It is anticipated that work to initiate the next round of Sub-RHNA and housing element updates will need to factor in new State law requirements.

There is also a strong sentiment in the region and the state to condition housing production to transportation funding. In 2019, over 200 bills were introduced to address the "housing crisis." Staff recommends utilizing the 21 Elements to assist C/CAG with the analysis and implementation of any new State laws related to land use, housing and other inter-related issues.

Funding is proposed in anticipation of activities associated with implementing the Sub-RHNA and assisting member agencies in developing their housing elements. Program funds would also be used in part to, analyze new housing legislation, assist member agencies with implementation of new state requirements, and promote best practices to stimulate infill housing in the transit corridors.
The annual fund level for the program is currently $100,000. In anticipation of the workload associated with the new RHNA cycle and implementation of new requirements, it is proposed that the new authorization be set at $150,000.

Total Funding

Due to the varied expenditure needs from year to year, the current Congestion Relief Plan provides flexibility to shift funds between the sub-items under Program 4 (Linking Transportation and Land Use) as long as the overall total for Item 4 does not exceed $600,000, subject to C/CAG annual budget approval.

The 2015 reauthorization of an annual $1.85 million in member assessments for the Congestion Relief Plan was used to finance the programs shown on the table below. It is proposed that the reauthorization of this Plan be held at the same member assessment level and that the Plan include the revised programs as shown on the table below.

	2015-2019 Proposed Plan				2019-2023 Proposed Plan		
1	Employer-Based Shuttle and Local Transportation Services Program		$500,000	1	Local Transportation Services Program		$500,000
2	Travel Demand Management		$550,000	2	Travel Demand Management		$550,000
3	Intelligent Transportation Systems (ITS)/ Traffic Operational Improvement Strategies		$200,000	3	Intelligent Transportation Systems (ITS)/ Traffic Operational Improvement Strategies; Express Lane operations support; Smart Corridor Expansion		$200,000
4	Linking Transportation and Land Use:		$600,000	4	Linking Transportation and Land Use:		$600,000
	4A. Innovative Trip Reduction Strategies and Major Corridors Studies	$250,000			4A. Innovative Trip Reduction Strategies (Carpool 3.0)/ Mobility Action Plan	$150,000	

	4B. Transportation Improvement Strategy	$100,000			4B. Transportation Improvement Strategy to reduce GHG (GW TAP/743 toolkit/ Performance assessments)	$150,000	
	4C. Climate Action Plan Activities	$150,000			4C. Climate Change and Resiliency Planning (RICAPS, Climate Action Plan, Sea level rise planning for Trans. Facilities)	$150,000	
	4D. Sustainable Communities Strategy (SCS) Activities, Linking Housing with Transportation.	$100,000			4D. Sustainable Communities Strategy (SCS) Activities, Linking Housing with Transportation. (21 Elements/ Sub-RHNA/ Legislation compliance)	$150,000	
	Total		$1,850,000		Total		$1,850,000

Summary

The initial Plan was in effect from FY 2002/03 thru FY 2006/07 and was reauthorized in February 2007 for a four-year period beginning in FY 2006/07 thru FY 2010/11. The Plan has proven beneficial to the Cities and County over the past eight years and therefore was reauthorized a second time in December 2010 (amended on June 24, 2012) for an additional four-year period for FY 2011/12 to FY 2014/15. On May 9, 2019, the Plan was reauthorized for four additional years from July 1, 2019 to June 30, 2023. Under the latest reauthorized Plan, the cities and the County were assessed $1.85 million on an annual basis for the four-year period of the Plan, starting from July 1, 2019. This amount, which remains unchanged from the previous period, represented each jurisdiction's share of the total cost of the Plan based on that jurisdiction's percent of automobile trips both generated and attracted as a percent of the countywide total. It is anticipated that the local jurisdiction's contribution will be more than quadrupled because of the generation of matching funds to support the Plan. As a participant in this Plan the cities and the County will be exempt from any deficiency planning requirements for the four-year period, that are the result of a roadway segment or intersection exceeding the Level of Service Standard set forth in the Congestion Management Program.

Table IX: Congestion Relief Plan Assessment

	Population (as of 1/1/18)	% of Total Population	2015 % of Trip Generation	Average of Population & Trip Gen %	Member Assessment
Atherton	7,135	0.92%	0.88%	0.90%	$16,672
Belmont	27,388	3.54%	3.22%	3.38%	$62,501
Brisbane	4,692	0.61%	0.78%	0.69%	$12,828
Burlingame	30,294	3.91%	5.59%	4.75%	$87,901
Colma	1,501	0.19%	0.61%	0.40%	$7,468
Daly City	107,864	13.93%	10.18%	12.06%	$223,029
East Palo Alto	30,917	3.99%	2.27%	3.13%	$57,896
Foster City	33,490	4.33%	3.96%	4.14%	$76,658
Half Moon Bay	12,639	1.63%	1.79%	1.71%	$31,674
Hillsborough	11,543	1.49%	1.09%	1.29%	$23,837
Menlo Park	35,268	4.56%	5.54%	5.05%	$93,389
Millbrae	22,854	2.95%	2.97%	2.96%	$54,734
Pacifica	38,418	4.96%	4.06%	4.51%	$83,443
Portola Valley	4,767	0.62%	0.60%	0.61%	$11,235
Redwood City	86,380	11.16%	12.50%	11.83%	$218,806
San Bruno	46,085	5.95%	5.89%	5.92%	$109,504
San Carlos	29,897	3.86%	4.04%	3.95%	$73,055
San Mateo	104,490	13.50%	14.99%	14.24%	$263,494
South San Francisco	67,082	8.67%	8.64%	8.65%	$160,055
Woodside	5,623	0.73%	0.61%	0.67%	$12,405
San Mateo County	65,828	8.50%	9.81%	9.16%	$169,417
Total	**774,155**	**100%**	**100%**	**100%**	**1,850,001**

Chapter 8 – Seven-Year Capital Improvement Program

Discussion

The purpose of the CIP is to identify transportation system improvements, (i.e., projects) which would maintain or improve traffic levels of service, transit services, and mitigate regional transportation impacts identified through the Countywide Transportation Plan and the Land Use Impact Analysis Program. 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 Metropolitan Transportation Commission in the Bay Area and then to the California Transportation Commission (CTC) and/or the Federal Highway Administration so that funding from State and Federal programs will be allocated for the projects included in the CIP.

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 funding sources available for the current CMP. Although these funding sources provide the bulk of the funding for San Mateo County transportation projects, it is important to understand that these funding sources are limited and will not fully address the CIP needs as presently identified. C/CAG will investigate possible means of dealing with the shortage.

Federal Transportation Funding

In the past, federal funds have been derived from the Transportation Equity Act for the Twenty-First Century (TEA-21) which included two primary financing programs for local projects: the Surface Transportation Program (STP) and the Congestion Mitigation and Air Quality Program (CMAQ).

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

State Transportation Funding

State funding for local transportation projects is available primarily through the State Transportation Improvement Program (STIP). It is anticipated that the California Transportation Commission (CTC) will adopt the 2020 STIP in March 2020. C/CAG recommends a list of projects to the Metropolitan Transportation Commission (MTC) for incorporation into a regional recommendation (also known as the Regional Transportation Improvement Program (RTIP)) to the California Transportation Commission (CTC). The C/CAG Board adopted list of projects in San Mateo County for the 2020 STIP is in Table X.

Table X: 2020 State Transportation Improvement Program for San Mateo County

2020 STIP FOR SAN MATEO COUNTY
($1,000's)

		Lead Agency	Rte	PPNO	Project	Total (2018 STIP)	Total (2020 STIP)	(Prior Info Only) 19-20	20-21	21-22	22-23	23-24	24-25	Comments
Adopted in 2018 STIP (Carryover)	Projects	Menlo Park	101	690B	US 101/Willow interchange reconstruction - AB 3090 reimb	8,000		4,000	4,000					
		SM C/CAG	VAR	2140E	Countywide ITS Project - (SSF Smart Corridors expansion)	240		240						
		South San Francisco	VAR	2140E	Countywide ITS Project - (SSF Smart Corridors expansion)	4,058		4,058						SSF will be lead agency to allocate $4,058 (CON)
		SM C/CAG	92	668D	Phase 2 of SR 92 Improvement from I-280 to US 101 - Improvement at the SR 92/US 101 Interchange Vicinity	5,628		2,411		3,217				Push $3,217 to from FY20/21 to FY21/22
		SM C/CAG	101	658D	US 101 Managed Lane Project from Santa Clara County Line to I-380	33,500		16,000	17,500					
		Redwood City	101	692K	Woodside Interchange	8,000				8,000				
		South San Francisco	101	702D	Produce Interchange - Improvements	5,000			5,000					
		SM C/CAG	101/280	658G	ITS Improvements in San Mateo northern cities - (including Daly City, Brisbane, and Colma)	1,600		600		1,000				
		Daly/Bris/Colma	101/280	658G	ITS Improvements in San Mateo northern cities - (including Daly City, Brisbane, and Colma)	6,900					6,900			
		SUBTOTAL - HIGHWAY (FY 2020/21 thru 2024/25) from 2018 STIP:				72,926		27,309	26,500	12,217	6,900			
	Admin	MTC		2140	Planning, programming, and monitoring (MTC)	246			79	82	85			
		SM C/CAG		2140A	Planning, programming, and monitoring (CMA)	787			263	262	262			
		SUBTOTAL - PLANNING/ADMIN FY 2020/21 thru 2024/25) from 2018 STIP:				1,033			342	344	347			
Proposed for 2020 STIP	Projects	SM C/CAG	101	NEW	US 101 Managed Lane Project North of I-380		7,177					7,177		
		SUBTOTAL - HIGHWAY (2020/21 thru 2024/25):					7,177					7,177		
	Admin	MTC		2140	Planning, programming, and monitoring (MTC)		179					88	91	
		SM C/CAG		2140A	Planning, programming, and monitoring (CMA)		247					46	201	
		SUBTOTAL - PLANNING/ADMIN (2020/21 thru 2024/25):					426					134	292	
		TOTAL (FY 2020/21 thru 2024/25):				73,959	7,603	27,309	26,842	12,561	7,247	7,311	292	

Other Funding Sources for San Mateo County

Transportation Projects

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 San Mateo County Transportation Authority 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.

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 - Programs to enhance air quality funded by increased vehicle registration fees (see Chapter 5)
- Bridge Replacement and Rehabilitation funds
- Proposition 108 - Passenger Rail and Clean Air Bond Act of 1990

- Proposition 116 - Clean Air and Transportation Improvement fund
- Regional Bridge Tolls
- Transportation Development Act funds
- Transit Capital Improvement funds
- Transit operator funds

Goals and Objectives Established in the Regional Transportation Plan –In July 2017 the Metropolitan Transportation Commission (MTC) adopted Plan Bay Area 2040, which represents the transportation policy and action statement of how the Bay Area will approach the region's transportation needs over the next 25 years. Plan Bay Area is a vision of what the Bay Area transportation network should look like in 2040. 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 the Association of Bay Area Governments (ABAG), the Bay Area Air Quality Management District (BAAQMD), and the Bay Conservation and Development Commission (BCDC) and in collaboration with Caltrans, the nine county-level Congestion Management Agencies (CMAs) or substitute agencies, over two dozen Bay Area transit operators, and numerous transportation stakeholders and the public. At the core of Plan Bay Area is a vision of what the Bay Area transportation network should look like in 2040. The purpose and goals of the Plan Bay Area provide the framework for this vision. 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. A subsequent update called Plan Bay Area 2050 is currently in development.

Plan Bay Area 2040 incorporates a set of performance targets for each performance objective as quantifiable measures against which progress may be evaluated, as shown below:

Goal	#	Target
Climate Protection	1	Reduce per-capita CO2 emissions from cars and light duty trucks by 15%
Adequate Housing	2	House 100% of the region's projected growth by income level without displacing current low-income residents and with no increase in in commuters over the Plan baseline year
Healthy & Safe Communities	3	Reduce adverse health impacts associated with air quality, road safety, and physical inactivity by 10%
Open Space & Agricultural Preservation	4	Direct all non-agricultural development within the urban footprint (existing urban development and UGBs)
Equitable Access	5	Decrease the share of lower-income residents' household income consumed by transportation and housing by 10%
	6	Increase the share of affordable housing in PDAs, TPAs, or high opportunity areas by 15%
	7	Do not increase the share of low- and moderate-income renter households in PDAs, TPAs, or high-opportunity areas that are at risk of displacement.
Economic Vitality	8	Increase by 20% the share of jobs accessible within 30 minutes by auto or within 45 minutes by transit in congested conditions
	9	Increase by 38% the number of jobs in predominantly middle-wage industries
	10	Reduce per-capita delay on the Regional Freight Network by 20%
Transportation System Effectiveness	11	Increase non-auto mode share by 10%
	12	Reduce vehicle operating and maintenance costs due to pavement conditions by 100%
	13	Reduce per-rider transit delay due to aged infrastructure by 100%

Source: Final adopted goals and performance targets for Plan Bay Area 2040.

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 regional transportation plan (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 percent per capita reduction by 220 and a 15 percent per capita reduction by 2035.

Sustainable Communities Strategy (SCS)

The region is engaged in developing a detailed 25-year transportation investment and land-use strategy for 2015-2040 that will be the region's first plan to incorporate a Sustainable

Communities Strategy (SCS). The SCS promotes compact, mixed-used commercial and residential development that is walkable and bikeable and close to mass transit, jobs, schools, shopping, parks, recreation and other amenities. The SCS is known as Plan Bay Area, the region's Regional Transportation Plan (RTP) and has been developed in an integrative process with the Bay Area's regional and local partners.

The SCS, adopted in 2013, will be an integrated long-range land use and transportation plan for the nine-county region. 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.

The Bay Area 2010 Clean Air Plan (CAP)

The Bay Area 2010 Clean Air Plan (CAP) provides a comprehensive plan to improve Bay Area air quality and protect public health. The CAP defines a control strategy that the Air District and its partners will implement to: 1) reduce emissions and decrease ambient concentrations of harmful pollutants; 2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and 3) reduce greenhouse gas (GHG) emissions to protect the climate.

Chapter 9 – Database and Travel Model

Legislative Requirements

California Government Code section 65089 (c) requires that every Congestion Management Agency (CMA), in consultation with the regional transportation planning agency, cities, and the county, develop a uniform data base to support a countywide transportation computer model that can be used to project traffic impacts associated with proposed land developments. Each CMA must approve computer models used for county subareas, including models used by local jurisdictions for their own land use impact analysis purposes. All models must be consistent with the modeling methodology and data bases used by the regional transportation planning agency.

Discussion

This chapter describes the San Mateo City/County Association of Governments (C/CAG) Congestion Management Program (CMP) Transportation Model and Database Element. It contains the following sections:

- C/CAG Transportation Model and Database Legislative Requirements
- Overview of the C/CAG CMP Transportation 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 transportation model (CMP model) and are typically updated based on updates to the regional socioeconomic data sets provided by the Association of Bay Area Governments (ABAG) and through periodic updates of the transportation networks through development of long-range planning efforts and for specific projects and corridors.

The CMP model serves several purposes:

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

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:

1. The CMP must develop a uniform database and model for use throughout the County
2. The CMP must approve local jurisdictions' computer models that are used to determine transportation impacts of land use decisions on the CMP System
3. The CMP database and model must be consistent with the Metropolitan Transportation Commission (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 Congestion Management Program. The CMP model is used to assist in the land use impact analysis program, evaluate projects for inclusion in the Capital Improvement Program, 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 CMP 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.

MTC Regional Transportation Model — The Metropolitan Transportation Commission (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. The C/CAG models, 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 the Association of Bay Area Governments (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 2013 (P2013). The P2013 series provide forecasts at five-year intervals from year 2010 to the year 2040. The C/CAG CMP 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 CMP 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.

Overview of the C/CAG CMP Transportation Model

The current C/CAG model is based on 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 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 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 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 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 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 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 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. 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 Airport (SFO) and San Jose/Moneta 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)Plan Bay Area. 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 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 submodes were not included in the model specification. 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.

Peak Hour and Peak Periods for Highway Assignments - The C/CAG model uses a three-hour peak period (6 AM to 9 AM) 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 (5 AM to 9 AM and 3 PM to 7 PM, respectively – each coincident with the time periods of operation for carpools), 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, 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 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 2013 Traffic and Transit Volumes - The current C/CAG 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 (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 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 Congestion Management Program, member agencies must ensure that their models are consistent with the CMP model. C/CAG encourages the use of the C/CAG 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 models.

C/CAG must also ensure that the C/CAG CMP models are 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 models 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 Congestion Management Program (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 Level of Service Standards
- Trip Reduction and Travel Demand Element
- Land Use Impact Analysis Program
- Deficiency Plans

The processes to be applied to monitor each of these elements are described in this chapter. A jurisdiction may be found in nonconformance with the CMP if these processes are not adhered to.

The Congestion Management Program (CMP) will be updated every two years. Some of the issues to be addressed in future updates are also discussed in this chapter.

Discussion
The CMP legislation requires that all elements of the CMP be monitored on at least a biennial[17] basis by the designated Congestion Management Agency. The specific language regarding monitoring states that:[18]

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

(1) Consistency with levels of service and performance standards, except as provided in subdivisions (b)[19] and (c).[20]
(2) Adoption and implementation of a trip reduction and travel demand ordinance and program.
(3) Adoption and implementation of a program to analyze the impact of land use decisions, including the costs associated with mitigating these impacts.

The monitoring program will be used by the City/County Association of Governments of San Mateo County (C/CAG) to determine conformance with the San Mateo County CMP. If a local jurisdiction were not in conformance with the standards and requirements of the CMP, then

[17]According to AB 1963.
[18]California Government Code Section 65089.3 (a).
[19]Subdivision (b) exempts CMP Roadway System segments or intersections for which the CMA (C/CAG) has approved a Deficiency Plan from having to comply with the CMP's Traffic LOS Standards. For more information on Deficiency Plans, see Chapter 7.
[20]Subdivision (c) exempts certain types of traffic and situations from the Traffic LOS Standards (e.g., interregional traffic, construction and maintenance projects, freeway ramp metering, traffic signal coordination, traffic generated by low-income housing, traffic generated by high-density residential development, and mixed-use development near rail passenger stations).

C/CAG would make a finding of nonconformance. The CMP legislation describes the process for determining nonconformance as follows:[21]

(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 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 apportionment 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.

As stated above, 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) Moving Ahead for Progress in the 21st Century Act (MAP- 21) (previously TEA-21) 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.

Monitoring the CMP

Traffic Level of Service Standards Monitoring Process

The adopted Traffic Level of Service (LOS) Standards are presented in Chapter 3. The monitoring process will identify if there are any locations on the CMP Roadway System (see Chapter 2) that do not meet their LOS standard. Deficiency plans will then need to be prepared for these locations. As noted in Chapter 7, a total of one deficient segment have been identified through the 2011 Monitoring. These deficiencies will be addressed through the Countywide Deficiency Plan.

At this time C/CAG is responsible for all traffic level of service monitoring activities. Traffic counts and LOS calculations will be conducted for the CMP roadway segments and designated intersections at least every two years. C/CAG has adopted to monitor the performance of the CMP segments and intersections during the spring of each odd year.

Trip Reduction and Travel Demand Management Monitoring Process

This element of the CMP is described in Chapter 5. The primary requirements of the legislation specifying the preparation of CMPs are that the CMP include a program that promotes alternative transportation methods.

Land Use Impact Analysis Program Monitoring Process

The procedures for the Land Use Impact Analysis Program is described in Chapter 6 and

[21]California Government Code Section 65089.5, subsections (a) and (b).

Appendix I.

Deficiency Plan Monitoring Process

The deficiency plan monitoring process is described in Chapter 7. C/CAG must also monitor deficiency plans to establish:

- Whether they are being implemented according to the schedule described in their specific action plans, and
- Whether changes have occurred which require modifications of the original deficiency plan or schedule.

Findings of Nonconformance

During the monitoring process, C/CAG may determine that a local jurisdiction (a city or the County) is not conforming with the requirements of the CMP. C/CAG can reach this conclusion only after holding a noticed public hearing. C/CAG will notify the local jurisdiction(s), in writing, of the areas of nonconformance. The affected local jurisdiction(s) will then have 90 days after receipt of the written notice of nonconformance to gain compliance. If they are not able to do so, C/CAG will make a finding of noncompliance and will submit that finding to the California Transportation Commission and to the State Controller. Upon receipt of the finding, the State Controller will withhold the apportioned Proposition 111 fuel tax subventions and MAP-21 funds to the nonconforming local jurisdiction(s) until the Controller is notified by C/CAG that the jurisdictions are in conformance with the CMP.

Chapter 11 – Measure M - $10 Vehicle Registration Fee Program

Background / Discussion

Senate Bill 83 (SB 83), authored by Senator Hancock and signed into law, 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.

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 and the County. Collection of the $10 fees began May 2011.

On May 12, 2016, the C/CAG Board approved Resolution 16-11 authorizing the adoption of the Measure M 5-Year Implementation Plan for Fiscal year 2017-2021. Under the Expenditure Plan, 50% of the net proceeds will be allocated to cities 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. An Implementation Plan was developed to provide detailed program information. The Plan defines the percentages breakdown and estimated revenue for the respective categories and programs as follows:

Table XI: Measure M Expenditure Plan

	Approved for FY 2017-2021		
Category / Programs	Allocation	Annual Revenue (Million)	5-Year Revenue (Million)
▪ Program Administration	Up to 5%	$0.34	$1.70
▪ Local Streets and Roads	50% of net revenue	$3.18	$15.90
▪ Transit Operations and/or Senior Transportation*	22%	$1.40	$7.00
▪ Intelligent Transportation System (ITS) and Smart Corridors*	10%	$0.64	$3.18
▪ Safe Routes to Schools (SR2S)*	6%	$0.38	$1.90
▪ National Pollutant Discharge Elimination System (NPDES) and Municipal Regional Permit (MRP)*	12%	$0.76	$3.82
Total		$6.70	$33.50

* 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 programs and projects 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

The intent of the Traffic Impact Analysis (TIA) policy is to provide uniform procedures to analyze traffic impacts on the Congestion Management Program (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.